



Universiteit Utrecht

EIA system performance explained by actor capacity A comparative case study of EIA on gold mining in Ghana

University of Utrecht
Faculty of Geosciences
MSC Sustainable Development



Name:	Bart van der Leest
Student number:	3327922
Master track	Environmental Policy and Management
Supervisor	Dr. H. Runhaar
Second reader:	Dr. F. Van Laerhoven
Date of submission	November 28 2012
ECTS to be obtained	45 ECTS

Acknowledgment

First and foremost I would like to thank the people in Ghana that have contributed to my Master thesis research. My gratitude goes out to the EPA staff at the headquarters and regional offices, for their time, transparency, and support in collecting the data that is used in this research: without your support, this thesis could not have been written. Furthermore I would like to thank the ARL staff for accepting my requests for interviews, and for helping me get in touch with the community of Salman. Also my thanks go out to the Chief of Salman and the members of the Resettlement Negotiation Committee and the Farmer's Representative for receiving me in their homes and providing their insights to my questions. My thanks furthermore go out to the people that have responded to my questionnaires, for providing insights that I would not have been able to obtain otherwise.

I would also like to express my gratitude to the Netherlands Commission for Environmental Assessment for their support to this research, both financially and by taking the time to provide feedback on my findings. A special thank you goes out to drs. Arend Kolhoff, Technical Secretary at the NCEA Foreign Department for his enthusiastic support and our sparring session.

A heartfelt thank you goes out to dr. Hens Runhaar, for his invaluable feedback during the writing of this thesis. Your suggestions have helped me navigate some difficult choices and motivated me to keep improving my work. My thanks also go out to dr. Frank van Laerhoven for his feedback on my research proposal, which greatly improved my focus before going to Ghana to collect my data.

A special thank you goes out to my fellow student, research partner and travel companion Gabi Sonderegger, for her work on the development of the performance assessment framework used in this research, but also for being a great travel mate during our stay in Ghana.

Last but definitely not least, many thanks to my beloved girlfriend Petra Novakova for her feedback on my writing and for bearing with me during the difficult times while writing this thesis.

ABSTRACT

Environmental Impact Assessment (EIA) is a “systematic and integrative process” (Wood, 2003) in which an investor, the proponent, is legally obliged to produce an assessment of the environmental (and in some cases social and/or economical) impacts of a proposed activity in a report to the competent authority containing project design details and mitigation measures to prevent or reduce negative impacts. In this way EIA aims to ensure that environmental implications of decisions are taken into account before decisions are made.

This research focuses on the hypothesis by Kolhoff et al. (2009) that the low performance of the EIA system in developing countries is a result of the gap between the ambitions as laid down in legislation and the capacity of actors in the EIA system. Ghana is selected as the focus country for this research because, as a low to middle income country with an ambitious EIA legislation but low EIA performance (Kolhoff et al., 2012), it suits the aims of this research. The central research question for this study is: *To what extent do actor capacities influence EIA system performance in Ghana?*

The EIA system is defined in this research as the EIA regulations and the capacities of the actors involved (Kolhoff et al., 2009). EIA system performance is measured in terms of achieving the goals of EIA: to contribute to well-informed decision-making and environmental protection. The definition of capacity for this research is formulated as the set of attributes or abilities that help an actor to achieve its goals. The actor capacities identified in this research are: ownership, power, knowledge, resources, network, leadership and adaptability.

This research focuses on establishing a measurable relation between the effect of actor capacities on the performance of the EIA system in Ghana. After establishing the conceptual framework and operationalizing the conceptual framework in relation to the Ghanaian EIA process, two case studies are analyzed using the operationalized conceptual framework: the Ahafo South project and the Nzema project, two large-scale gold mines in Ghana.

Based on a comparison of the results for the two cases and an analysis of current developments in Ghana’s mining sector, the main conclusions with regard to the effect of actor capacity on EIA performance are that the capacity of ownership, defined as the ability of an actor to identify with EIA process goals, is a key determinant with regard to EIA system performance. Furthermore, it is established that, when an actor possesses limited knowledge, resources and/or network capacity, the actor is hampered in its goal attainment. With regard to leadership, a collaborative interaction style is associated with high EIA system performance, though this is a co-varying relationship rather than an explanatory relationship. With respect to adaptability it is shown that if an actor, when faced with resistance, exhibits a shift in the use of knowledge, resources and/or network, then this actor shows high goal attainment. If the actor’s goals are aligned with EIA process goals, the resultant effect is high EIA performance; if the actor is not oriented towards EIA goals, the effect is low EIA performance.

Key words: Capacity, EIA, performance, capacity assessment, Ghana, gold mining

TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION	10
1.1 EIA PERFORMANCE AND EIA CAPACITY	10
1.2 GOAL AND SCOPE OF THE RESEARCH	12
1.3 RESEARCH QUESTION AND SUB-QUESTIONS	13
1.4 SCIENTIFIC AND SOCIETAL RELEVANCE	13
1.5 OUTLINE OF THE THESIS	14
CHAPTER 2 RELATING ACTOR CAPACITIES TO EIA SYSTEM PERFORMANCE	16
2.1 EVALUATING EIA SYSTEM PERFORMANCE	16
2.2 ASSESSING ACTOR CAPACITY	17
2.2.1 DEFINITION OF CAPACITY	17
2.2.2 EXISTING CAPACITY ASSESSMENT METHODS	18
2.3 ACTOR CAPACITY IN RELATION TO EIA SYSTEM PERFORMANCE	19
2.3.1 IDEAL CONDITIONS AND CAPACITIES FOR EIA PERFORMANCE	19
2.3.2 IDENTIFYING ACTOR CAPACITIES	20
2.3.3 SEPARATING THE INFLUENCE OF CAPACITIES AND CONTEXT FACTORS	20
2.3.4 CAPACITIES IN THE PRACTICE OF THE EIA PROCESS	22
2.3.4.1 Ownership	22
2.3.4.2 Power	23
2.3.4.3 Leadership	24
2.3.4.4 Adaptability	26
2.3.5 GOAL ACHIEVEMENT AND EIA SYSTEM PERFORMANCE	27
2.3.6 A CONCEPTUAL MODEL OF ACTOR CAPACITY IN RELATION TO EIA SYSTEM PERFORMANCE	27
2.4 CAPACITY MECHANISMS AND THEIR INFLUENCE ON EIA SYSTEM PERFORMANCE	29
2.4.1 OWNERSHIP HYPOTHESES	29
2.4.2 LEADERSHIP HYPOTHESES	31
2.4.3 ADAPTABILITY HYPOTHESES	31
CHAPTER 3 METHODOLOGY	33
3.1 COMPARATIVE CASE STUDY DESIGN	33
3.1.1 CHOICE FOR A COMPARATIVE CASE STUDY DESIGN	33
3.1.2 COUNTRY, SECTOR AND CASE SELECTION	34
3.2 DATA COLLECTION METHODS	35
3.2.1 LITERATURE SURVEY	35
3.2.2 EPA CASE FILE CONTENT ANALYSIS	35
3.2.3 INDIVIDUAL INTERVIEWS AND FOCUS GROUP DISCUSSIONS	36

3.2.3.1 The Nzema interviews and focus group discussions	38
3.2.3.2 The Ahafo South interviews and questionnaires	39
3.2.4 PERSONAL OBSERVATIONS AND INFORMAL DATA GATHERING	40
3.2.5 VALIDATION WORKSHOPS	40
3.3 EIA PERFORMANCE OPERATIONALIZATION	41
3.3.1 PROCEDURAL STEPS IN GHANA’S EIA REGULATIONS AND PROCEDURAL PERFORMANCE INDICATORS	41
3.3.2 SUBSTANTIVE PERFORMANCE IN GHANA AND SUBSTANTIVE PERFORMANCE INDICATORS	43
3.4 ACTOR CAPACITY OPERATIONALIZATION	46
3.4.1 CAPACITY INDICATORS	46
3.4.2 CONTEXT INDICATORS	49
3.5 DATA ANALYSIS	49
3.6 LIMITATIONS	50

CHAPTER 4 BACKGROUND TO EIA: GOLD MINING IN GHANA **52**

4.1 HISTORY OF GOLD MINING IN GHANA	52
4.2 KEY ACTORS IN THE MINING SECTOR EIA PROCESS IN GHANA AND THEIR MANDATES	54
4.2.1 THE EPA: MANDATE AND REQUIRED CAPACITIES	54
4.2.2 THE PROPONENT: MANDATE AND REQUIRED CAPACITIES	55
4.2.3 THE PROJECT AFFECTED PEOPLES (PAPs): MANDATE AND REQUIRED CAPACITIES	56
4.3 GOLD MINING: ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS	57
4.3.1 GOLD ORE PROCESSING AND ENVIRONMENTAL IMPACTS	57
4.3.2 SOCIO-ECONOMIC IMPACTS FROM GOLD MINING	58

CHAPTER 5 CASE I: NEWMONT’S AHAFO SOUTH PROJECT **60**

5.1 AHAFO SOUTH PROJECT DESCRIPTION	60
5.2 PROCEDURAL EIA PERFORMANCE - AHAFO SOUTH PROJECT	63
5.2.1 PROCEDURAL PERFORMANCE - EIA STAGE – AHAFO SOUTH	64
5.2.2 PROCEDURAL PERFORMANCE – FOLLOW-UP STAGE – AHAFO SOUTH	64
5.3 SUBSTANTIVE EIA PERFORMANCE - AHAFO SOUTH PROJECT	65
5.3.1 SUBSTANTIVE PERFORMANCE– EIA STAGE – AHAFO SOUTH	65
5.3.1.1 Quality and completeness of the EIS	66
5.3.1.2 Quality of the review procedure	68
5.3.1.3 Quality of public participation	68
5.3.1.4 Voluntary design changes	68
5.3.1.5 Environmental permit	68
5.3.2 SUBSTANTIVE PERFORMANCE – FOLLOW-UP STAGE – AHAFO SOUTH	69
5.3.2.1 Quality of compliance and enforcement procedures – Follow-up stage	70
5.3.2.2 Quality of public participation – Follow-up stage – Ahafo South	71
5.3.2.3 Voluntary project design changes due to monitoring – Follow-up stage	72

5.3.2.4 Forced project design changes - Follow-up stage	74
5.3.3 DISCUSSION OF RESULTS: SUBSTANTIVE PERFORMANCE LEVEL AHAFO SOUTH PROJECT	74
5.4 EXPLAINING EIA PERFORMANCE BY ACTOR CAPACITIES FOR THE AHAFO SOUTH PROJECT	77
5.4.1 CAPACITIES AND THE COMPLETENESS AND QUALITY OF THE EIS – EIA STAGE – AHAFO SOUTH	77
5.4.1.1 Ownership and the quality and completeness of the EIS	78
5.4.1.2 Leadership, Adaptability and the quality and completeness of the EIS	80
5.4.1.3 Explanation of the quality and completeness of the Ahafo South EIS	80
5.4.2 EXPLAINING (NON-)COMPLIANCE IN THE FOLLOW-UP STAGE - AHAFO SOUTH	81
5.4.2.1 Actor capacities influencing EIA performance in the Follow-up stage	82
5.4.2.2 Explanation of non-compliance in the Follow-up stage	84
CHAPTER 6 CASE II: ARL’S NZEMA GOLD PROJECT	87
6.1 PROJECT DESCRIPTION	87
6.2 PROCEDURAL EIA PERFORMANCE – NZEMA PROJECT	89
6.2.1 PROCEDURAL PERFORMANCE – EIA STAGE	90
6.2.2 PROCEDURAL PERFORMANCE – FOLLOW-UP STAGE	90
6.3 SUBSTANTIVE EIA PERFORMANCE – NZEMA PROJECT	90
6.3.1 SUBSTANTIVE EIA PERFORMANCE – EIA STAGE	90
6.3.1.1 Quality of screening and scoping	91
6.3.1.2 Completeness and quality of the EIS	92
6.3.1.3 Quality of the review procedure	92
6.3.1.4 Quality of public participation	93
6.3.1.5 Voluntary design changes	93
6.3.2 SUBSTANTIVE EIA PERFORMANCE – FOLLOW-UP STAGE	93
6.3.2.1 Quality of compliance monitoring procedures	94
6.3.2.2 Quality of public participation	96
6.3.2.3 Voluntary design changes	98
6.3.2.4 Forced design changes	98
6.3.3 DISCUSSION OF RESULTS – SUBSTANTIVE PERFORMANCE - NZEMA PROJECT	98
6.4 EXPLAINING EIA PERFORMANCE BY ACTOR CAPACITIES IN THE NZEMA PROJECT	100
6.4.1 EXPLAINING THE QUALITY AND COMPLETENESS OF THE EIS AND THE REVIEW PROCEDURE – NZEMA PROJECT	100
6.4.1.1 Ownership and the quality and completeness of the EIS and the review procedure	101
6.4.2 EXPLAINING PUBLIC PARTICIPATION AND VOLUNTARY CHANGES IN THE FOLLOW-UP STAGE – NZEMA PROJECT	105
6.4.2.1 Nkroful: Public participation in the supplementary EIS – Follow-up stage	106
6.4.2.2 Teleku-Bokazo: Public participation in the supplementary EIS – Follow-up stage	108
6.4.2.3 EPA: Compliance monitoring, public participation and forced design changes in the supplementary EIS – Follow-up stage	110
6.4.3 EXPLAINING EIA PERFORMANCE BY ACTOR CAPACITY – NZEMA PROJECT	111
6.4.3.1 Explaining the quality and completeness and the review process in the EIA stage	111
6.4.3.2 Explaining the performance of the Follow-up stage	113

CHAPTER 7 CASE COMPARISON	118
7.1 SIMILARITIES	118
7.2 DIFFERENCES	119
7.3 CONCLUSIONS BASED ON THE COMPARISON	120
CHAPTER 8 MINING SECTOR LEVEL ANALYSIS	121
8.1 CURRENT STATUS OF THE MINING SECTOR IN GHANA	121
8.2 KEY ISSUES IN GHANA'S MINING SECTOR	121
8.3 POLICY INTEGRATION	122
CHAPTER 9 CONCLUSIONS AND RECOMMENDATIONS	125
9.1 CONCLUSIONS	125
9.2 RECOMMENDATIONS	128
REFERENCES:	129
ANNEX I	134
ANNEX II	135
ANNEX III	136
ANNEX IV	137
ANNEX V	138

List of Figures:

Figure 1: Factors influencing EIA system performance (taken from Kolhoff et al., 2009, adapted by author 2012)	11
Figure 2: Leadership interaction styles	25
Figure 3: Conceptual model of actor capacities in relation to EIA system performance	28
Figure 4: Ahafo South Project site overview	61
Figure 5: Ahafo South project site overview	62
Figure 6: Nzema project site overview	88
Figure 7: Nzema project site overview	88

List of Tables:

Table 1: Capacity definitions	20
Table 2: Context factors	22
Table 3: Actors capacitiesw in relatoin to hypothesis	29
Table 4: Overview of interviewees	38
Table 5: the Ghanaian EIA process, actors and procedural outputs	42
Table 6: Procedural indicators	43
Table 7: Decisions and actor tasks in EIA stage	44
Table 8: Decisions and actor tasks in Follow-up stage in EIA	44
Table 9: Overview of procedural and substantive indicators	46
Table 10: ownership indicators	47
Table 11: Initial power indicators	48
Table 12: Leadership indicators	48
Table 13: Adaptability indicators	49
Table 14: Context factors during the EIA	49
Table 15: EPA mandate	55
Table 16: Proponent mandate	55
Table 17: PAPs mandate	57
Table 18: Procedural performance indicators results	63
Table 19: Results on substantive indicators - EIS stage Ahafo South project (CSP2 Report 2005; EPA regional office PPO; personal observations)	66
Table 20: Results on substantive indicators - EP stage ((CM34_2; CM43_4; CM43_5; EPA Head of EAA Department)	66
Table 21: Substantive CME performance – Ahafo South project (CM43_2; CM43_4; CM43_5; EPA PPO Mining Department; IESCM Reports 2005-2006; ECMG Reports 2006-2009)	69
Table 22: Substantive EC performance – Ahafo South project (CM43_2; CM43_4; CM43_5)	70
Table 23: Procedural EIA performance – Nzema project (Nzema EIS (Nov 2008); CM1046_4; interviews ARL BFM & CRM)	89

Table 24: Substantive performance – EIS stage (Nzema EIS; CM1046_4; Interviews EPA staff/ARL BFM; personal observations)	91
Table 25: Substantive performance – EP stage (AER 2010; CM1046_4; interview: EPA Head of EAA Department; personal observations).....	91
Table 26: Substantive performance – Follow-up stage (*accounts on whether the TSF design change was initiated in consultation with EPA or not varied among interviewees, though the majority indicates EPA provided directions in this matter)	94
Table 27: Substantive performance – Follow-up stage	94
Table 28: Development of mining sector 2005-2010 (EPA Annual Reports 2005-2010).....	121

List of Boxes

Box 1:Regional Manager NGGL to Head of Mining Department of EPA, dd 4-10-2007 (CM43_2)	82
Box 2: Director of Mining at EPA to Regional Director ESR Newmont, dd 3-12-2007 (ibid)	83
Box 3:Regional Manager NGGL to Head of Mining Department of EPA, dd 12-12-2007 (ibid).....	83
Box 4: Head of Mining Department of EPA to General Manger ESR, dd 20-12-2007 (ibid)	83
Box 5: Executive Director EPA to General Manager ESR NGGL, dd 4-6-2009.....	83
Box 6: Meeting Oct 20 th 2009 on supplementary EIS – bypass road	106
Box 7: Meeting Oct 23rd 2009 on supplementary EIS – bypass road.....	106
Box 8: Meeting Oct 23rd 2009 on supplementary EIS – bypass road.....	107
Box 9: Meeting Nov 14th 2009 on supplementary EIS – bypass road	107
Box 10: Meeting Oct 20 th 2009 ARL and Teleku-Bokazo on equipment transport	108
Box 11: Meeting Nov 9 th 2009 on supplementary EIS – bypass road power line	109
Box 12: EPA Memorandum April 22 nd 2010 – bypass road and water abstraction	110
Box 13: Report on public hearings – supplementary EIS TSF and bypass (EPA internal memo PPO F.A.O.; no date).....	110
Box 14: Update on supplementary EIS TSF and bypass (EPA internal memo 20-7-2010, Head of the Mining Department)	111

Chapter 1 Introduction

Environmental Impact Assessment (EIA) is a “systematic and integrative process” (Wood, 2003) in which an investor, the proponent, is legally obliged to produce an assessment of the environmental (and in some cases social and/or economical) impacts of a proposed activity in a report to the competent authority containing project design details and mitigation measures to prevent or reduce negative impacts. The competent authority, usually called the Environmental Protection Agency (EPA), reviews the information in this report, the Environmental Impact Statement (EIS), and may or may not issue an environmental permit for the proposed activity. In this way EIA aims to ensure that environmental implications of decisions are taken into account before decisions are made. According to Wood (2003), consultation and participation are integral to the evaluation of potential impacts. During the EIA process, stakeholders other than the proponent and the EPA, such as for instance the affected local communities or representatives of other governmental agencies that have a legislative connection to the proposed activity, are invited to present their input on the design of the proposed activity.

EIA originates from the 1969 US National Environmental Policy Act (NEPA), and subsequently was adopted in legislation throughout the Western nations, and in the past two decades also by many low and medium income countries, including Ghana (De Jong, 2012). To support EIA capacity building, meaning the strengthening of an actor’s ability to perform functions that are required of it in order to be able to achieve the goals of the EIA process, the International Association for Impact Assessment (IAIA) adopted the 2003 Marrakech Declaration on Capacity Development “...and developed a Plan of Action putting strong emphasis on developing capacity for impact assessment, including EIA” (UNEP 2006). However, despite the fact that capacity building has been embedded in the programs and objectives of many international organizations and development programmes (van Loon et al, 2010), EIA system performance in developing countries is low (Kolhoff et al, 2009).

1.1 EIA performance and EIA capacity

This research focuses on the hypothesis by Kolhoff et al. (2009) that the low performance of the EIA system in developing countries is a result of the gap between the ambitions as laid down in legislation and the capacity of actors in the EIA system (as opposed to the influence of context factors). The ambitions in EIA legislation refer to the types of issues that fall under EIA: in some countries, only environmental impacts are assessed, while others intend to incorporate also social and economic concerns. An ambitious EIA legislation addresses more than environmental concerns, covering also social and possibly economic concerns; the scope of an ambitious EIA legislation can include for instance both environmental issues (e.g. mitigation of negative environmental impacts) as well as social issues (e.g. mitigating social impacts) and economic goals (e.g. selecting the design alternative that is most economic). The ambitions of EIA legislation thus determine which topics are being addressed; the goals of the EIS process are to first provide adequate information for use in determining how a proposed project design affects the topics under discussion, and subsequently selecting the implementation design that best addresses the environmental (and/or social and economical) concerns. The hypothesis by Kolhoff et al. (2009) indicates that, when EIA legislation aims to cover environmental, social and

economic concerns, the ambition of this legislation may be at odds with the abilities of the actors in the EIA system to adequately address all these issues.

The relation between actor capacity and performance is unclear (cf White et al., 2005). There is also no consensus on what exactly constitute capacities and how to measure these (Balint, 2006; see also paragraph 2.4.2) and hardly any scientific research has been done on EIA-specific capacities (the exception being Van Loon et al., 2010; see also paragraph 2.4.1). To address this knowledge gap, this research analyzes and separates the role of capacities and context factors in relation to EIA system performance, focusing on how the capacities of the actors and the influence of context factors results in the observed EIA performance level.

The EIA system is defined in this research as the EIA regulations and the capacities of the actors involved (Kolhoff et al., 2009; see Figure 1). EIA system performance is measured in terms of achieving EIA goals: “A distinction can be made between long-term and short-term EIA objectives. There is common agreement on environmental protection as a long-term objective and well-informed decision-making as a short term objective. Views differ on whether EIA should also aim to contribute to sustainable development, and whether well-informed decision-making should include or exclude the public” (Kolhoff et al., 2009). Performance of the EIA system can be assessed from a procedural point of view (i.e. were all EIA process steps as laid down in the EIA regulations fulfilled as required) or from a substantive point of view (i.e. were the decisions made during the EIA process in line with the goals of the EIA process). In this research performance is assessed in both ways, but the main focus is on substantive EIA performance, defined as the extent to which the main goals of EIA, contributing to well-informed decision-making and environmental protection, are achieved (Kolhoff et al., 2009), because focusing on the actual decisions made provides an insight into whether in practice EIA has contributed to well-informed decision-making and has had the desired effect of selecting only those project designs for implementation that are protective of the environment.

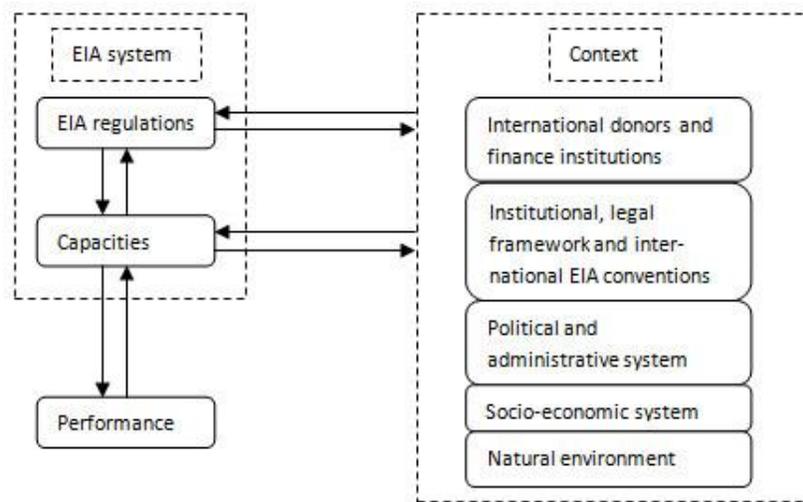


Figure 1: Factors influencing EIA system performance (taken from Kolhoff et al., 2009, adapted by author 2012)

In a typical EIA process, the proponent wants to start a project because it is an economically interesting opportunity. The proposed activity puts pressure on public goods such as the environment and existing social and socio-economic structures. Therefore, the proponent is required to provide an accurate overview of the specific impacts and proposed mitigation measures. For this, the proponent needs to be aware of relevant guidelines and perform research on potential project impacts, and has to be committed to providing an accurate overview of the project impacts. The EPA has to ensure the quality, timeliness and completeness of the proponent's impact assessment with respect to the EIA regulations. To perform this task, the EPA requires staff with a relevant background and knowledge of critical issues in determining project design impacts to review the adequacy of the project information provided by the proponent. Affected communities focus on mitigating the project impacts that negatively affect their social and socio-economic position, and environmental impacts that threaten human health and livelihoods. In order for the affected communities to provide relevant input, they need to be aware of the type of impacts that the project has, and in order for this input to have an effect on project design and implementation, the affected communities need to be able to participate in the EIA process and voice their concerns before the final decisions regarding project implementation are taken.

1.2 Goal and scope of the research

Three research objectives are central to this research: (1) to determine the level of EIA performance by making a comparison between assessment criteria and practice, (2) to develop a model to assess actor's EIA capacity by making an analysis of which skills are needed of which actor in order to achieve EIA goals, and (3) to provide a clarification of the relation of actor capacity to EIA outcomes by providing an understanding of what effect the capacities of the different actors involved have on EIA goal achievement. Ghana is chosen as the country for study as a low-to-middle income country with an ambitious EIA legislation, focused on incorporating and safeguarding sustainable development (Sampong, 1998) and thus involving environmental, social and economic concerns (from here on referred to as socio-economic factors), and relatively low EIA performance (Kolhoff, 2012). This research is conducted in cooperation and in parallel with Gabi Sonderegger, who focuses on applying the same research framework to the water sector in Ghana. The aim of the joint research approach is to gain insight into the performance of the EIA system in Ghana under different conditions, in order to be able to determine whether there are significant differences or similarities with regard to EIA performance depending on the sector analyzed (e.g. when different potential impacts may result from project implementation), and depending on whether the proponent is from the public or private sector (e.g. whether there is a difference depending on state ownership or private ownership). The focus for this research is on the mining sector, in which the proponent tends to be a private entity, whereas water sector projects generally are publicly owned. The actual comparison of results across sectors however goes beyond the scope of this research; the joint approach is intended to facilitate comparison of the results in both Master theses in follow-up research.

The EIA process as it is envisioned here consists of two stages: first, the environmental impact assessment (EIA) stage, which due to the ambition of Ghana's EIA legislation to incorporate and safeguard sustainable development consists of performing an Environmental and Social Impact Assessment (ESIA), in which the Environmental Impact Statement (EIS) is drafted with participation of

the stakeholders, leading up to the decision on the environmental permit; second, the Follow-up stage (cf Marshall et al., 2005) of compliance monitoring and enforcement with regard to the environmental permit conditions and EIA regulations and guidelines. This approach entails a broader scope of the EIA process than most studies on EIA, which tend to focus only on the EIA stage. A broader approach was chosen to accommodate the systems perspective on EIA, so that also variables of influence on EIA performance that stem from the Follow-up stage are included in the scope of the study and the explanations provided.

The main focus for this research is on the key actors involved in EIA: the proponent, the EPA and the project affected peoples (PAPs). Next to these key actors, in Ghana several boundary actors are relevant to the EIA process, such as other governmental agencies (e.g. Minerals Commission, Forestry Commission, District Assemblies), NGO's (WACAM, Fian International, CSP2), and international donors (World Bank/IFC); where appropriate the influence of boundary actors will be discussed.

1.3 Research question and sub-questions

Reflecting the objectives of this research identified in paragraph 1.2, the central research question reads as follows:

To what extent do actor capacities influence EIA system performance in Ghana?

The sub-questions formulated for this research are:

- 1) What is the EIA system performance level in Ghana?
- 2) How can actor capacities and their effect on EIA system performance level in Ghana be assessed?
- 3) Which context factors are of influence on EIA system performance in Ghana, and how can their effect on EIA system performance be separated from the influence of actor capacities?

Chapter 2 provides the research framework and operationalization for analysis of these three sub-questions.

1.4 Scientific and societal relevance

EIA is an environmental governance process (cf Meadowcroft, 2007) in which both state actors and non-state actors interact to regulate the management of environmental resources. This research is performed as part of the Utrecht University Master track Environmental Policy and Management, in which environmental governance is a central object of study. The EIA process, viewed as an environmental governance process, is here conceptualized as a socio-political negotiation arena (cf Runhaar and Driessen, 2007), in which the participating actors have diverging goals and abilities (cf Runhaar et al., 2012 in press) which may affect EIA system performance. According to hypothesis of Kolhoff et al. (2009), EIA performance is dependent on the capacities of the actors involved in the negotiation arena. However, there is "...little agreement exists about how to define, operationalize, and measure capacity or capacity enhancement..."(Balint, 2006). As donors want to track the causal chain from interventions to results to ensure their efforts are effective and to be able to communicate successes (Morra Imas & Rist, 2009), it is important to enhance the understanding of the relation of

actor capacity to EIA system performance. Though various methodologies for capacity assessment exist (cf USAID 2000; UNDP, 2007), these are not EIA specific, and have not been developed with a system approach in mind. To address this knowledge gap, the aim of this study is to define, operationalize and measure actor capacities and the extent to which they influence EIA system performance.

Most studies focus on procedural performance of EIA, e.g. whether all procedural steps have been addressed; hardly any studies combine research on procedural as well as substantive performance. In this study procedural as well as substantive EIA system performance is addressed, with an emphasis on substantive, actual decisions made in practice and the extent to which these decisions are well-informed and contribute to environmental protection (Sadler, 1996). This combined approach provides an insight into whether following EIA procedures leads to the achievement of goals as laid down in legislation. Also, as was explained, both the EIA stage as well as the follow-up stage (cf Marshall et al., 2005) are considered here; Kolhoff and Ruessink (in press) note that, in EIA systems performance, environmental compliance monitoring and enforcement “is crucial in implementing the environmental permit and its conditions”.

According to Wood (2003), EIA should in principle “lead to the abandonment of environmentally unacceptable actions and to the mitigation to the point of acceptability of the environmental effects of proposals that are approved. EIA is thus an anticipatory, participatory environmental management tool” (2003, p1-2). Ideally, EIA results in well-informed, participative decisions that protect the environment and mitigate potential negative impacts, helping to find either mutually acceptable (consensus) solutions to issues arising out of a proposed activity or preventing the implementation of the proposed project so as to prevent undesired negative impacts (Wood, 2003). However, EIA does not prescribe *which* decisions are being taken; decision-making depends on the stakeholders involved in the decision-making process, the issues they bring forward, the goals of these actors, and the power they have to achieve their aims. Whether the potential ideal performance of EIA is achieved in practice depends on the capacity of the actors to achieve their aims, their orientation towards EIA process goals and contextual factors which may hinder or facilitate actor goal achievement. This research focuses on these aspects (i) to inform environmental policy makers on their respective influence with regard to effective environmental management through EIA practice, (ii) to provide a framework to analyze the influence of capacities and context factors on EIA performance, and (iii) to make recommendations to the NCEA and Ghanaian EPA with regard to enhancing EIA performance in Ghana, specifically focusing on the mining sector.

1.5 Outline of the thesis

After this introductory chapter, Chapter 2 focuses on the theoretical framework used as a basis to delineate the research on EIA performance and actor capacities. Chapter 3 provides the methodology used to assess the two cases studied in this research: the Ahafo South project and the Nzema project. Chapter 4 provides the background to EIA concerning gold mining in Ghana, after which Chapters 5 and 6 respectively provide and analyze the results for the cases studied. In Chapter 7, the main similarities and differences regarding the two cases studied are identified, after which Chapter 8 gives an overview of the broader developments in Ghana’s mining sector and its effects on EIA in Ghana’s mining sector.

Finally, Chapter 9 provides the conclusions with respect to the overall research question, and formulates an answer to this question based on the research findings, ending with an overview of recommendations to the Ghanaian EPA, the NCEA and suggestions for future research.

Chapter 2 Relating actor capacities to EIA system performance

In this chapter, the research framework for addressing the three sub-questions (see paragraph 1.3) in order to answer the central research question is outlined, following the method for establishing a research design as described by Verschuren and Doorewaard (1999). The specific aspects of the research framework dealing with the three sub-questions are each separately discussed in further detail.

First, paragraph 2.1 discusses the background to evaluating EIA system performance. Paragraph 2.2 then zooms in on the assessment of actor capacity, providing a definition of the term capacity to suit the aims of this research and an overview of existing methods for capacity assessment to get an insight into main themes that are important when assessing EIA capacities. In paragraph 2.3 the actor capacities in relation to EIA system performance are elaborated on and the context factors of relevance and their conceptual distinction from capacities are introduced. This information is integrated into a conceptual model of actor capacities and how they relate to EIA performance: the conceptual model is used to determine, for the key actors in EIA, the extent to which these actors possessed the capacities required for achieving EIA process goals at the time of decision-making in the two cases discussed, and the extent to which these actors were able to use these capacities in determining EIA process outcomes

2.1 Evaluating EIA system performance

The first sub-question to be addressed is: what is the performance level of the EIA system in Ghana? The research objective here is to determine the level of EIA performance by making a comparison between a set of assessment criteria and observations based on practice. To establish relevant assessment criteria, scientific literature on EIA performance assessment is consulted.

Performance in the context of EIA according to Sadler (2004) usually relates to (1) procedural performance, concerning the extent and way the procedural requirements for EIA were met, and (2), substantive performance, whether the objectives of EIA have been achieved. The level of effectiveness or level of performance of EIA is thus a measure of the extent to which the (procedural and/or substantive) goals of the EIA process were achieved. As Sadler states, “the substantive purposes of Environmental Assessment (EA) are twofold. First, the immediate aim is to facilitate sound, integrated decision making in which environmental concerns are explicitly included. The EA process does so by providing clear, well-organized information on the environmental effects, risks, and consequences of development options and proposals. Secondly, the EA process is usually (but not universally) directed towards achieving or supporting ultimate goals of environmental protection and sustainable development”.(1996, p 13).

For the purpose of this research, following Kolhoff et al. (2009), the goals of the EIA process are formulated here as contributing to well-informed decision-making and environmental protection. The substantive EIA system performance evaluation analyzes the extent to which the EIA system provides “the delivery of useful knowledge which is scientifically valid and relevant for debate” (Kolhoff et al., 2009), the extent to which the available information has influenced decision-making, and the extent to which the environment has been protected by the decisions taken during the EIA process. In assessing

substantive performance, the *quality of the execution* of the procedural steps is considered: the quality of the information provided for decision-making determines the extent to which decisions made are substantively well-informed decisions that provide an adequate basis for making decisions about the environment. The operationalization of procedural and substantive performance, tailored to the EIA system in Ghana, is provided in paragraph 3.4.

2.2 Assessing actor capacity

This section provides the research framework based on the second and third sub-questions: how can actor capacities and their effect on EIA system performance level in Ghana be assessed, and which context factors are of influence on EIA system performance in Ghana and how can their effect on EIA system performance be separated from the influence of actor capacities?

2.2.1 Definition of capacity

Various definitions can be found among scholars researching capacity; despite the abundance of capacity building initiatives (Van Loon et al., 2010), a uniformly agreed upon definition is missing. Different authors identify varying elements that, in their view, constitute capacity (e.g. Balint, 2006; Walker and Wernheimer, 1998; Rowe, Jacobs & Grant, 1999; van Loon et al., 2010; White et al., 2005). Definitions of capacity are for instance “the ability to carry out stated objectives” (Brown et al., 2001), “the ability of an agent to marshal its resources to accomplish organizational objectives” (Rowe, Jacobs and Grant, 1999), or “the organizational and technical ability that enables organizations to carry out functions and achieve their development objectives” (Lusthaus et al., 2002).

The definition of capacity used here is derived from Eisinger (2002), who defines capacity as “the set of attributes that help an organization to fulfil its mission”. Capacity in this definition is an *attribute*; a generic term for something such as a skill, a capability, a competence, some measure of power that is seen as being within the organization’s span of control. Capacity is furthermore directly related to mission-fulfilment, which appears to be a central notion in the definition of capacity of various authors; attributes are used to achieve goals. Eisinger (2002) notes that the set of attributes which he sees as an organizations’ capacity “...are latent until they are mobilized.”; what constitutes capacity is thus a matter of situational contingency, whereby the needs of a situation trigger the emergence of specific organizational attributes that are required to achieve the organization’s goals in that situation (see also ECDPM, 2009).

The definition of capacity for this research is formulated as the set of attributes or abilities that help an actor to achieve its goals. Most important for this research, this definition of capacity provides a direct link to the definition of performance. Performance is defined as the extent to which actors have achieved their goals; capacity is the ability of an actor to achieve goals. Also, the change in the definition of capacity from ‘organization’ to ‘actor’ reflects the functionalist notion of role-fulfilment of an actor in the EIA system, irrespective of the particular level of analysis (). Furthermore, this redefinition separates capacity from context factors, because it is now considered to be an attribute, an ability inherent to an actor, implying “a certain level of control over resources (which may include other actors)” (Avelino &

Rotmans, 2009). The distinction between the influence of capacity and context factors is further explained in paragraph

2.2.2 Existing capacity assessment methods

Capacity assessment specifically for EIA is a relatively new and unexplored field. A pioneering study in this respect is the work of Van Loon et al. (2010), which presents an EIA-specific model for assessing capacity at system level. The aims of this research are similar to the aims of Van Loon et al. (2010), namely analyzing EIA system capacity and its effects on EIA performance to explain EIA system performance by actor capacity. The model by Van Loon et al. (2010) distinguished different capacities at different levels of organization, and discusses the complexity and time involved in developing specific types of (sub) capacity. This gives practitioners in capacity development an idea of the time and commitment needed to develop the different capacities identified when planning future interventions.

For the purposes of this research (cf paragraph 1.2), recurrent terms and concepts were derived from the literature on capacity and capacity assessment to gain a comprehensive overview of which types of capacities are generally acknowledged to be of relevance in producing outcomes. As this research is explorative in nature, and focused on EIA at system level, a broad initial scope on capacity is needed so as not to exclude potential relevant capacities beforehand. The recurring terms concerning capacities were clustered and defined in coherence, and in congruence with frequently found definitions for these capacities. The identified capacities and their definitions were then linked to the different actors that have specific tasks in EIA; in this way, hypotheses could be formulated regarding the expected influence of capacities, as opposed to the influence of context factors in producing outcomes.

Many international organizations involved in development work have published support material for capacity assessment practitioners (UNDP¹, 2009; USAID², 2000; CIDA³, 1997; ECDPM⁴, 2007). The literature review on capacity assessment methods has provided the insights that capacity can operate at different levels and that capacity assessment should be linked to the desired capacities required for the task that the actors have to fulfil in the EIA process (UNDP, 2007), that a set of indicators should be developed based on the information needs of this specific research and covering management decisions at all levels (input, output, process, outcome) prior to deciding on the data gathering strategy (USAID, 2000), that a capacity assessment may involve dealing with sensitive issues and hidden agenda's of the actors involved (CIDA, 1997; Crosby, 1992), and that the importance of relational aspects, actor orientation and the influence of politics, culture and historical context in determining process outcomes tend to have been underestimated in capacity assessment methods at system level (ECDPM, 2007; ECDPM, 2009). The next paragraph will incorporate the conclusions and insights drawn from the discussion of capacity assessment methods above into the design of the conceptual model of actor capacity in relation to EIA system performance.

¹ United Nations Development Program

² United States Agency for International Development

³ Canadian International Development Agency

⁴ European Centre for Development Policy Management

2.3 Actor capacity in relation to EIA system performance

This section provides the elements that make up the conceptual model of actor capacity in relation to EIA system performance, and explains the conceptual model and the hypotheses with respect to the mechanisms by which actor capacities are expected to influence EIA performance. First, in order to establish the desired capacities that actors have to fulfil in the EIA process (cf UNDP, 2007), the ideal conditions for EIA performance are discussed. Next, the specific capacities used in this research are introduced. The capacities are then further elaborated against the background of EIA practice, resulting in a conceptual model describing the relation of actor capacity to EIA system performance.

2.3.1 *Ideal conditions and capacities for EIA performance*

As was mentioned in paragraph 1.4, ideally, EIA results in well-informed, participative decisions that protect the environment and mitigate potential negative impacts, helping to find either mutually acceptable (consensus) solutions to issues arising out of a proposed activity or preventing the implementation of the proposed project so as to prevent undesired negative impacts (Wood, 2003). If during the EIA process adversarial relationships cannot be transformed into more cooperative ones and no consensus solutions can be found, according to the description based on Wood (2003) provided above, the implementation of the proposed project should be prevented to avoid undesired negative impacts. However, abandoning a project whenever there is no complete consensus among all stakeholders implies first of all that the stakeholder positions in EIA are considered to be of equal value, and secondly would result in the abandonment of the project if only one stakeholder group is opposed.

Regarding the first implication, EIA is embedded in a larger political framework: what constitutes the ideal outcome for the nation as a whole depends on more than environmental concerns. Runhaar (2009) conceptualizes Strategic Environmental Assessment, closely related to EIA but focusing more on incorporation of environmental concerns at an early stage of policy planning, as “...part of a negotiation arena”, in which SEA should not be considered “a value-free input in the policy debate but as an advocate of environmental values and thus competing with other values in planning processes” (Runhaar, 2009). The EIA process can likewise be conceptualized as a negotiation arena, in which various stakeholders “...outside the state claim more direct involvement in public decision-making because of democracy concerns” (Runhaar, 2009).

With respect to the second implication, maintaining the ideal of EIA that a proposed activity is abandoned if no consensus decision can be reached in practice might mean that the benefits that could arise out of the proposed activity for the majority of stakeholders would depend on the willingness of the minority of negatively affected stakeholders to allow others to benefit. This would lead to the paradoxical situation that, by involving all relevant stakeholders “because of democracy concerns” (Runhaar, 2009), the outcome of the EIA process would be non-democratic with regard to the division of benefits.

Since the focus is on EIA, the ideal outcome envisioned here is the outcome of the EIA process with respect to well-informed decision-making to support environmental protection. Whether this ideal outcome is achieved depends, following the main hypothesis central to this research, on the ambitions

in legislation (e.g. the topics that fall under the scope of EIA and the decisions that result from this on which consensus should be achieved), the capacities required of the actors in the EIA system, discussed in paragraph 2.3.2, and the influence of context factors, addressed in paragraph 2.3.3.

2.3.2 Identifying actor capacities

In the literature on capacities that was reviewed, clustered along key recurrent themes mentioned by various authors, the capacities distinguished in this research are (i) *power* (the ability to marshal resources to accomplish objectives (Rowe, Jacobs & Grant, 1999; Avelino & Rotmans, 2009; CIDA, 1997), (ii) monetizable *resources* (strong internal staffing resources, ability to mobilize sufficient external resources (Rowe, Jacobs & Grant, 1999); human capacity (van Loon et al., 2010); UNDP, 2007; USAID, 2000), (iii) *knowledge* (competence (Eisinger, 2002); technical skill (Balint, 2006)), effective planning, specialized skills (Walker and Wernheimer (1998), data-driven and empirically based strategy, ongoing mechanisms for evaluation and feedback (Rowe, Jacobs & Grant, 1999), scientific and technical capacity (van Loon et al. 2010)), (iv) *network* (external network (Walker and Wernheimer, 1998; White et al., 2005)), (v) *leadership* (managerial and political skills, perseverance (Balint, 2006); leadership and management style (van Loon et al. 2010); UNDP, 2007), (vi) *ownership* (formal mandate and stakeholder motivation, volition and identity (ECDPM, 2009); commitment to the process and responsibility (Ansell & Gash, 2008), and (vii) *adaptability* (Eisinger, 2002; ability to change and respond to disturbance, resilience (Armitage, 2005; ECDPM, 2009).

Defining these key terms derived from literature as constituting capacities in line with the definition of capacity provided earlier, i.e. as abilities of actors, the definitions for the capacities identified are provided in Table 1 below.

Capacity	Definition
Power	the ability to achieve goals regardless of resistance, and regardless the source of this ability (Weber, 1947)
Knowledge	the ability to use information relevant to goal attainment (Walker and Wernheimer (1998)
Network	the ability to uphold relationships relevant for achieving goals (Walker and Wernheimer, 1998; White et al., 2005)
Resources	the ability to mobilize monetizable assets to achieve goals (Rowe, Jacobs & Grant, 1999; Van Loon, 2010)
Ownership	The ability to identify with EIA process goals (EPDCM, 2009; Eisinger, 2002)
Leadership	the ability to actively focus a group's agenda on goal achievement (Van Knippenberg, 2003; Ayman et al., 1995)
Adaptability	the ability to continue to pursue initial goals with different means when facing resistance; resilience (EPDCM, 2009)

Table 1:Capacity definitions

2.3.3 Separating the influence of capacities and context factors

As was explained in the previous paragraph, capacities are the abilities that an actor needs to achieve its goals. In contrast, context factors are defined as the external influences that may limit or facilitate the effectiveness with which an actor can use its abilities to achieve goals.

To clarify this distinction with an example: one of the key tasks in EIA is the drafting of the Environmental Impact Statement (EIS). In order for the EIS to constitute a scientifically sound assessment of environmental impacts, the actor responsible for drafting the EIS has to have the ability to perform a scientifically sound analysis: the actor has to have the know-how of appropriate methods

to use and which topics are most relevant, has to have the right tools to perform the assessment, and has to be able to write down scientific conclusions without any political incentive to shape outcomes in such a way that the actual scientific conclusions are not clearly identifiable.

Whether these task requirements are met, depends on context factors: if the actor responsible for drafting the EIS has no educational background in environmental assessment, then this actor does not have the ability to perform an adequate environmental assessment. The fact that an actor that does not have the capacity to perform its task is nevertheless responsible for this task is the result of context factors: apparently, the structure of the system allows for an uneducated actor to be responsible for this task. Alternatively, if the actor responsible for drafting the EIS has an excellent background in environmental assessment, but has no equipment to perform an assessment, or is dependent on the goodwill of a sponsor who has a preference for a certain outcome, again the institutional design limits the scientific quality of the EIS. The actor in this situation may have in principle the ability to perform a methodically sound analysis, but either respectively no data source to work with, or a reduced freedom to write down scientifically sound conclusions. As in the previous scenario, the fact that a skilful actor is in place but does not have the tools or the independence to report in a scientifically sound manner is due to the institutional design: apparently, the structure of the system does not allow for access to respectively vital equipment and data, or an independent presentation of results.

The distinction between context factors and capacities is thus a matter of determining the locus of control: an actor cannot control for how context factors influence its ability to achieve goals; an actor's capacity is an attribute within the span of control of the actor. If the actor in principle possesses the intrinsic ability to adequately perform its task, then successful task performance (i.e. goal achievement) is to be expected; if the observed outcome is 'unsuccessful task performance', in this situation context factors or the capacities of other actors should be responsible for the observed outcome. Alternatively, if an actor does not possess the intrinsic ability to successfully perform its task, then even if all context factors facilitate successful task performance and no other stakeholder opposes the actor's goals, the observed outcome will not be 'successful task performance', because the actor does not have the capacity to perform its task.

One obvious difficulty based on this division is how to distinguish between the effect of context factors and actor capacity when both capacity and context factors have the same effect, either inhibiting task performance or facilitating task performance. The mechanisms used to distinguish between the influence of actor capacities and the influence of context factors on EIA performance in these situations are further discussed in paragraph 2.4 when introducing the hypothesized mechanisms regarding how the actor capacities introduced in the previous paragraph are expected to influence EIA system performance.

In this research, the context factors identified by Kolhoff et al (2009; see Figure 1; Table 2, are categorized under the label 'institutional design'. Based on the literature reviewed, two additional context factors are distinguished: the history of conflict and cooperation between actors, and the incentives that the actors have to participate in the EIA process (Ansell and Gash, 2008; see Table 2).

Context factors	Constituting elements
Institutional design	International EIA conventions, socio-political system, influence of international donors, natural resources, other applicable legislation (Kolhoff et al., 2009), formal source of authority and structure (van Loon et al., 2010), institutionalization, durability (Eisinger, 2002), core empowered group (Rowe, Jacobs & Grant, 1999)
History of cooperation and conflict	Confidence, optimism (Balint, 2006), initial trust level (Ansell and Gash, 2008); actor orientation (ECDPM, 2009)
Incentive structure	Motivation, openness to change (Balint, 2006; Ansell and Gash, 2008); actor orientation (ECDPM, 2009)

Table 2: Context factors

2.3.4 Capacities in the practice of the EIA process

This section describes how capacities influence the practice of EIA to produce the observed outcomes.

2.3.4.1 Ownership

Ownership is defined as the ability of the actor to identify with the goals of the EIA process. The question is how to establish an actor's ownership of the EIA process and how to separate this from contextual factors? To start with the latter, ownership, according to the European Centre for Development Policy Management concerns the actor's "formal mandate, motivation, volition and identity" (ECDPM, 2009). The mandate of an actor is however determined by the EIA regulations in place, which by itself are influenced by the context of the institutional design. This means that there is an overlap between the identified capacity of ownership, which is defined as the ability of an actor to identify with the EIA process, and the influence of context factors.

With regard to this overlap, ownership is seen as existing on the point of the necessary connection between structure and agent (Giddens, 1984), the connection between policy and practice. Ownership is here considered to be a 'bridging' capacity: it relates to first of all the institutional design and its influence on the EIA regulations, which provide the mandate and tasks allocated to the different actors involved that force a certain level of responsibility onto the actor. Second, this relates to the goals of the actor and its initial power to achieve these and EIA goals, and third to the incentives that arise out of the structure of the situation and the actor's affinitive relation to its mandate, the EIA process goals, and the other actors involved.

The institutional design and the EIA regulations provide the structure for the actor in which it operates (cf Giddens, 1984); an actor's mandate determines the actor's ability to achieve goals within the formal system and as such thus entails the formal ownership of the actor. Furthermore, with regard to what Ansell and Gash (2008) call "ownership of the process" involving shared responsibility of the actors for the process, an actor's ownership of the EIA process depends on the goals of the actor and whether these are in line with EIA process goals. In EIA, in principle there is a formal *incentive* for the actors to participate in the EIA process: the proponent envisions economic gains and requires an environmental permit to be able to acquire these economic gains; the EPA is responsible for safeguarding the environment from impacts arising from the proposed activity; and the PAPs are recipients of local impacts regarding which they should be allowed to express their concerns, suggestions and questions as their lives are directly affected.

The actors entering the EIA process are confronted with the enabling and constraining contextual features that the EIA process provides it with. The goals of the actor, when they are not aligned with those of the EIA process (cf paragraph 1.4), may drive the actor to use its capacities (actively or through an induced effect) to disrupt the aims of the EIA process. Furthermore, next to the affinity or lack thereof that actors may experience with regard to the EIA process goals, the affinity that the actors have towards each other, based on their *history of conflict or cooperation*, may be of influence in how they proceed in interaction with each other. A history of antagonism is likely to have developed low levels of trust amongst the actors, which may negatively influence EIA process outcomes, but might also be an incentive to come to a resolution of a long-lasting disagreement if the actors depend on each other for achieving their aims (cf Ansell and Gash, 2008).

The dynamics of actor orientation are crucial in understanding performance (CIDA, 1997; Crosby, 1992): if the system is not geared towards effective performance the chances of success are bleak (cf ECDPM, 2007). In order for high EIA performance to occur, the joint strength of actors in the EIA system has to be aligned with the EIA process goals; the performance of the EIA system depends on the combined capacity of actors to contribute to the functioning of the system.

2.3.4.2 Power

The definition of 'power' (cf Table 5) in essence is the same as the definition of 'capacity': the ability that enables an actor to achieve goals. This makes sense: the word power "is derived from the Latin word *potere* ('to be able')" and "always refers to an ability, capacity or dispositional property" (Avelino and Rotmans, 2009). However, this also means that we cannot directly measure power as a capacity, because asking by which mechanisms power works is a reiteration of the question by which mechanisms capacity works: "*it does not predetermine how or by whom the medium is exercised*" (Avelino and Rotmans, 2009; italics original). Power is a key concept in this research, but it needs to be indirectly measured if we are to achieve an understanding of how actors influence outcomes. The question is: how can power be indirectly observed in the EIA process?

An actor can first of all influence the EIA process, and thus exert power, by the use of knowledge (e.g. framing the issue according to the goals of the actor, the use of experience with EIA, methodologies to assess impacts and evaluate outcomes, and by (lack of) provision of knowledge to others to enable them to monitor outcomes). As Foucault notes, "power is a form of pacification which works by codifying and taming war through the imposition of particular knowledge as truth" (Haugaard, 2002: p 185). Secondly, the use of resources (e.g. allocating sufficient staff hours and proper equipment for adequate impact assessment and/or compliance monitoring, financing stakeholder interactions) is required to provide the basic conditions for successful EIA performance; when actors lack the base level of resources to participate in a meaningful way, EIA performance is expected to be low with respect to the tasks that are required of this actor in the EIA process. Third, power is by necessity a social process, "a social force just as gravity is a physical force" (Avelino and Rotmans, 2009). Thus, power is expected to become visible through the use of network connections by an actor (e.g. contacting of stakeholders at various policy levels to share information relevant to the impact assessment process, or by involving third parties to shift coalitions in negotiations so as to persuade other actors to accept outcomes).

In sum, following the suggestions made by USAID (2000) to distinguish between the input, process, output and outcome level, power is measured indirectly by analyzing, at the input level, the initial power that an actor has (e.g. the initial level of knowledge, resources and network); by, during the EIA process, focusing on the use of power (e.g. the use of knowledge, resources and network), which is captured under the capacity of leadership, and the change in use of power (e.g. shifting from using knowledge to using network connections or resources to influence and persuade other actors, or in shifting goals if the actor cannot maintain the focus on its initial goals) which is captured under the capacity of adaptability; by determining at the output level which of the actors managed to achieve its goals and which of the EIA goals are achieved; and at the outcome level by determining whether the observed outcomes are in line with the desired EIA process outcomes.

2.3.4.3 Leadership

In the conceptual model, leadership is measured by the use of power, the use that an actor makes of knowledge, resources and network to influence other stakeholders, aimed at rallying support for the goals that the actor wants to achieve.

Leadership, defined as the ability to actively focus a group's agenda on goal achievement (Van Knippenberg, 2003; Ayman et al., 1995), can be directed towards achieving EIA goals or towards an individual actor's goals. The influence of actor orientation has already been established at the input level as part of the assessment of the capacity of ownership. For leadership, the focus is on how an actor, given its affiliation, subsequently aims to control the process of negotiations to achieve its goals.

There is "...extensive evidence establishing two-dimensional control and affiliation conceptualizations of interpersonal behavior..."(Kiesler and Auerbach 2003, p 1712-1713). Figure ... combines both power-related issues in negotiations (e.g. those that are focused on control) and relational aspects (affiliations) into an overall model to describe the dynamics of interactions regarding control and affiliation in the EIA system. Based on notions from Dual Concern theory (Pruitt and Rubin, 1986), the work of Thomas and Kilmann on conflict styles (Shell, 2001), social motivations in negotiations (De Dreu and Carnevale, 2003) and interpersonal communication theory (Kiesler, 1983; Kiesler and Auerbach, 2003), Figure 6 depicts archetypal interaction styles that can be expressed by actors in the EIA system given a certain level of control and affiliation, whereby the two main axes along which behaviour can vary are Friendly-Hostile for the affiliation dimension and Dominance-Submissiveness for the control dimension. These observable behaviours will be used to analyze the interaction style maintained by each actor in the negotiation arena for the two cases studied.

Leadership effectiveness, according to Fiedler's (1967) contingency model, is determined by the amount of control the leader has (due to the structure of the task and the leader's formal position), and the affective leader-group relationships. The findings of research in this field (cf Ayman et al., 1995) tend to support the premises of the leadership contingency model that a task oriented leader is more successful when tasks are either high-control or low-control situations, whereas a relation-oriented leader is more successful in moderate control situations (Fiedler, 1967).

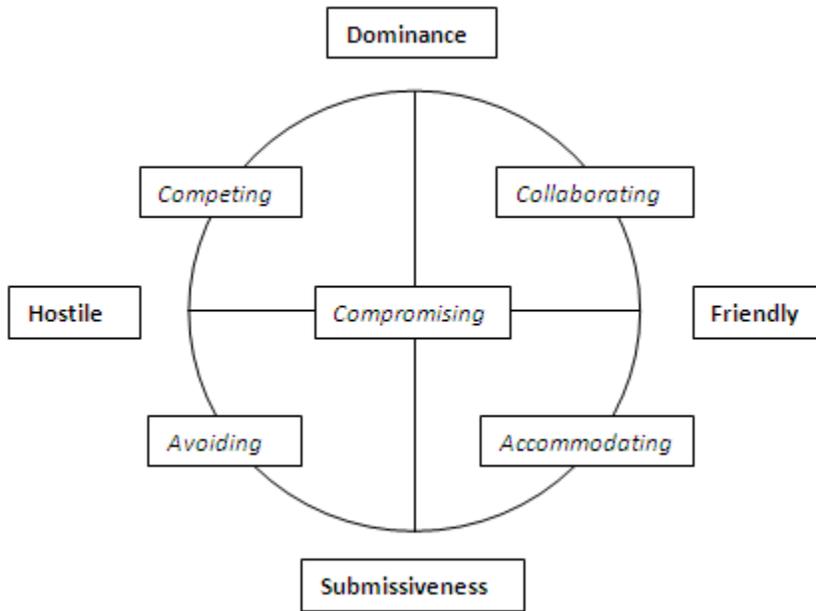


Figure 2: Leadership interaction styles

The leadership contingency model poses that an actor’s leadership capacity is dependent on the consent of other actors⁵: “If the leader lacks group support, energy is diverted to controlling the group rather than toward planning, problem-solving, and productivity” (Ayman et al., 1995). This implies that leadership constitutes a form of consensual power: debates on power “often revolve around the question whether power is consensual or conflictual” (Avelino and Rotmans, 2009), i.e. on whether power is seen respectively as collective (e.g. enhancing joint power through collaboration) or distributive (e.g. gained by one actor at the expense of another). Following the consensual approach to power, “the ability of oppressing and dominating without blunt violence is regarded by some as the essential characteristic of power”; in this view “power and violence are *opposites*; where one rules absolutely, the other is absent” (Avelino and Rotmans, 2009). As Alvesson notes, “It is important to recognize that power is most relevant in explaining the absence of conflict” and is “vital to an understanding of inaction: why grievances do not exist, why demands are not made, why conflict does not arise and why certain actors appear as authorities whom people voluntarily obey” (1996).

It goes beyond the scope of this research to fully assess leadership of the actors involved in EIA with the use of the leadership contingency methodology described by Ayman et al. (1995). There are two implications of the leadership contingency model though that form the basis for the hypothesized relation of leadership to EIA process outcomes (see Table 14). First, based on the notion that leadership

⁵ The Weberian definition of power as noted in Table 5 is fitting if a distributive approach to power is taken; an actor may take, at the expense of others, what it desires by any means including violent force, and this then constitutes the power of the actor. The definition of power for this research is chosen explicitly to also incorporate a distributive approach to power, because it may be the case that the ideal of EIA as a consensual collaborative process in reality is thwarted by power asymmetries allowing one actor to dominate EIA outcomes without regard for the interests of other stakeholders. The premise introduced here is that, while a distributive approach to power may be observed in the EIA process, this is incompatible with exhibiting leadership as a joint effort.

implies a consensual form of power, it is hypothesized that where explicit conflict exists between two or more actors, leadership is geared towards controlling the group rather than towards joint goal achievement, and this has a negative effect on goal achievement (Ayman et al., 1995). Conflict can be an incentive to initiate collaborative action (cf Ansell and Gash, 2008), but the state of conflict itself negatively affects goal achievement, including EIA goal achievement, because a situation of collaboration and joint goal achievement has not (yet) been achieved.

Second, based on the notion of what constitutes the ideal set-up for EIA performance (cf paragraph 2.4.2.1), ideally, adversarial relationships within the EIA process are transformed into collaborative ones. Therefore, it is hypothesized that when two or more actors exhibit a collaborative interaction style, this enhances joint goal achievement, and thus, when two or more actors exhibit a collaborative interaction style and at least one of the actors is oriented towards achieving EIA goals, this has a positive effect on achieving EIA process goals. The reasoning behind this is that when two (or more) actors collaborate, they will be open to engaging in constructive exchange of information, and seek to understand one another's perspective. As a result, they are more likely to uncover possibilities for trade-off and to realize integrative potential, and are expected to be willing to accept to relinquish control and compromises on issues that are less in their range of affiliation but are important to the other, for the sake of the collaborative relationship (cf De Dreau and Carnevale, 2003; Pruitt and Rubin, 1986; Kiesler and Auerbach, 2003; Ayman et al., 1995).

Considering that ultimate EIA system performance is the result of the joint focus of all actors involved in the EIA process and the extent to which they are geared towards achieving EIA goals, the larger the number of collaborating actors with a focus on EIA goals is, the stronger the positive effect on EIA system performance is hypothesized to be. If only one actor in a collaboration between two (or more) actors is focused on EIA goals, it may be that in some aspects EIA goal achievement is facilitated, whereas regarding other aspects EIA goal achievement is reduced as a result of compromises in negotiations. Alternatively, if two or more actors are collaborating and are focused at achieving EIA goals, the chances of successful EIA performance are hypothesized to increase. Thus, with an increase in the amount of actors exhibiting a collaborative strategy in interactions, an increase in EIA system performance is expected.

2.3.4.4 Adaptability

The final capacity to discuss is adaptability, the ability to continue to pursue initial goals with different means when facing resistance. At first sight this may appear to be a definition of resilience rather than of adaptation strength, and in a way this is also the case: the reason for defining adaptability this way is that it provides an insight into the completeness of the skill set that an actor has at its disposal when pursuing its goals. If an actor strongly desires a certain outcome, we would expect that the actor exerts influence in any way that falls within its span of control, and thus would, if needed and possible, switch from the use of one ability (e.g. trying to control what knowledge is being considered as truth) to the use of another ability (e.g. exerting social network pressure by coalition forming, or offering monetary compensation) when in pursuit of an aim and facing resistance from other actors. If an actor faces resistance to its aims during the EIA process to such an extent that it cannot maintain the pursuit of its

original goals, the actor is expected to reformulate its goals, provided it is not possible to leave the EIA process and therefore the actor is dependent on cooperation with others to complete the EIA process.

The orientation of the actor towards EIA goals and the goals of other actors is derived with regard to ownership in the input stage of the EIA process. If actor goals align, no resistance is expected; if however actor goals do not align or are in an antagonistic relation to each other, resistance is expected, triggering the need for adaptability. If the actor is oriented towards EIA goals, high goal achievement by the actor is expected to enhance EIA system performance whereas low goal achievement inhibits EIA performance. If the actor is not oriented towards EIA goals, high goal attainment by the actor is expected to negatively influence performance, and low goal attainment by the actor is expected to enhance EIA system performance.

Through considering the capacity of an actor to adapt, we get an indication of which abilities/capacities the actor has at its disposal and how effectively it can use these, but also, when the actor cannot maintain focus on its original goal, which capacity of (an)other actor(s) in the EIA system effectively leveraged the observed outcomes at the expense of others, and/or which context factor limited or enabled each actor in its achievement of goals.

2.3.5 Goal achievement and EIA system performance

When the actors have completed their task in the EIA process, the extent to which each of the actors managed to achieve their goals is assessed in relation to EIA process goals. Depending on their orientation to EIA process goals, it might be that, where the actor's goals are in line with EIA process goals, high actor goal achievement coincides with high EIA process goal achievement. Alternatively, if the actor's goals are not aligned with EIA process goals, actor goal achievement is expected to occur at the expense of EIA process goal achievement. At the output level, the focus is on characterizing which output has been achieved (e.g. which decisions were made / confirmed in writing, and to whose benefit); at the outcome level, the substantive value of these decisions is compared to the desired EIA performance level and the no-EIA-effect scenario or counterfactual scenario to determine to what extent the decisions that were made have influenced EIA system performance.

2.3.6 A conceptual model of actor capacity in relation to EIA system performance

Figure 5 provides the conceptual model by which the capacities of actors involved in the EIA process and context factors of influence are studied. The context factors are depicted in the broken-lined boxes. The capacities are denoted in capital letters; at the input stage, ownership is delineated by the box including who is involved, what the actor's task is in relation to the decision that has to be taken at the particular step in the EIA process, how the process is to be executed, which incentives arise from the task structure, and what the orientation of the specific actor is towards EIA process goals and the goals of other actors. The process stage, in which the actors engage in negotiations, includes the capacities leadership and adaptability. At the output stage, the extent to which actors have achieved their initial goals and the extent to which EIA goals are achieved is assessed, leading to the determination of outcome, the level of EIA performance observed.

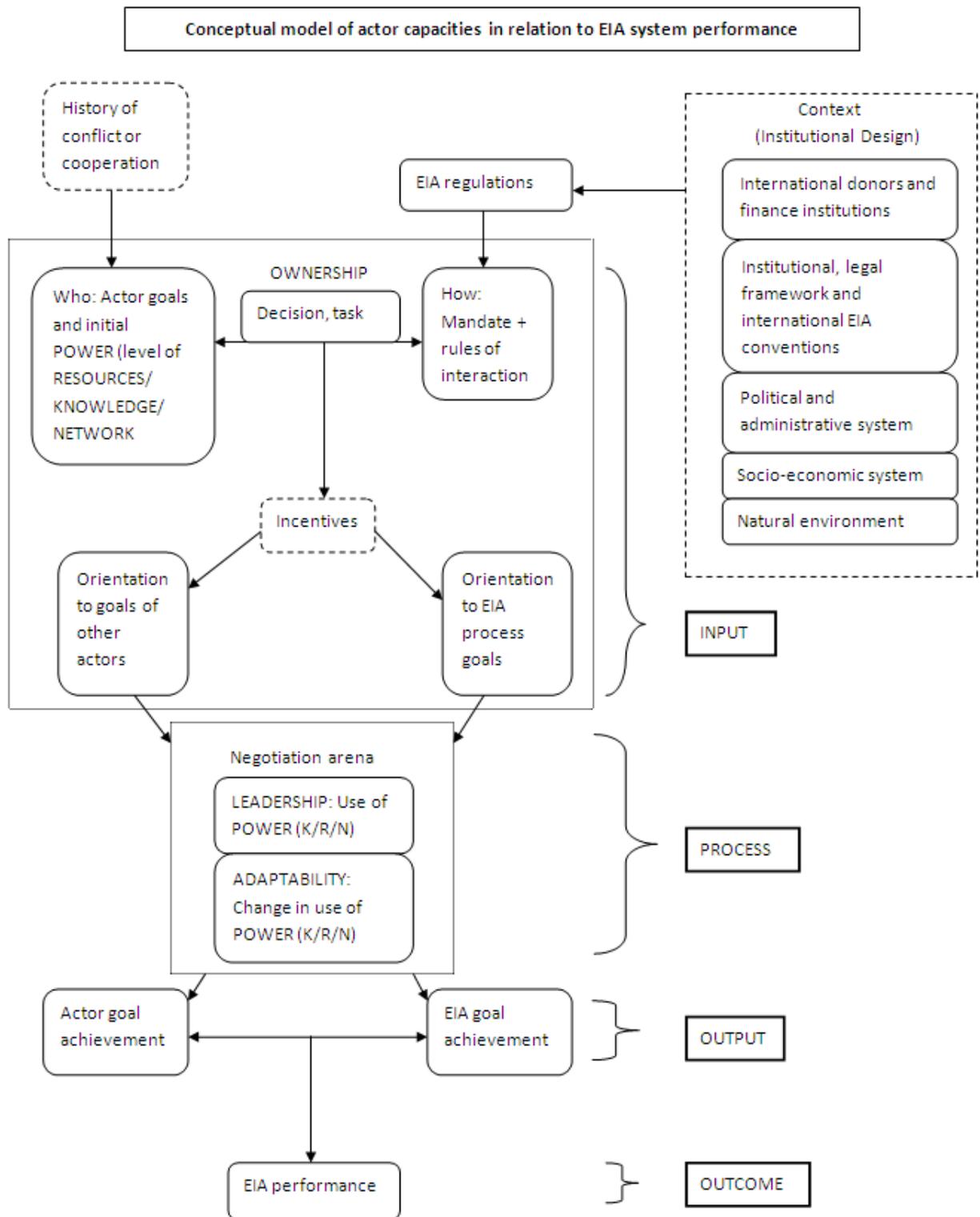


Figure 3: Conceptual model of actor capacities in relation to EIA system performance

2.4 Capacity mechanisms and their influence on EIA system performance

Capacities are emergent properties (ECDPM, 2009): they are triggered by the situational requirements that an actor, striving for a goal, has to fulfil in order to achieve its goal. This section describes how the effect of the structure of the situation, the contextual influence, is separated from the capacity of the actor striving for its goal. The key issue is to determine is the locus of control: is the observed effect due to an ability of an actor, or was the actor constrained in its ability to achieve its goals because of context factors?

The hypotheses in Table 3 have been formulated to provide recognizable mechanisms by which the capacities addressed in this research are expected to influence performance. An explanation of the hypotheses is provided in the next paragraphs.

Ownership	H1: If actor goals are aligned with EIA goals, then adherence to minimum requirements of the EIA process or volitional beyond-minimum participation is expected (ECDPM, 2009)
	H2: If actor goals are not aligned with EIA goals, then adherence to minimum requirements of the EIA process is expected when actors are interdependent; non-compliance (below-minimum participation) is expected when actors are not interdependent (Ansell and Gash, 2008)
	H3: If actor goals are aligned with goals of other actors, coalition forming is expected to enhance the dominance of this goal on the agenda in discussions, and as a result enhance the achievement of the mutually aligned goals
	H4: If actor goals are not aligned with the goals of other actors, the extent to which the actors depend on each other to achieve their goals (the level of interdependence) determines whether conflicts are resolved and consensus decisions reached; high interdependence and high antagonism may be incentives for collaboration (Ansell and Gash, 2008)
Knowledge	H5: If knowledge (e.g. previous education, amount of experience with EIA, methods for assessing impacts, availability of data) is low, low performance is expected
Resources	H6: If resources (e.g. amount of staff, budget, equipment for participation & monitoring) are low, low performance is expected
Network	H7: If network capacity (e.g. amount of connections, policy level of connections, inclusiveness of the network) is low, low performance is expected
Leadership	H8: The existence of explicit conflicts indicates that the stakeholders involved lack control over the situation; leadership in these situations will be geared towards (re)gaining control over the actors, rather than being available to enhance joint achievement of outcomes. Thus, explicit conflict is hypothesized to negatively affect EIA performance
	H9: A collaborative leadership interaction style is most successful in achieving joint outcomes; the larger the number of actors exhibiting a collaborative interaction style with a focus on EIA goals is, the stronger the positive effect of leadership by these actors on EIA system performance is
Adaptability	H10: If an actor during the EIA process is confronted with resistance from other actors but is able to change the means it employs to achieve its goals, then this actor is expected to exhibit high goal achievement
	H11: If an actor during the EIA process is confronted with resistance from other actors and is not able to change the means it employs to achieve its goals, then this actor is expected to exhibit low goal achievement

Table 3: Actors capacitiesw in relatoin to hypothesis

2.4.1 Ownership hypotheses

Ownership is defined as the ability to identify with EIA goals. Ownership is considered a ‘bridging’ capacity, constituting the connection between the formal task of an actor in EIA and the actor’s orientation towards this task. The orientation of an actor towards its task in EIA depends on the actor’s goals, which are deemed to exist prior to entering the EIA process. Note that actor goals are thus regarded as given: we look at goals as motives to respond in a particular way to the demands of the EIA process, not at the motives behind actor’s goals.

The confrontation of actor goals with the task requirements and the rules by which the actor has to attempt to achieve its goals gives rise to incentives for the actor; the incentives are regarded as the trigger for action by an actor towards or against EIA process goals. The context factor institutional design can influence EIA system performance because it can create an incentive structure that orients the actor confronted with it to a greater or lesser degree towards EIA process goals, for instance because policies across governmental actors are not well-integrated allowing for the obtainment of permission for a proposed activity without information from EIA being yet available (Kolhoff et al., 2009). In this situation, the institutional design, specifically the lack of policy integration, has as a consequence that the proponent is not dependent on the EIA process to achieve its goals: the proponent has an alternative venue (cf Ansell and Gash, 2008) by which it can achieve its goals.

The resulting outcome of this situation depends on the goals of the actor and whether these are aligned with the EIA goals: if the goals of the actor are aligned with EIA goals, regardless of whether the actor has to do so from a formal perspective, adherence to the minimum requirements of the EIA process, or even additional effort beyond minimum compliance with EIA regulations is expected (H1). Alternatively, if the actor's goals are not aligned with EIA process goals and the actor is not dependent on adhering to the EIA regulations to achieve its aims, the actor is expected to show non-compliance with EIA regulations, unless it then faces a penalty of such severance that this becomes an incentive for the actor to continue to comply at least to a minimum level with the EIA regulations (H2).

Another potential influence on EIA performance is whether actor goals are aligned with each other: co-ownership of goals is expected to enhance the probability that these goals become the topic under discussion, and, due to the fact that the shared goal has two (or more) actors striving to achieve it, is expected to enhance the achievement of this goal (H3). Note that the effect of co-ownership can enhance or limit EIA system performance, depending on whether the shared goal is in line with EIA process requirements or not. If the actors do not identify with EIA goals, co-ownership of goals is expected to negatively affect EIA performance; if two (or more) actors identify with EIA goals this is expected to positively affect EIA performance.

Furthermore, when goals of actors are not aligned but in fact antagonistic, the extent to which the actors depend on each other to achieve their goals determines whether they will overcome their mutual negative affiliation or not. If the actors have a shared history of conflict, this context factor may lead to opponents taking entrenched positions towards each other, but it may also provide a trigger for cooperation if the actors depend on each other to achieve their aims: high interdependence and high antagonism are expected to provide incentives to collaborate (H4). When co-ownership is oriented towards achieving EIA goals and actors are dependent on each other, even strong antagonisms are expected to be overcome, resulting in high EIA performance.

The possible other effects of actor's orientation towards each other on EIA performance are further discussed in paragraph 2.4.2, which focuses on the capacity leadership. For ownership, the focus is on identifying the initial set-up of actor goals in relation to EIA process goals at the onset of interactions, rather than during the dynamics of interactions.

The final aspect of the capacity ownership to discuss here is the initial power that the actor has: regardless of the orientation of an actor towards EIA goals or towards other actors, before an actor can act on an incentive it needs to have the ability to do so. If an actor does not have the knowledge required to achieve a specific aim, it cannot achieve this aim (H5); if an actor need monetary resources to achieve its aim and does not possess these resources, the actor cannot achieve this aim (H6); if an actor needs to have access to a particular person to achieve a specific aim and does not have this access, then the actor cannot achieve this aim (H7).

2.4.2 Leadership hypotheses

Leadership is defined as the ability to focus a group's agenda on goal achievement. The focus concerning leadership is on how actors use their power towards each other in the dynamics of interactions in the EIA process to achieve their goals.

In situations in which the goals of actors are not aligned, the actors are expected to be competing rather than collaborating. As was argued in the previous paragraph, this does not have to mean that EIA performance is low as a result: if the actors are dependent on each other to achieve their aims in the EIA process and the actors cannot bypass the EIA process and therefore have to engage each other, conflict may trigger collaboration towards achieving EIA goals. However, when an explicit conflict is ongoing, it is expected that the leadership capacity of (one of) the actors involved will be focused on (re)gaining control over the actors, rather than being available for achieving EIA goals. Thus, explicit conflict between two or more actors is expected to negatively affect EIA performance (H8).

Alternatively, if the goals of two (or more) actors are mutually aligned, actors are likely to be collaborating. This situation represents a situation of co-ownership of goals. As was noted in paragraph 2.4.1, the effect of co-ownership, which in the dynamics of the EIA process can be recognized as two (or more) actors collaborating, on EIA performance depends on whether the shared goals are aligned with EIA process goals or not. With respect to leadership, it is expected that the larger the number of actors exhibiting a collaborative interaction style with a focus on EIA goals is, the stronger the positive effect of leadership by these actors on EIA system performance is (H9).

2.4.3 Adaptability hypotheses

Adaptability, an actor's ability to continue to pursue initial goals with different means when facing resistance, reflects the power struggle in EIA as a socio-political negotiation arena (cf paragraph 1.4): antagonistic relationships, when resistance is fierce, are expected to trigger the need for a change in strategy and behaviour. If an actor during the EIA process is confronted with resistance from other actors but is able to change the means it employs to achieve its goals, then this actor is expected to exhibit high goal achievement (H10). Alternatively, if an actor during the EIA process is confronted with resistance from other actors and is not able to change the means it employs to achieve its goals, then this actor is expected to exhibit low goal achievement (H11). Also here, as in the previous paragraphs, the effect on EIA performance is dependent on actors' orientation towards EIA goals.

The next chapter describes the overall research framework used in this study, which constitutes a comparative case study design, and identifies which data sources are used to inform the different aspects of the research and how and why these data sources were chosen as the research approach.

Chapter 3 Methodology

This chapter describes the methodology maintained in this research. First, the choice for a comparative case study design is explained. Then, the methods and their suitability, advantages and disadvantages are elaborated upon. This is followed by the operationalization of the performance and capacity indicators, after which the data analysis method is explained.

3.1 Comparative case study design

The aim of this research is to gain an in-depth understanding of the relation of actor capacities to EIA system performance and to come to sector-wide conclusions. A quantitative study involving a large number of cases could provide statistically significant correlations about sector-wide EIA performance. However, the data for such an approach is not available, because the relation between actor capacity and EIA system performance is unclear and has not been systematically investigated.

3.1.1 Choice for a comparative case study design

To address the knowledge gap of the relation of actor capacity to EIA system performance, an explorative, in-depth, practice-oriented analysis of actor capacities in relation to the production of outcomes of the EIA system is performed. A case study design is well-suited to a practice-oriented research approach aimed at establishing an overall, holistic picture of the EIA system (Verschuren and Doorewaard, 1999: p 169) and how it works in specified instances to produce the empirically observed outcomes. Because the focus is on depth of study rather than a broad study of the sector, a small number of research units are analyzed.

The disadvantage of focusing on a limited number of research units for the analysis is that this reduces the external validity of results: the results are not readily applicable to other similar cases, because it cannot be established that the findings are statistically significantly correlated and thus generalizable to other situations. The internal validity is strengthened by using a triangulation of methods, combining data gathering through a content analysis of EPA case files, secondary research on the actors involved, individual interviews, focus group discussions, validation workshops with experts and e-mailed questionnaires for further clarification and a literature survey to gain an enhanced understanding of the subject matter (see par 3.2.1). Furthermore, because the research is exploratory in nature, minimal variation cases are strategically selected (see paragraph 3.1.1).

The comparative aspect of the case study design is based on a hierarchic method: the cases are studied and described independently from each other, establishing for each case first the EIA performance level, and secondly relating this to the capacities of the actors involved according to an established pattern, in this case the conceptual model of actor capacities in relation to EIA system performance presented in paragraph 2.3.6. With respect to determining the performance level, fixed performance indicators are operationalized (see paragraph 3.4) and a method for weighing the observed outcomes in respect to an ideal standard and a counterfactual, no-EIA scenario is established (see paragraph 2.3.4). The analysis of actor capacities in relation to EIA performance is discussed following the conceptual model presented in par 2.6. The results of the analysis per case are subsequently compared to identify similarities and

differences and possible explanations for these similarities and differences. The overall research framework is depicted in Annex I.

3.1.2 Country, sector and case selection

Ghana is selected as the focus country for this research because, as a low to middle income country with an ambitious EIA legislation but low EIA performance (Kolhoff et al., 2012), it suits the aims of this research (cf paragraph 1.2), and because Ghana has English as the national language facilitating the document review and interviews with key experts. Furthermore, Ghana is one of the three countries studied in the PhD research by Arend Kolhoff, to which this study endeavours to contribute, and due to the close cooperation of the NCEA with the Ghanaian EPA there is political support for this research facilitating access to the EPA archive and EPA network for this research.

The EIA project cases for this analysis are selected from within one sector, the mining sector, to enhance project comparability by keeping the sector context the same. Sector selection was performed in consultation with the Ghanaian EPA and the NCEA based on information availability and relevance to the information needs of the EPA and NCEA, and based on the hypothesized difference between sector performance depending on whether the proponent is a private entity, such as is the case for the mining sector, and sectors in which the proponent is a public, governmental organization, such as is the case for the water sector studied by Gabi Sonderegger (see also paragraph 1.2).

Within the mining sector in Ghana, over 90% of the mining activities concern gold mining; because of the significance of the environmental impacts of open pit gold mining in comparison to other types of mining in Ghana (see Chapter 4) and based on the size of the impacts, two large-scale open pit gold mines were selected as the focus for the in-depth case studies. The two cases under study were strategically selected, because the aim is to explain the independent variable of EIA performance by the influence of the dependent variable, the capacity or capacities of the actors that effectuated the outcome observed (Verschuren and Doorewaard, 1999). Therefore, the two cases selected were chosen based on variation with regard to EIA performance, in this case initially determined as the level of EIA performance as viewed by the Ghanaian EPA: one case was selected that the EPA considers an example of good EIA performance, and one example for which the EPA considers the EIA performance to be low. It was further agreed upon that for the purposes of this research the performance level of both cases would be assessed independently by the researcher based on the performance evaluation framework outlined in Chapter 2, so as to verify the extent to which the EIA performance for these cases corresponded to the view of the EPA. Secondly, to take into account the influence of context factors as opposed to capacities with regard to the observed EIA process outcomes, one of the cases involves financial support from international donors whereas the other case does not.

Besides variation on the independent variable and the influence of international donors, the two cases are very similar with respect to their environmental and social impacts: both concern large-scale gold mines in Ghana involving open pit mining using the same type of processing techniques (heap leach ore processing) and chemicals (sodium cyanide) and the same type of environmental impacts associated, and both gold mining projects require the resettlement of local communities, the destruction of

farmland and the payment of crop compensation by the proponent to the project affected peoples (PAPS).

3.2 Data collection methods

This section describes the different methods used to gather data in the field, discusses the advantages and disadvantages of each method and explains the triangulation of methods. The fieldwork took place from the 3rd of May until the 16th of June 2012. During the field research, case files from the EPA were studied at the EPA headquarters in Accra for about 4½ weeks, with regard to two private gold mining projects: Newmont's Ahafo South Project and ARL's Nzema Gold Project. The case files for the Ahafo South project spanned the years 2007-2009. The case file for the Nzema project spanned the years 2009-2010. Additionally, scientific literature on gold mining was consulted. Subsequently, for the remaining 1½ week, interviews and focus group discussions were performed with a sample of the three main actor groups involved in the EIA process surrounding the mines: the proponent initiating the mine, the EPA staff involved, and the communities affected by the project.

3.2.1 Literature survey

A literature review was conducted throughout the research; with respect to the cases studied, scientific literature on the gold mining process and associated geochemical impacts, monitoring, and mitigation methods, specifically focusing on developing countries, was studied to enhance the author's understanding of the quality and completeness of the EIS and compliance monitoring in the follow-up stage. The EIS did not provide a non-technical summary, which makes evaluation of the EIS by laymen, such as for instance the affected communities, difficult, which is likely to hamper effective public participation. Also, literature on resettlement and alternative livelihood development was consulted to gain an insight with regard to the effectiveness of the social impact mitigation strategies proposed in the EIS.

3.2.2 EPA case file content analysis

For this research, the developments that led to the observed outcomes are reconstructed based on the EPA case files regarding the cases studied, using a historicizing approach (cf Verschuren and Doorewaard, 1999: p122). For the Ahafo South project, case files CM43_2, CM43_4 and CM43_5 were studied (three out of apparently five case files), covering the years 2007 until mid 2009, with some additional information present regarding earlier events. For the Nzema case, file CM1064_4 was studied, covering the years 2009-2010 and also providing some indication of prior events. From these files, the minutes of various meetings between the proponent, the EPA and the project affected peoples (PAPS), together with written correspondences between these and other (boundary) actors, were consulted so as to provide information relevant to the capacity indicators discussed in paragraph 2.6.

The advantage of using this historicizing approach is that there is no influence of behaviour provoked by the researcher. The actors involved were not aware of the later use of the minutes of their meetings and their correspondences in this research, and therefore did not exhibit socially desirable behaviour that might bias the research. The case files can furthermore be consulted by other researchers to verify the

accuracy of the reconstruction of events as represented in this thesis, and the source material allows for repeated analysis.

A limitation of this approach is that only the information that is captured in writing and filed by the EPA is available: this information was not bundled into the case files for the aims of this research but rather for the purposes of the EPA. The case files furthermore only cover a selection of the total of actual interactions: additional interactions may have been informal and not captured in writing, or additional information may have been available in different sections of the case file than available, or additional documentation might have been found at the EPA regional offices, but these sources were not available for study for this research. As such, the conclusions in this research, where based on the case files, are based on an incomplete data set and may be revised in the light of new information becoming available. The accuracy of the claims made here is where possible substantiated by cross-referencing findings, using a triangulation of the findings from the case file study with findings from other data gathering methods described in this chapter.

In retrieving the case files, with respect to the capacity of the EPA to maintain methodical data for evaluation, it should be noted that the administration system is not digitized: only hardcopy versions of the case files exist. Furthermore, the administrative ordering of the case files is not methodically organized: there is, for instance, no discernible filing system as for instance an alphabetically organized overview of case files, nor are the case files necessarily located in the same room, or is there a clear method identifiable for an outsider with regard to what is to be filed in the case files. It appears difficult to maintain a clear overview of where which case file is located at any moment, and it may be (as appeared to be the case in some instances) that documents are removed from the files but not returned. This may have influenced the availability of data for this research: despite numerous requests and support from various staff members, no environmental permits for either of the two cases were retrieved, and with respect to the Ahafo South case it took over 3 ½ weeks to acquire the first EPA documentation on this project. Besides administrative issues, difficulty in obtaining documents may have been due to the fact that the case files of relevance for this study belong to the Mining Department, whereas the support staff assisting with locating the case files falls under the Environmental Assessment and Audit department, adding departmental administrative barriers. The administration of case file information might constrain effective monitoring of EIA implementation progress, as is discussed further when discussing the case studies in Chapter 5 and 6.

3.2.3 Individual interviews and focus group discussions

Based on the case file study key interviewees from the EPA, the proponents and the project affected peoples involved in the two cases were identified and approached. Recurrent names or specific persons involved in apparently important decision-making interactions were selected and, where possible, their contact details were obtained. The semi-structured interviews were based on six main issues that required clarification with respect to the performance and capacity indicators for this research:

- (i) the practical implementation of EIA regulations by the EPA and proponent in order to get an insight into the degree to which the EIA regulations provided clear guidelines for implementation and the extent to which these guidelines were followed in practice

- (ii) the main issues that demanded most time and attention from the respective actors in the EIA process, to get an insight into the dedication of resources and the topics that received most attention during the EIA process
- (iii) the technical project design and how this was discussed, reviewed and changed during the EIA process, so as to get an insight into the project design changes resulting from the EIA process
- (iv) who influenced key EIA decisions, to get an understanding of which key actors in the EIA system managed to influence EIA process outcomes
- (v) identifying the affiliations of actors in the EIA system towards EIA goals and other actors in the EIA system to gain an understanding of the motivations behind the actions that actors undertook to influence EIA process outcomes, and
- (vi) perceptions of interviewees on their own power and the power of other stakeholders, on the capacities of other stakeholders, on the role of and omissions in EIA and other relevant legislation, and on key issues that need to be addressed in order to enhance EIA performance, so as to get an insight into their views on key factors hampering EIA performance

Furthermore, the interviewees were asked what they believe would have happened if no EIA had been performed: would the outcomes have been the same? In this way, an estimation is constructed of the performance of the projects if there was no effect of the EIA process. This hypothetical ‘counterfactual’ scenario helps to identify whether the observed performance would also have happened if there was no effect due to the EIA process, and helps placing the observed performance in the range between ideal effects and no effects of EIA.

The interviews were partially recorded, and partially hand-written notes were taken, because some interviews were conducted in transit or in noisy restaurants (e.g. the interview with ARL’s former Community Relations Manager (CRM) lasted for over 5 hours, partly taking place in two restaurants, partly taking place while driving around Takoradi; the interviews with the Salman community lasted also about 5 hours, walking through the village from one house to the next), or working places where other people were discussing business matters (e.g. the interview with ARL’s Business Finance Manager (BFM) was conducted in his shared office in Accra; the interview with the EPA staff at Sekondi was conducted in the office where the Regional Director was on the phone about other projects, making recording of the interview imprudent. The interview recordings and notes were transcribed and analyzed after the field work.

Interviewees	ARL’s Nzema project	Newmont’s Ahafo South project
EPA regional office	4 (former Regional Director, one Program Officer, and 2 Principal Program Officers (PPO’s))	1 (PPO)
EPA HQ	2 (PPO Mining Dep’t, Head of EAA Dep’t)	2 (PPO Mining Dep’t, Head of EAA Dep’t)
Proponent	2 (CRM, BFM)	0
Consultants	0	0
NGOs	1 (WACAM: 1 interviewee)	2 (WACAM: 1 interviewee; CSP2: 2 interviewees)

PAPs	4 (Chief & elders, Farmers representative, and 2 members of the Resettlement Negotiation Committee)	0
Independent external consultants	0	1 (Resettlement expert involved in social compliance monitoring)

Table 4: Overview of interviewees

No interviews were achieved with the consultants writing the EIS’s for both cases. The consultancy firm that wrote both project EISs was the same: SGS Environment. No names of consultants were provided on the EIS: SGS was contacted by e-mail to ask who worked on these EISs and if it was possible to obtain their contact details. However, within 30 minutes a response from SGS noted that the consultants were not working at SGS anymore. Considering the fact that the name(s) of these consultants were unknown to me, either due to a fortunate set of circumstances I managed to get in touch immediately with an employee of SGS who was well-informed about the cases that information was requested for, or SGS was not inclined to share information for this research. Considering the swiftness of the response in combination with the reputation that SGS appears to have in Ghana (cf Akabzaa and Darimani, 2001) as a well-established Ghanaian consultancy firm and environmental laboratory which is both a serious environmental polluter and an authority in establishing pollution levels of companies for the Ghanaian government, it would appear probable that SGS was not willing to provide assistance for this research.

No interviews were possible with representatives of Newmont: I have contacted the two key Newmont representatives that were named in the case files via the e-mail-addresses found in the case files, but despite repeated attempts no response was received. During discussions with the EPA staff it became clear that one of the two Newmont representatives was recently deceased; through an internet search it became clear that the other Newmont representative had accepted a different position within the company and was not working in Ghana anymore.

Furthermore, a field visit to the Ahafo South Project area was planned to, if possible, interview the project affected people (PAP), but due to illness at the planned time of travel I was not able to visit the project location to perform interviews.

3.2.3.1 The Nzema interviews and focus group discussions

With regard to the Nzema case, the Head of the Regional EPA office was interviewed as well as one of the Program Officers involved, and from the headquarters Mining Department the Principal Program Officer involved was interviewed during a focus group discussion involving also two of the Principal Program Officers involved in the Nzema project. Furthermore, the proponent’s former Community Relations Officer (CRM) generously dedicated an afternoon of about 5 hours to discussing various aspects of the company’s experience with the EIA process, EPA staff and the local communities. In response to my request for an interview, ARL’s Business and Finance Manager (BFM) made over an hour available for a meeting at ARL’s Accra head office, where some colleagues in the shared office joined in on the discussed topics. Finally, the former CRM arranged a meeting with the Farmer’s representative of Salman, who arranged a meeting with the Chief and elders for an interview/focus group discussion, as well as meetings with two members of the Resettlement Negotiation Committee.

Worthy of notice in this respect is that, according to local customs and traditions, an offering has to be made to the Chief when meeting with him. This offering consists of a traditional alcoholic beverage and/or a sum of cash. The researcher was explained by the former Community Relations Manager how to proceed with these matters, and suggested to provide between 30-50 new Ghana cedi in envelopes both for the Chief and the Farmers representative. The researcher has chosen to dedicate 40 new Ghana cedi (almost 17 euro) to each envelope in this respect. When later discussing this matter with an anthropologist he noted that in anthropological research no compensation is allowed to be given as this may reduce the validity of responses. The researcher was unaware of this anthropological research 'rule' and unfamiliar with the customs in Ghana and the implications of neglecting these, and did not object to payment for information in this respect; it should thus be noted that this, as well as the fact that the meetings were arranged based on existing network relationships might have invited a biased response due to pre-selection of the interviewees by the former CRM and the Farmers representative based on criteria unknown to the researcher.

3.2.3.2 The Ahafo South interviews and questionnaires

As noted in paragraph 3.2.1, the EPA case files for the Ahafo South project were only obtained late in the field work, which left little time to review the information, identify key interviewees and approach them for interviews. Furthermore, as noted in paragraph 3.2.3, due to illness it was not possible to travel to the Ahafo South project location to perform interviews. This accounts for the limited number of interviewees with respect to this case.

To enhance insights despite the missing data, first of all the Ahafo South Project documentation that can be found online was reviewed. This includes various reports drafted over the period 2005-2009 with regard to the Independent External Social Compliance review (part of the IFC requirements in granting Newmont a loan for the Ahafo South project), the Technical Review of the Ahafo South EIS by the Centre for Science in Public Participation (CSP2), progress reports on Newmont's Alternative Livelihoods programme, and reports by other NGO's such as WACAM and Fian International on social issues resulting from the Ahafo South Project. Based on the information obtained, questionnaires were e-mailed to two of the resettlement experts involved in the Independent External Social Compliance monitoring programme: both responded, however only one of the experts provided his insights regarding the questions posed. The other expert indicated that she needed to review the extent to which her working agreement with Newmont allowed her to provide answers to the questions posed, but despite repeated contact did not provide further insights. Also, WACAM, a Ghanaian advocacy NGO against mining, and CSP2, an NGO providing technical reviews on EIA reports in the global mining sector were contacted; both organizations responded to the questionnaires posed in writing.

Furthermore, some key interviewees with whom it was not possible to meet during the field work (e.g. EPA regional office staff involved in the Ahafo South Project, and representatives of Newmont involved in the Ahafo South Project) were approached by e-mail with questionnaires; The Principal Program Officer of the regional EPA, who was actively taking part in the Ahafo South project, responded to the questionnaires, however the representatives of Newmont did not respond. After repeated attempts and asking other interviewees about possibilities to get in touch with Newmont, it was found that one of the representatives of Newmont selected for further questions was recently deceased; the other had

changed to a different position within Newmont and was not working in Ghana anymore. It however appears not uncommon⁶ to receive no response to outside requests for information in Ghana's mining sector. Several interviewees noted that the mining sector in Ghana, due to the substantial financial interests involved, tends to be less open with respect to sharing information than other sectors.

3.2.4 *Personal observations and informal data gathering*

In addition to semi-structured interviews participatory observations were made when observing a meeting of the National Technical Review Committee on May 16th 2012, in which EPA staff from the EAA department, the Oil & Gas Department and the Finance Department participated together with representatives of other EIA actors such as Town & Country Planning and the Council of Scientific and Industrial Research. Furthermore, when visiting the project area and talking to the local inhabitants, various formal and informal observations were made. Additionally, by chance acquaintance was made with a small-scale gold miner from Dubai who was residing at the same hotel. Informal discussions with him and his associates provided additional informal information on gold mining in Ghana and the EIA system.

3.2.5 *Validation workshops*

Three validation workshops were held to request expert feedback on preliminary findings. First, before departing for the field work, a validation workshop at the NCEA office in The Netherlands was held with the NCEA Foreign Department staff to present the preliminary conceptual model with respect to the relation of actor capacities to EIA performance. The response of the experts was positive with respect to the conceptualized relations; additional background material was suggested, but no major design flaws or omissions were noted.

The second validation workshop was performed at the end of the field visit, involving staff from the EPA headquarters Mining Department and Environmental Assessment and Audit Department. Here, the preliminary findings were presented and discussed. The attendees acknowledged that case file administration was lacking, and did not object to the observation that the knowledge base for EIA performance appears to be residing in the EPA specialists but is not available in methodological and transparent documentation and user guides. The preliminary finding that staff shifts appeared common was corrected; the attendees noted that in the specific cases studied this indeed happened because of an exceptional issue with staff from a regional office, but that in general staff tended to remain stable at the same place. The statement that the government appears to be influential in determining the rules of interactions was not recognized as such; the government was seen as having a minimal role in EIA, hardly taking part above the District Assembly level. This difference in view may be due to the fact that in practice, the EPA staff works within the system influenced by the institutional context, whereas the researcher took an outsider view on the context factors determining the freedom of actors to manoeuvre in practice. The limited number of specialists available was acknowledged, as well as the room for improvement with respect to the sharing of monitoring information between the EPA headquarters and regional offices. With respect to the division of power, the EPA staff noted that the

⁶ <http://www.nytimes.com/2006/02/01/international/africa/01africa.html?ref=newmontminingcorporation&r=moc.semityn.www>

EPA as the regulatory agency for EIA was a more powerful actor than the preliminary results indicated; this feedback is further discussed in Chapter 7, which compares the two case studies.

The third validation workshop was held at the NCEA after returning from the field work and during data analysis. Again, additional background material was suggested, but no major design flaws or omissions were noted.

3.3 EIA performance operationalization

As noted in Chapter 1, the Ghanaian EIA legislation is ambitious, in the sense that it is aimed not only at well-informed decision-making, but also at environmental protection and sustainable development (Kolhoff et al., 2012; EPA Annual Report 2010; Sampong, 1998). Sadler (2004) concludes that a comprehensive, “whole process” approach, involving all stages of the EIA project cycle, is required for EIA system performance assessment. To incorporate this “whole process” approach, in this research, the full EIA project cycle comprises the environmental impact assessment (EIA) stage, which in Ghana involves screening, scoping, the drafting of the Environmental and Social Impact Statement (ESIA) and the organization of public hearings, up to and including the decision on the Environmental Permit (EP); and the Follow-up stage, which includes the monitoring of compliance with and the enforcement of EP conditions, the decision on the Environmental Certificate (EC) which is to be decided upon within 24 months of project commencement and in which the Ghanaian EPA can establish (new/additional) conditions to the proponent, and subsequent assurance of compliance with the EC conditions. Based on LI 1652, Table 1 provides an overview of the procedural steps prescribed regarding EIA in Ghana, together with the actors involved at each stage, and the procedural output that should result from each process step.

3.3.1 Procedural steps in Ghana’s EIA regulations and procedural performance indicators

During the EIA stage, including all procedural activities leading up to and including the Environmental Permit, there are a number of time-related requirements. First, after the proponent has registered the proposal with the EPA and has provided the EPA with the screening report, the EPA has to respond to the proponent within 25 days to inform them about the extent of the environmental assessment required for the proposed activity. If a full EIA is required, the proponent has to draft, in consultation with the relevant stakeholders, a scoping report with the Terms of Reference (ToR) regarding key issues that are to be addressed in the environmental assessment.

When the EPA has provided review comments on the scoping report and ToR, the EIS is drafted, again in consultation with the relevant stakeholders, by the proponent according to the specifications agreed upon in the scoping report and ToR. When the EIS is drafted, the second time-constrained activity is that the EPA has to publish a notice in the Gazette that the EIS is made publicly available for 21 days. Subsequently, the EPA organizes public hearings with regard to the EIS to allow stakeholders to acquire additional information about the project or to communicate their concerns. The EIS is then finalized by the proponent, and after it is accepted the EPA decides on the issuing of an Environmental Permit. The issuing of the EP is the final activity in the EIA stage; subsequently, the Follow-up stage commences.

After the EP is issued, the third time-constrained activity prescribed by the EIA regulations requires that the EPA provides a notice in the Gazette that an EP has been issued for the project within 3 months of issuing the EP. The fourth time-constrained requirement is that, after the EP has been issued, the proponent has to commence operations with regard to the project within 18 months after receiving the EP. After 18 months, the EP is rendered void if the project has not commenced operations. A fifth time-constrained requirement is that the proponent has to provide the EPA with an Annual Environmental Report (AER) within 12 months of commencement of operations.

	Procedure	Activity	Actors involved	Output
EIA stage	EIA application	Registration of activity with potentially significant impact on the environment or local communities	Proponent submits to EPA	EIA registration
	Screening	Decision by EPA, < 25 days after registration, on level of assessment required (initial; preliminary; full assessment)	Proponent, EPA (regional office), cross-sectoral Technical Committee (regional)	Starting document, Screening report, Preliminary Environmental Report (PER)
	Scoping	Consultation with stakeholders (government officials and members of the public), scoping notice publication, drafting of Terms of Reference (ToR) reflecting consultation outcomes	Proponent, EPA (EAA department of EPA HQ, Technical Review Committee (TRC)), affected and interested parties	Scoping report with ToR
	Environmental Assessment	Assessment of potential environmental, social, cultural, economic, and (if applicable) transboundary impacts; EIS is published for 21 days (notification published in Gazette), when impacts are extensive public hearing organized by EPA; review by EPA and TRC with quality assurance; decision by EPA on EP	Proponent, EPA (regional office, EAA department of EPA HQ, TRC), affected and interested parties	EIS, review report
	Environmental Permit	EP under conditions issued (valid for 18 months); Decision on EP published in Gazette < 3 months after issuing EP	EPA (EPA HQ)	Environmental Permit
Follow-up stage	Compliance Monitoring	Self-reporting by proponent, EPA (regional office, HQ) site visits	Proponent, EPA (Mining Department of EPA HQ, regional office)	EMP, Annual Environmental Reports (AERs), field visit reports
	Environmental Certificate	Regularization of provisional EP into EC < 24 months after commencement of operations	Proponent, EPA (HQ)	EC
	Compliance Assurance	Enforcement of regulations during follow-up stage; complaints of PAPs may trigger field visits, recommendations and directions by EPA	EPA (Mining Department EPA HQ, EPA regional office), PAPs	Field visit reports, recommendations and directions to proponent by EPA, possibility of fine, suspension/cancellation/revocation of EC

Table 5: the Ghanaian EIA process, actors and procedural outputs

The sixth time-constraint is that the proponent has to provide the EPA with an Environmental Management Plan within 18 months after commencement of the operation. The final time-constrained requirement is the obligation of the EPA to decide on the issuing of an Environmental Certificate for the project within 24 months of commencement of the project.

Procedural performance is assessed by determining whether the actors involved in EIA have followed all prescribed steps, and whether all required outputs have been delivered in time. Table 1 provides an overview of the procedural steps required for EIA in Ghana. The procedural indicators are derived from the prescribed steps in Ghana’s EIA legislation (LI 1652) in combination with indicators identified in the literature on procedural EIA performance (Wood, 2003). The indicators used to assess procedural performance are provided in Table 6.

	EIS	EP	CME	EC
Procedural Indicators	Timely execution of screening (Wood, 2003)	Issuing of permit	Execution of compliance and enforcement procedures (Wood, 2003)	Timely issuing of certificate
	Timely execution of scoping (Wood, 2003)		Execution of public participation (Wood, 2003)	
	Timely execution of review procedure (Wood, 2003)			
	Timely execution of public participation (Wood, 2003)			

Table 6:Procedural indicators

The next section focuses on substantive EIA performance in Ghana and identifies the substantive performance indicators used in this research.

3.3.2 Substantive performance in Ghana and substantive performance indicators

As was explained in paragraph 2.1.1, substantive performance relates to the extent to which decisions that were taken during the EIA process are well-informed and protective of the environment. There are several decisions that have to be made during the different sub-stages of the EIA process, and the actors involved in EIA each have their own responsibilities per (sub) stage of the EIA process. Table 7 and 8 below provide an overview of the decisions and tasks of each actor throughout the EIA stage and Follow-up stage.

Actor	Decision	Task (based on LI 1652)
EPA	What to include in the environmental assessment (screening, scoping & ToR)	Set and/or monitor implementation of guidelines for screening, scoping and ToR; review compliance with guidelines, provide recommendations and directions
	Who to include as stakeholders and how to include them (public participation)	Review compliance with scoping report and ToR guidelines, provide recommendations and directions; organize public hearings
	The valuation of the completeness and quality of the EIS as a document adequately describing the environmental impacts of the project (EIS, review)	Set and/or monitor the implementation of guidelines for EIS, review compliance with guidelines, provide recommendations and directions
	The extent to which the EIS determines the conditions of the Environmental Permit	Review compliance with EIS guidelines, provide directions via EP conditions
Proponent	What to include in the environmental assessment (screening, scoping & ToR)	Draft screening, scoping and ToR in accordance with guidelines and EPA recommendations and directions
	Who to include as stakeholders and how to include them (public participation)	Provide stakeholder analysis in scoping and ToR, respond to recommendations and directions by EPA; negotiate resettlement and compensation with PAPs
	The valuation of the completeness and quality of the EIS as a document adequately describing the environmental impacts of the project (EIS, review)	Draft EIS in accordance with guidelines, respond to EPA recommendations and directions
	The extent to which the EIS determines the conditions	N/A

	of the Environmental Permit	
PAPs	What to include in the environmental assessment (screening, scoping & ToR)	(with controversial project) provide input for scoping and ToR
	Who to include as stakeholders and how to include them (public participation)	Provide input for scoping and EIS via public hearings and during EPA field visits; negotiate resettlement and compensation with proponent
	The valuation of the completeness and quality of the EIS as a document adequately describing the environmental impacts of the project (EIS, review)	Provide input for EIS
	The extent to which the EIS determines the conditions of the Environmental Permit	N/A

Table 7: Decisions and actor tasks in EIA stage

Actor	Decision	Task
EPA	How to perform compliance monitoring and what type of enforcement measures to employ	Review compliance with EP conditions, provide recommendations and directions
	Who to include as stakeholders and how to include them	Review compliance with EP conditions & negotiated agreements with proponent on resettlement and compensation, provide recommendations and directions
	The extent to which monitoring outcomes determine the conditions of the Environmental Certificate	Review compliance with EP conditions and recommendations and directions
Proponent	How to perform compliance monitoring and what type of enforcement measures to employ	Implementation of EP conditions and EPA recommendations and directions; implementation of negotiated agreements with PAPs
	Who to include as stakeholders and how to include them	Implementation of EP conditions & negotiated agreements with PAPs on resettlement and compensation
	The extent to which monitoring outcomes determine the conditions of the Environmental Certificate	N/A
PAPs	How to perform compliance monitoring and what type of enforcement measures to employ	Review compliance of proponent with EP conditions & negotiated agreements, voice concerns to EPA and proponent
	Who to include as stakeholders and how to include them	Review compliance of proponent with EP conditions & negotiated agreements, voice concerns to EPA and proponent
	The extent to which monitoring outcomes determine the conditions of the Environmental Certificate	N/A

Table 8: Decisions and actor tasks in Follow-up stage in EIA

Substantive EIA system performance is determined by assessing to what extent the decisions made during the EIA stage and Follow-up stage have led to the fulfilment of actor tasks (i.e. intermediate goal achievement), whereby the fulfilment of intermediate goals in the end should result in the achievement of the ultimate goals of the EIA process: well-informed decision-making and environmental protection. For instance, the EPA in the EIA stage has to set the guidelines for screening, scoping and the accompanying terms of reference, and has to assure that the proponent complies with the guidelines that were specified. If the EPA provides adequate guidelines and monitors and enforces compliance with these guidelines, the result should be that the information addressed in the EIS is complete (in the sense that it covers all relevant topics) and of good quality (in the sense that the methods used for impact assessment provide an overview of the environmental impacts in line with the guidelines, and are thus providing adequate information for decision-making). If however the guidelines for screening, scoping

and the drafting of the ToR are inadequate or the EPA does not assure compliance by the proponent with the guidelines, completeness and quality of the EIS cannot be assumed.

Another example: if the proponent with respect to public participation during the EIS stage (or, as is the case for controversial projects, already during scoping) performs a stakeholder analysis and identifies all relevant parties to be included and provides a platform to discuss concerns and questions of the project affected peoples, then these remarks by the project affected people are available for inclusion in the assessment of (social) impacts and the proposed project design. This would ensure that community concerns are addressed in time for changes in the project design to occur, and would lead to well-informed decisions being made by the proponent and EPA with respect to the proposed project design. However, if public participation does not include all relevant stakeholders, or if public participation is performed after the environmental permit has been issued, completeness of the EIS and influence of public participation on project design and implementation is not available at the moment of decision-making, and thus the project design will not incorporate all relevant stakeholder concerns.

The decisions that have to be taken during each step of the EIA process are described in Table 7 and 8. Table 9 provides the indicators that are used in this research to provide an insight into the substantive performance of the EIA system in Ghana. The substantive indicators are based on the key decisions that need to be taken during the EIA process as described in Ghana's EIA regulations, in combination with a literature review regarding substantive performance assessment and common indicators used to assess substantive EIA performance (Sadler, 1996; Kolhoff et al., 2009; Van Doren, 2011).

	EIS	EP	CME	EC
Substantive Indicators	Quality of screening procedure (Sadler, 1996)	Influence of EIS outcomes on EP decision (Sadler, 1996)	Quality of compliance and enforcement procedures (Sadler, 1996)	Influence of monitoring outcomes on EC decision (Sadler, 1996)
	Quality of scoping procedure (Sadler, 1996)	Congruence of EP with EIS findings (Van Doren, 2011)	Quality of public participation (Sadler, 1996)	Congruence of EC with EP and EIS requirements (Van Doren, 2011)
	Completeness (Wood, 2003) and quality of EIS (Sadler, 1996)	Quality of environmental permit procedure (Sadler, 1996)	Voluntary environmentally beneficial design changes due to monitoring (Kolhoff et al., 2009)	Quality of environmental certificate procedure (Sadler, 1996)
	Quality of review procedure (Sadler, 1996)	Forced change of project design due to EIS/ permit under conditions (Kolhoff et al., 2009)	Forced change of project design due to compliance monitoring (Kolhoff et al., 2009)	Forced environmentally beneficial implementation design changes / Certificate under conditions (Kolhoff et al., 2009)
	Quality of public participation (Sadler, 1996)	Forced withdrawal of project due to EIS / no permit (Kolhoff et al., 2009)		Forced withdrawal of project / no EC (Kolhoff et al., 2009)

	Voluntary change of project design due to EIA procedures (Kolhoff et al., 2009)	2009)		
--	---	-------	--	--

Table 9: Overview of procedural and substantive indicators

In assessing substantive performance, the *quality of the execution* of the procedural steps is considered: the quality of the information provided for decision-making determines the extent to which decisions made are based on adequate information, and thus whether these decisions were substantively well-informed decisions that provide an adequate basis for making decisions about the environment.

For the EIA stage, Van de Riet (2003) provides a number of requirements to produce useful knowledge; these criteria serve as a guideline to determine the quality of the information that was available to decision-makers. These criteria are used as a guideline to discuss the quality of the substantive EIA outcomes. The following issues will be focused on to assess EIA stage substantive performance: (i) the environmental assessment should provide a scientifically sound and reliable analysis, (ii) the information provided should be valid and transparent, (iii) access to information should be provided for all stakeholders, (iv) the public should be involved, and (vii) the study should be presented in a manner that policy-makers can understand (Van de Riet, 2003).

With respect to the quality of substantive outcomes in the Follow-up stage, based on Marshall et al. (2005) the following issues are evaluated: (i) has monitoring included the collection of data and comparing with standards, predictions or expectations; (ii) has the assessment of compliance with decisions been executed; (iii) were periodical objective evaluations of monitoring observations performed with pre-defined criteria; (iv) were decisions and appropriate action taken in response to issues arising from monitoring and evaluation;? These issues, enabling a determination of the quality of the steps taken during the EIA and Follow-up stage, will be addressed in the discussion of the findings for each case (cf Chapter 6 and 7).

3.4 Actor capacity operationalization

The EIA requirements for each actor can give an indication of which actor capacities are called on for the performance of the function of that actor in the EIA process. Paragraph 2.3.2 outlined the key decisions that need to be taken during the EIA process, and the tasks that each of the actors has according to the EIA regulations. Here, the focus is on establishing the link between the tasks that the actors in the Ghanaian EIA system have, the capacities they need to adequately fulfil this task, and the hypothesized effect of actor’s capacities on EIA system performance.

3.4.1 Capacity indicators

In this section, the indicators for the actor capacities are provided. Note that the capacity ‘power’ is indirectly measured by assessing an actor’s knowledge, resources and network capacity. A distinction is made between the indicators for establishing an actor’s initial power, which is considered as part of the ownership capacity (cf paragraph 2.4) , and the use of power, which is considered under the capacity of leadership. Therefore, indicators for the capacities knowledge, resources and network appear both

under the headings initial power and leadership, separating the indicators for the capacities knowledge, resources and network into indicators that are used at the input level of the conceptual model to determine an actor's initial power, and at the process level to determine an actor's use of its power during negotiations with other actors.

Ownership

The indicators used to assess ownership are provided in Table 10 below.

Ownership	Did the actor have a formal role and responsibility allocated to them in the EIA process? (Kolhoff et al., 2009; ECDPM, 2009)
	Do the goals of the actor align with EIA process goals? (Ansell and Gash, 2008; ECDPM, 2009)
	Do the goals of the actor align with the goals of other actors (co-ownership of goals)? (Ansell and Gash, 2008; Avelino and Rotmans, 2009)

Table 10:ownership indicators

Initial power

The indicators for power at the input level are thus indirect measures of initial power derived from the level of knowledge, resources and network that can be identified at the onset of the EIA process; these indicators are depicted in Table 11 below.

Power	What is the level of resources, knowledge and network of each actor (see questions for these capacities below)?
Knowledge	Suitability of prior education and work experience for job – which education did the actor have? Which working experience? Does the educational and work background of the actor equip them for their current job requirements?
	Experience with EIA – how extensive is the actor's involvement with EIA (frequency per year, amount of years)
	(in)dependence of knowledge actors – What is the place of the knowledge actor in their organizational hierarchy? What knowledge do they contribute to the process? What is the quality and comprehensiveness of the knowledge they introduce?
	Discourse / issue framing ⁷ – which issues are expressed by actors as being central to the negotiations in the EIA process (e.g. technocratic, bureaucratic, environmental conservation)? How is the problem defined?
Resources	Staff hours allocated to EIA process – how many staff hours are available to the actor to participate in the EIA process?
	Equipment available – which database, computers, transport, environmental modelling software etc. does the actor have access to?
	Travel expenses allocated – what is the allocated budget for travelling to meetings and project sites for observations?
	Source of funding (fixed budget, periodical renewal of budget allocation) – who allocates the budget and what are the conditions for the allocation?
Network	Amount of connections – how many connections can be traced for each actor pertaining to the EIA process?
	Directionality of connections – who contacts who in the network? What is the reported reason to contact others?
	Policy level of connections – at which policy level do the network connections operate?
	Formal or informal connections – are the contacts with other actors who have a formal role in the EIA process, or are boundary actors contacted that formally do not have a role in the EIA process but can pressure actors within the EIA process?

⁷ Discourse / issue framing in an ongoing process, and this indicator will also be discussed during the process stage; here a characterization of the actor's general discourse is intended, the actor's initial formulation of the issue under discussion

	Quality of connections – What are the network connections based on (business network, friendship/family relations, knowledge about EIA, political influence, duration in years and intensity of contact)
	Social status of actor within the network – what is the self-reported status of actors in the network? What is their status as seen by the other actors?
	(in)visibility of the network – to what extent are other actors aware of the network connections of actors in the EIA process? To what extent is the general public aware of the network?

Table 11: Initial power indicators

Leadership

The indicators used to identify leadership are depicted in Table 12 below.

Leadership	Determination of formal agenda points for meetings – who created the agenda?
	Directed towards EIA process goals or other goals – were the actions of the actor directed to achieving EIA process goals?
	Focused on own or mutual benefit – were the actions of the actor in line with the interests of other parties?
	Interaction style (leading / dictating, assertive / passive) – was the leadership style confrontational or explorative with regard to negotiating outcomes? Was the expressed leadership active or avoiding? Did the actor create situations that enhanced the trust levels in negotiations? Were requirements actively enforced?
	Task-oriented or relation-oriented – Was the actor focused on keeping good relations with other actors? Was the actor focused on ensuring the quality of the environmental assessment/permit procedure/information used in compliance monitoring
	Use of media – did actors mobilize journalists/papers/internet sites to support their goal achievement?
Knowledge	Equipment and methodologies used – which equipment was used, did the operator receive training to use the equipment? Are methodologies clearly specified in handbooks and used in practice?
	Knowledge gating (in network) – who had which information at what stage in the timeline of the EIA process, and who shared which information at what time with whom during the EIA process?
	Discourse / issue framing ⁸ – which issues are expressed by actors as being central to the negotiations in the EIA process (e.g. technocratic, bureaucratic, environmental conservation)? How is the problem defined?
	Type of knowledge used (process, content, (in)formal) – did the actor focus on content of environmental assessment or permit requirements, or was the focus on influencing process rules? Was the information used related to the formal requirements of the EIA process?
Resources	Travel expenses allocated – what is the allocated budget for travelling to meetings and project sites for observations?
	Source of funding (fixed budget, periodical renewal of budget allocation) – who allocates the budget and what are the conditions for the allocation?
Network	Amount of connections – how many connections can be traced for each actor pertaining to the EIA process?
	Directionality of connections – who contacts who in the network? What is the reported reason to contact others?
	Policy level of connections – at which policy level do the network connections operate?
	Formal or informal connections – are the contacts with other actors who have a formal role in the EIA process, or are boundary actors contacted that formally do not have a role in the EIA process but can pressure actors within the EIA process?
	Quality of connections – What are the network connections based on (business network, friendship/family relations, knowledge about EIA, political influence, duration in years and intensity of contact)
	Social status of actor within the network – what is the self-reported status of actors in the network? What is their status as seen by the other actors?
	(in)visibility of the network – to what extent are other actors aware of the network connections of actors in the EIA process? To what extent is the general public aware of the network?

Table 12: Leadership indicators

⁸ Discourse / issue framing here concerns the specific discourse used by the actor within the set of interactions concerning one delineated topic (e.g. ‘representation of environmental impacts in the EIS’, ‘resettlement of one community’, ‘the construction of a bypass road from A to B’)

Adaptability

The indicators used to identify adaptability in the conceptual model are described in Table 13 below.

Adaptability	Development/change of use of network, resources, and knowledge during EIA process – did the actor use different knowledge/network contacts/resources during different stages of the EIA process? Which circumstances triggered a change in the use of knowledge/network/resources? Did the emphasis of the actor on the use of either knowledge/network/resources vary per stage of the process?
	Development of expressed goals during EIA process – do the actors report a change in the goals they were trying to achieve at the onset of the EIA process, during the process, and at the end of the process?

Table 13: Adaptability indicators

3.4.2 Context indicators

Table 14 provides an overview of the indicators used to analyze the influence of context factors.

Context factor	Indicators
Institutional design	What were the role requirements and rules of interaction specified in legislation additional to the EIA legislation and EIA process guidelines for each actor?
	How clear are the role specifications?
	To what extent are environmental policies and other sectoral policies integrated?
Incentives	Do the requirements in the EIA process for each actor align with the goals of the actors?
	Are enforcement penalties in balance with possible breaches of compliance?
History of conflict or cooperation	Did the actors have previous contact with each other?
	Did they experience their previous contact as constructive, or were they in conflict with each other?

Table 14: Context factors during the EIA

3.5 Data analysis

The focus of the analysis is on the key actors in the EIA process: the EPA, the proponent and the project affected people (PAPs). In the Ahafo South project, the IFC is involved, along with its environmental assessment system that is a condition to the provided loan. The IFC environmental assessment system is not the focus of this research; the main analysis is focused on the Ghanaian EIA system.

The procedural and substantive performance assessment makes use of the indicators provided in paragraph 3.3. When analyzing substantive performance in the EIA stage, the focus is on whether the information resulting from EIA has resulted in the delivery of useful knowledge which is scientifically valid and relevant for debate (Van de Riet, 2003). The evaluation of substantive performance for the EIA stage based on Van de Riet (2003) focuses on whether

- (i) a scientifically sound and reliable analysis has been performed
- (ii) if the validity and transparency of information has been secured
- (iii) if access to information is available to all stakeholders
- (iv) if the public has been involved and provided input on the proposed project design
- (v) and whether the results are presented in a manner that policy-makers can understand

To assess the quality of the follow-up process, use is made of criteria posed by Marshall et al. (2005):

- (i) has monitoring involved the collection of data and comparing these with standards, predictions or expectations to determine compliance with decisions?
- (ii) has valuation, the periodical objective examination of monitoring observations with pre-defined criteria, taken place?
- (iii) has management been making decisions and taking appropriate action in response to issues arising from monitoring and evaluation?

The influence of actor capacities on EIA performance will be assessed using the indicators provided in paragraph 3.4. The analysis of the results is performed using the conceptual model (paragraph 2.3.6) and the associated capacity hypotheses discussed in Chapter 2.4. The capacity hypotheses will be qualitatively discussed using a triangulation of the methods described in paragraph 3.2; only regarding the capacities knowledge, resources and network a partially quantified description is provided based on secondary data such as annual reports and data from the Ghana Statistical Service.

3.6 Limitations

The aim of this Master thesis is to explain EIA system performance by actor capacities. An explanation implies that causal relations are established between the outcome of the EIA process and the effect of actor capacities. Determining causality requires establishing that the cause precedes the effect; that the outcome co-varies with the identified cause; and that there are no confounding variables that might provide an alternative explanation for the observed phenomenon (non-spuriousness). Though with the method maintained here the first two of these three criteria can be determined, non-spuriousness cannot be assured. The reconstruction of events is exactly that: a reconstruction. It may that important information, which was accessible to a direct observer of the events, has not been taken into account. Also, it may be that information from other sources than those studied for this research provide new insights that change the 'most probable' explanation of events that is established here based on a triangulation of methods.

Secondly, the weighing or valuation of performance outcomes gives a representation of events *through the lens of the criteria established* for performance evaluation: choosing different delineations, e.g. instead of focusing on well-informed decision-making as the main criterion weighing the compliance of the proponent with respect to applicable EIA regulations and guidelines, might give a quite different valuation of EIA performance, even for these two similar cases. This implies that the valuation may be deemed too strict to some or too mild to others, but also that there are various perspectives one can take on performance assessment and weighing of results, and as such there is no 'right' way to assess and weigh performance outcomes. The representation provided here is taken from a scientific perspective and endeavours to provide methodologically sound and thereby convincing arguments, but in no way claims objective valuation.

Third, with respect to the conceptual model of capacities, the determination of actor orientations and incentives are *inferred*, and actor capacities such as the knowledge actors possess and the network connections they maintain are *estimated* based on the data obtained. The data set is incomplete (cf paragraph 3.2.2), and this, together with the nature of the research, which involves politically sensitive

interactions, poses a dilemma: this research focuses on an area where knowledge “is not seen as neutral” (Runhaar and Driessen, 2007), and thus a valuation of the actions of the different stakeholders involved in EIA entails a potential political statement. Therefore it is important to note the limitations mentioned previously: the explanations are reconstructions of events, and valuation of the outcomes depends on the perspective taken. If, despite care taken to provide a fair and balanced weighing of outcomes, one opposes the conclusions of this research, the scientific approach maintained in this study is aimed at increasing the transparency of reasoning to allow inductive steps to be recognized, reviewed and contested.

This concludes the section on the methods used for this research. In the next chapters (Chapters 4-7) the research results are provided. First, Chapter 4 gives an overview of the historical development of Ghana’s mining sector, and the impacts resulting from gold mining in Ghana. Chapters 5 and 6 discuss the data collected for the two cases studied, and Chapter 7 provides the comparison of results for the two cases.

Chapter 4 Background to EIA: Gold Mining in Ghana

The mining sector in Ghana is comprised mainly of gold mining, mining for diamonds, bauxite, manganese and sand quarrying (EPA Annual reports 2005-2010). The key legislation concerning the mining sector in Ghana is the Minerals and Mining Act (Act 703), whereas the environmental impact assessment requirements concerning mining are specified in the Environmental Protection Agency Act (Act 490) and the Environmental Impact Assessment regulations LI 1652 and LI 1703.

Gold contributes more than 90% of the total value of minerals won in Ghana (Akabzaa and Darimani, 2001, p23). Though all types of mineral mining have negative environmental effects on soil and vegetation through land clearance, infrastructure development and mining operations, which increase with the size of the undertaking, and although mineral ores such as manganese and bauxite are also chemically processed causing potential negative impacts on water sources, the specific chemicals used in the processing of gold ore create potential environmental and health hazards additional to the impacts of the other types of open pit mining operations (see par. 4.1.). This research focuses on gold mining because of the serious environmental and health concerns involved with gold mining, and because a focus on gold mining operations covers the vast majority of mining activities that are taking place in Ghana. The focus is on large scale mines (> 10 ha), because for these a full EIA procedure is mandatory, whereas small-scale mining operations (< 10 ha) may receive an environmental permit from the EPA based on the review of a Preliminary Environmental Report (PER) (cf LI 1652).

First, paragraph 4.1 provides a historical background to gold mining in Ghana and outlines the legislative developments relevant to the mining sector. Paragraph 4.2 provides an overview of the mandates that the actors have under the EIA regulations, and links the capacities discussed in Chapter 2 to the requirements of each actor's mandate. Paragraph 4.3 then explains the main impacts associated with gold mining, so as to have a frame of reference to identify key issues that need to be addressed in EIA in gold mining in Ghana.

4.1 History of gold mining in Ghana

Ghana has a long tradition of gold mining. Artisanal small scale mining took place even before the colonial times. West Africa has a history of 2500 years in gold mining, and already in the 8th century AD Arabic reports regarding the region currently known as Ghana referred to the region as the 'land of gold' (Hilson, 2002). Official records from colonial time dating back to the 15th century show that between 1493 and 1600 "Ghana accounted for 36% of total world gold output (8.153.426 fine ounces)" (Akabzaa and Darimani, 2001). In the late 19th century, large scale mining in Ghana was developed by British and other foreign investors, after British rule was formally imposed on most of the territory that is now Ghana (Tsikata, 1997). The richness in gold of the region was reflected in Ghana's colonial name, Gold Coast. The British colonists needed laborers to work in the gold mines, but the Ghanaians preferred to work in their own gold mines. As a consequence, the Colonial Office passed the Mercury Ordinance in

1932, making it illegal for Ghanaians to use mercury for mining⁹ and marking the onset of “...the criminalization of indigenous, small-scale gold mining and the edging out of Ghanaian gold producers” (Akabzaa and Darimani, 2001). Currently, illegal artisanal miners are referred to as *galamsey*; these small-scale miners still employ traditional low-technology means to mine for gold, such as alluvial mining (hand-swirling river sediments), shallow pit mining, and deep shaft (underground) mining, whereby pits of one meter diameter can have up to 50 m deep shafts (Hilson, 2002).

In 1957, Ghana became an independent state, and the mining industry was controlled by the state until 1986 (Akabzaa and Darimani, 2001). The main objectives of the government during this period were maximizing government revenue, controlling resources and generating employment (Tsikata, 1997). However, the government did not safeguard mining efficiency or economic probity, and “lack of investment, maintenance and modernization left these state-run mines uncompetitive” (Akabzaa and Darimani, 2001). By the early 1980’s, without any new significant investments being made for almost three decades, with the Ghanaian economy suffering the consequences of persistent budget deficits, expansionary monetary and fiscal policies, and excessive borrowing, Ghana’s economy in general and the gold mining sector in particular were in a state of crisis (Tsikata, 1997; Garvin et al., 2009).

In 1983, the Government of Ghana initiated an Economic Recovery Programme (ERP), with sectors that potentially could generate significant export revenue, such as the gold mining sector, receiving priority focus in the policy reforms. The ERP “...aimed to reform prices and restore production incentives, arrest inflation, realign interest rates, reduce budget deficits, rehabilitate social and economic infrastructure and establish proper priorities for the allocation of scarce foreign exchange, improving government finances, eliminating black marketing and smuggling and realigning the currency with the major currencies of the world” (Akabzaa and Darimani, 2001). This process of policy reforms was strengthened by the shifting global discourse: in the late 1980’s, all over the world the mineral industry changed significantly, with state ownership of mines being de-emphasized and the World Bank and IMF advocating for structural adjustments in policies, legislation and administration towards an environment more conducive for private investments. In Ghana, a World Bank/IMF-supported Structural Adjustment Programme (SAP) was progressively implemented during the 80s and 90s, in which mining sector policies during the first years were aimed at rehabilitation of existing mines, sometimes with the use of multilateral and bilateral loans, after which the rehabilitated mines were privatized (Akabzaa and Darimani, 2001).

To facilitate the ERP/SAP, various legislative reforms and financial liberalization policies were implemented in Ghana. According to Garvin et al. (2009), “In order to qualify for funding from (the World Bank and IMF), Ghana was obliged to implement a set of economic and social policies that included devaluing the currency, adopting a flexible exchange rate, reducing inflation, downsizing public services and cutting government spending (particularly in education, health, and welfare), removing trade barriers, privatizing public enterprises, and promoting economic growth through export” (Garvin et al., 2009). The Minerals Commission was formed in 1984 “...to promote foreign investment in

⁹ Mercury is traditionally used in artisanal mining to refine gold ores: to purify gold, the ores are mixed with mercury which binds the gold by amalgamation (Slowey et al., 2005)

the country’s mining sector” (Babut et al., 2003). In 1986, the Minerals and Mining Law (PNDCL 153) was promulgated, introducing a scaling-down of corporate income tax liability and other tax liabilities for mining companies: “For instance, corporate income tax, which stood at 50-55% in 1975, was reduced to 45% in 1986 and further scaled down to 35% in 1994” (Akabzaa and Darimani, 2001).

The 2006 Minerals and Mining Act (Act 703), which is the current legislative guide for the mining sector in Ghana, repealed the 1986 arrangements. In 2006, the “...35% corporate tax for mining companies was reduced further to 25%”¹⁰ and the concept of a windfall tax, which up to then stood at 25%, was not mentioned anymore in Act 703. Act 703 provides the mandate for the Minerals Commission, its main aim being to supervise the proper and effective implementation of Act 703 (Art 100.(1)) and providing recommendations to the Minister on the granting of licenses and leases for mineral mining operations. Act 703 furthermore specifies such instances as the manner of payment of annual ground rent (Art 23), annual mineral right fees (Art 24), the amount and distribution of royalties (Art. 25), dispute resolution options (Art 27), the rights conferred by licenses (Art. 32, 37) and leases (Art. 46), recruitment and training of Ghanaians (Art 50), directions with regard to compensation payments for disturbances to owner’s surface rights (Art. 73-75), and offences and penalties in violation of Act 703 (Art 106-108). For the rights to water (Art. 17) and issues regarding forestry and environmental protection (Art. 18), Act 703 refers to the Water Resources Commission, the Forestry Commission and the Environmental Protection Agency (EPA) respectively. The EPA is the Agency responsible for, among other things, the EIA process in Ghana.

4.2 Key actors in the mining sector EIA process in Ghana and their mandates

For the EPA, the EIA regulations, consisting of Act 490 and Legislative Instruments LI 1652 and LI1703, constitute its mandate. For the proponent and the PAPs, where the EIA regulations end, the Minerals and Mining Act (Act 703) determines their further mandate. The mandates of these three key actors in the Ghanaian EIA process are discussed below. Referring to their respective mandates, the required capacities of the actors in order to fulfil their mandates are elaborated upon, to provide a clear link of actor capacity in relation to EIA performance.

4.2.1 The EPA: Mandate and required capacities

The *mandate* of the EPA determines which actions EPA can take and constitutes the rules that the EPA has to abide by. An overview of key mandated responsibilities of the EPA is provided in Table 15.

EPA	Mandate
Act 490	1.(2) may sue and be sued in its corporate name
	1.(3) for the discharge of its functions have power to acquire and hold any movable or immovable property and to enter into any contract or other transaction
	2.(b) co-ordinate the activities of bodies concerned with the technical or practical aspects of the environment
	2.(f) issue environmental permits and pollution abatement notices (to control environmental and social impacts)
	2.(h) prescribe standards and guidelines relating to the pollution of air, water, land and other forms of environmental pollution including the discharge of wastes and the control of toxic substances
	2.(i) ensure compliance with any laid down environmental impact assessment procedures
	2.(j) act in liaison and cooperation with government agencies, District Assemblies and other bodies and

¹⁰ <http://www.ghanaweb.com/GhanaHomePage/features/artikel.php?ID=225658>

	institutions to control pollution and generally protect the environment
	2.(k) conduct investigations into environmental issues
	2.(q) impose and collect environmental protection levies
	27.(1) The Executive Director or any officer of the Agency authorized by the Executive Director may request in writing from any person or request any person to attend at a time and place specified to give any information which the Executive Director considers reasonably necessary for the purposes of this Act
LI 1652	8.(1) EPA determines fee for EP, except when EIS is required; then fee is 1% of development cost (see also LI1703)
	17.(1) EPA holds public hearing (mandatory for Schedule 2 activities)
	19. If EIS is accepted EPA issues EP
	26.(1) EPA may suspend, cancel or revoke EP & EC
	29. EPA can determine whether an offence has taken place and determine a (capped) penalty fine (200 cedi)

Table 15: EPA mandate

The EPA has to (ownership) set and/or monitor the guidelines (knowledge) according to the EIA regulations (LI 1652) for screening (Art. 5 & 6), scoping (Art. 11-13), and the Environmental Impact Statement (Art. 13.2, 14-16) to which the proponent has to adhere. In order for this step to result in well-informed decision-making and environmental protection, the extent to which the EPA manages to put all the relevant issues under discussion (leadership) and manages to keep them the focus of other actors despite resistance (adaptability), the methods prescribed by EPA to be used by the proponent to assess impacts and the methods the EPA uses to review the findings (knowledge) together with the staff hours and equipment available to verify findings (resources) are deemed to be of significant importance.

Another mandated task (ownership) of the EPA is to organize public hearings and field visits. For this task, the EPA needs to have the man hours, facilities and budget (resources), and the EPA needs to contact all relevant stakeholders (network).

A third mandated role (ownership) of EPA is to safeguard compliance. The self-reported information that the EPA receives from the proponent and the information that EPA gathers by itself to verify information supplied by the company, and the quality of the EPA review procedure (knowledge), together with the EPA's man hours and equipment available to gather this knowledge (resources) and the ability of the EPA to determine which topics are focused on (leadership) are expected to have an effect on compliance monitoring and enforcement outcomes.

4.2.2 *The proponent: Mandate and required capacities*

The key formal task that is required of the proponent with respect to the EIS is to write a qualitatively good EIS for decision-making, in accordance with all EPA guidelines (LI 1652, Art 14). The main aspects of the proponent's mandate under LI 1652 that are of relevance with regard to the proponent's ownership of the EIA process goal of drafting a qualitatively good EIS are provided in Table 16.

Proponent	Mandate
LI 1652	Art. 11. Proponent responsible for drafting scoping report and ToR in compliance with Art. 12 and any additional EPA directions
	Art. 14.(1) Proponent responsible for drafting EIS in compliance with Art. 14 and any additional EPA directions
	Art. 23. Reclamation bond to be posted is based on reclamation work plan proposed by proponent

Table 16: Proponent mandate

The proponent is responsible (ownership) for informing (knowledge) the EPA about its proposed activity through registering, providing initial screening information, drafting the scoping report and ToR according to EPA guidelines, and performing the environmental assessment resulting in the EIS. In order for these steps to provide well-informed decision-making and environmental protection, the proponent has to (ownership) provide adequate information to the EPA so they can assess the environmental impacts. The proponent's ability to determine how, according to the ToR, the environmental assessment will be conducted (leadership) is expected to allow the proponent some discretion in determining which topics are the focal point of attention (leadership), how the problems are perceived and what constitutes adequate knowledge for the assessment of potential impacts (knowledge). If the proponent is inclined to frame issues in a specific fashion because this fits with its goals (ownership, knowledge) and if the proponent has the ability to focus the EPA's attention on the topics that the proponent wants to be under discussion (leadership), the influence of the proponent on the completeness and quality of the EIS is expected to be potentially significant.

During compliance monitoring and enforcement, the orientation of the proponent's goals with the EIA process goals (ownership) is deemed of importance, because the rights and obligations that the proponent has together with its motivation to adhere to these rights and obligations may influence the quality with which monitoring is executed and the information that is available for monitoring purposes (knowledge). Should the proponent be inclined to provide selective information (knowledge) and succeed in determining which topics are addressed during monitoring and compliance enforcement (leadership), this is expected to influence the outcomes of compliance monitoring and enforcement.

With regard to public participation, the proponent is expected to include the public in the EIA process¹¹. Under the broad scope of the EIA regulations, part of the EIA process in Ghana is the mitigation of social impacts. The ability of the proponent to maintain good working relations with the PAPs is deemed of importance for constructive interactions (network), as well as the orientation of the proponent to EIA goals and to the goals of the PAPs (ownership), the ability of the proponent to determine what the topics under discussion are (leadership), and the extent to which the proponent manages to continue striving for its initial goal despite possible resistance from the PAPs (adaptability).

4.2.3 The project affected peoples (PAPs): Mandate and required capacities

The PAPs are the main party of interest with regard to public participation; they are mandated (ownership) to participate in the EIA process as the main recipients of project impacts, and are expected to provide input during public hearings on project design (knowledge). The key aspects of the mandate of the PAPs are provided in Table 17.

PAPs	Mandate
LI 1652	17.(3&5) representation at public hearing
	27.(1) Person aggrieved by EPA decision can file a complaint with the Minister

¹¹ Though the EIA regulations are not specific in this respect, the Ghanaian Constitution and the Minerals and Mining Act determine that the proponent needs to negotiate the terms of resettlement and compensation directly with the PAPs; furthermore, all EPA interviewees noted that public consultation is a key responsibility of the proponent in the EIA process

Table 17: PAPs mandate

What type of issues the PAPs raise (leadership) during public participation depend on the understanding they have regarding what the project impacts on them will be (knowledge), the policy level at which they participate (network) and the extent to which their basic needs are fulfilled and they can afford to participate in deliberations (resources).

When the project is being implemented, in order for the PAPs to play a role in compliance monitoring the PAPs need to be aware of negative impacts (knowledge) so that they can raise objections or questions to the proponent or EPA when needed (leadership, network). With respect to the negotiations with the proponent on project design, resettlement and compensation, the ability of the PAPs to determine what the topics under discussion are (leadership), what the aims of the PAPs are and which room to manoeuvre they have (ownership, adaptability) will determine if the outcomes result in social impact mitigation.

4.3 Gold mining: environmental and socio-economic impacts

This section describes the environmental and social impacts that are associated with large-scale open pit gold mining. First, an overview of the environmental impacts associated with the specifics of gold ore processing as maintained for large scale surface mines is provided in section 5.1.1, then section 5.1.2 describes the social impacts associated with large-scale gold mining.

4.3.1 Gold ore processing and environmental impacts

In gold mining, ore processing to extract the gold from the ore is performed either through amalgamation, which requires mercury, and is preferred by small-scale miners because of the simplicity and clarity of the process (Babut et al., 2003), or cyanide complexing, used in current large-scale open pit mining operations because the cyanidation process allows for the economic recovery of gold from low-grade ores through heap-leaching (Mudd, 2007; Johnson et al., 2008). In a typical cyanide heap leach process “the gold-bearing ore is extracted, crushed to a nominal size, and piled on a construction liner. An alkaline cyanide solution is sprayed on the pile. The cyanide solution is buffered to a pH of about 11 to keep cyanide from forming hydrogen cyanide, which can be lost through volatilization. The cyanide in solution complexes with gold (and other metals) extracting the metals from the ore. The cyanide solution is captured by the liner and is re-circulated through the pile to further extract cyanide complexed metals. After leaching, the crushed ore is either left on the pad or removed to another area for disposal.” (Kjeldsen ,1998 p281-282).

Cyanide is an ecotoxic substance and is hazardous to human health; short term high level oral (200 mg) or airborne (270 ppm) exposure is lethal (CSP2 Factsheet). Cyanide can be released from a mine site into surface water via mine effluents; as cyanide is photodegradable, release via surface waters is a relatively short-term hazard (Johnson et al., 2008). Cyanide can also leach from the tailings and waste dumps into the groundwater, where it is persistent and can spread to contaminate ground- and surface water outside the project locality (CSP2 Factsheet). Cyanide can be released in various forms from the gold mine process, some more dangerous than others. Weak Acid Dissociable (WAD) cyanide is one of the by-products of gold mining: “Weak acid dissociable cyanide is that component of the total cyanide content

which can be liberated as hydrogen cyanide by addition of a given acid. This represents the most toxic part of the total cyanide.” (Kjeldsen, 1998 p 283). WAD cyanide degrades relatively quickly (Johnson et al., 2008), leading to its potential impacts being short term and localized, but of high significance.

Another main hazard to the environment and human health from gold mining is the potential for acid mine drainage (AMD). AMD is produced when sulfide-bearing material is exposed to oxygen and water, usually – but not exclusively – in iron sulfide-aggregated rocks which are associated with gold ore occurrence (Akciil & Koldas, 2006). AMD can cause long-term impairment to waterways and biodiversity; water is “the basic transport medium for contaminants and consequentially, all measures aimed at AMD migration control are concerned with the control of water flow” (Akciil & Koldas, 2006). As these authors note, “recently, AMD emanating from open pit workings has become a concern. Little is known of the potential danger posed by these operations, as most are still being worked or maintained. The danger of long-term lope deterioration continually making new rock surface available for oxidization suggests that substantial quantities of AMD could occur following closure” (Akciil & Koldas, 2006). Considering that gold ores run typically from ½ oz/ton to as little as 1/20th oz/ton, and open pit mines can produce as much as 20 tons of waste for each ton of ore (CSP2 Factsheet), one ounce of gold extracted from a large scale mine may produce anywhere between 40 to 400 tons of waste.

Besides above-mentioned main environmental impacts, large scale mines also produce significant quantities of arsenic (which is persistent and bioaccumulative) as a byproduct, require large amounts of water and energy for processing plant and vehicle operations, and produce sewage and general waste. In sum, the main environmental impacts of large scale open pit mining include cyanide and arsenic release to surface and groundwater, water and energy consumption, sewage and waste production, and acid mine drainage effects from waste dump runoff and Tailing Storage Facility (TSF), specifically significant due to the large size of waste dumps and TSF associated with large-scale open pit mining (Mudd, 2007).

4.3.2 Socio-economic impacts from gold mining

Gold is a localized resource, and when gold is found in an area where people live, the construction and operation of a gold mine affects the livelihoods of local communities, referred to here as project affected peoples (PAPs), in various ways. Construction of a gold mine, because of the land take of the mine and because the chemicals used in the processing of gold ore (see par. 4.1) degrade soils thus rendering them unsuitable for farming, result in losses of farmland (Bury, 2004; Garvin et al., 2009). Furthermore, the construction of a gold mine may require resettlement of local communities, because gold has been found under the land that they inhabit, and may result in economic displacement of local farmers that have to make room for the mine (Akabzaa and Darimani, 2001). The PAPs, which in rural areas in Ghana tend to be subsistence farmers (SDAP report, 2010), in these cases lose farmland or access to farmland due to the mining operation, which disrupts the livelihoods they depend on. Land tenure systems in Ghana are not solely regulated by the government; land “ownership is a complex issue with users, traditional authorities, families and the state all having overlapping rights” (NGGL Social and Community Development report, Oct 2005). Compulsory acquisition of land by the government of Ghana is regulated in Ghana’s constitution (Art 20); in case of displacement of people, the government

“shall resettle the displaced inhabitants on suitable alternative land with due regard for their economic well-being and social and cultural values” (Ghana Constitution, Art 20.3). However, when a private entity such as a mining company aims to acquire land, the company has to negotiate the terms of resettlement and compensation with the PAPs (Act 703, Art 73), which are usually represented in a Resettlement Negotiation and Compensation Committee (IIED, 2009). This delegation of responsibility for resettlement and compensation to the company and the PAPs does not ensure that loss of land access is adequately addressed. For instance, as indicated by Fian International (2005) with regard to Newmont’s Ahafo South Project, “NGGL insists that there is no legal obligation for the company to provide land and that it is not prepared to purchase land for economically displaced persons; it will rather facilitate access to arable land through the traditional system” which entails costs for the economically displaced households (Fian, 2005).

When the PAPs cannot obtain new farmland, they need to change their source of income; however, as literacy rates tend to be low in rural areas in Ghana (on average about 40%; SDAP report, 2010), re-orienting their livelihoods might be difficult for PAPS because few opportunities for low-skilled workers exist in rural areas (Banchiriga and Hilson, 2010). Working at the mine is only for some an option: surface mining operations have a limited capacity to generate employment, because such operations are capital-intensive with relatively low labor requirements, and thus “...mining activities do not provide enough jobs to match the total number of people laid off from agriculture because of the impact of mining” (Akabzaa and Darimani, 2001). It is estimated that the large-scale surface mining sector in Ghana provides employment to about 20,000 people in total (Garvin et al., 2009).

Additionally, mining operations tend to create a population influx of people seeking employment or being hired as contractors in support of mining operations. Associated with such a population influx are socio-economic impacts, such as rising food and housing prices due to increased demand (and with regard to food prices, as a result of loss of farmland, reduced agricultural production), and increased levels of crime and prostitution (Akabzaa and Darimani, 2001; SDAP report, 2010).

In sum, the main social impacts resulting from gold mining are physical or economic displacement, loss of employment and livelihoods, loss of access to farmland, increased food and housing prices and increased levels of crime and prostitution and associated social disruptions.

Now that the background to the development of the gold mining sector in Ghana has been provided, the mandates of the key actors involved in EIA with respect to gold mining in Ghana have been discussed, and the main impacts that can be expected from gold mining are identified, we turn to the discussion of the two cases studied for this research. Chapter 5 addresses Newmont’s Ahafo South project, and Chapter 6 is focused on ARL’s Nzema project. After the cases are discussed, the performance for each case during the EIA stage and during the Follow-up stage are assessed, and the explanation of the observed performance is provided by using the conceptual model of actor capacities in relation to EIA system performance, Chapter 7 comprises the integration of the results by comparing the results for the two cases.

Chapter 5 Case I: Newmont's Ahafo South Project

The first case study for which the performance of the EIA system is explained by actor capacities focuses on Newmont's Ahafo South Project in the Brong Ahafo region of Ghana. Newmont, at the time of opening the Ahafo South mine, was the largest gold mining company in the world, a company "listed on the New York Stock Exchange with parallel listings in Canada and Australia" and "a market capitalization of about \$17.5 billion with producing operations in the US, Canada, Mexico, Bolivia, Peru, Uzbekistan, Indonesia, Australia, and New Zealand." (IFC, 2012¹²). Globally, Newmont owns an amount of land "approximately the size of England" (Newmont Annual Report 2005). In 2004, Newmont produced about 7 million ounces of gold and earned revenue and net income of \$4.524 billion and \$434 million respectively (IFC, 2012).

After a brief introduction of the project (paragraph 5.1), the results with regard to the performance indicators are discussed (paragraph 5.2 & 5.3), after which the conceptual model regarding actor capacities is used to explain the observed performance (paragraph 5.4).

5.1 Ahafo South Project description

The Newmont mine at Ahafo is a large-scale gold mine with an estimated mine life of 20 years, and "is expected to add an additional 6.8 million ounces of gold to Ghana's overall export. Compared to the number of total ounces exported in 2002, the addition of the Ahafo South Project would add approximately 550,000 ounces per year (an additional 22% above the 2002 volume)" (Ahafo South Project summary, aug 2005, p 5-8) or, using the more conservative estimate from Newmont's 2006 Annual Report of 500,000 oz/year, about 1370 oz per day. At the current gold price of USD 1791.30/oz¹³, the daily project turnover amounts to 2.45 million USD. The total Ahafo South Project cost "is estimated at \$470 million. The proposed IFC investment is a \$75 million A loan for IFC's own account and a \$50 million syndicated B loan" (ibid). The total full mine life value is about 12.2 billion USD¹⁴.

The implementation of the Ahafo South Project "involves construction of open mine pits, waste rock disposal sites, mill and ore processing plant, tailing storage facility, water storage facility, environmental control dams, bypass roads, and resettlement villages. These facilities, combined with a buffer safety zone of 500 meters around disturbance areas, would result in a Project area of 3,528 ha (35.28 km²)...Based on surveys completed in 2005 (pA 2005), construction of the Project would result in up to 9.575 Project affected people" (Ahafo South Project summary, 5-11).

According to the IFC "The key environmental and social issue...is ensuring broad community support (particularly relating to resettlement and livelihood restoration).... The southern deposits and the reserves further north are bisected by a narrow strip of gazette forest reserve. Newmont is implementing a bio-diversity management plan to ensure that its operations do not cause any significant

¹² Taken from IFC Summary of Project Information (SPI) retrieved September 5th 2012

¹³ Source: www.goldprice.org Current oz price: USD 1791.30, retrieved Oct 5th 2012

¹⁴ 6.8 million oz * 1791.3 USD

degradation or conversion of critical natural habitats...Other significant issues cyanide and other hazardous materials, and tailings facility management.” (Taken from IFC Summary of Project Information (SPI), retrieved September 5th 2012).

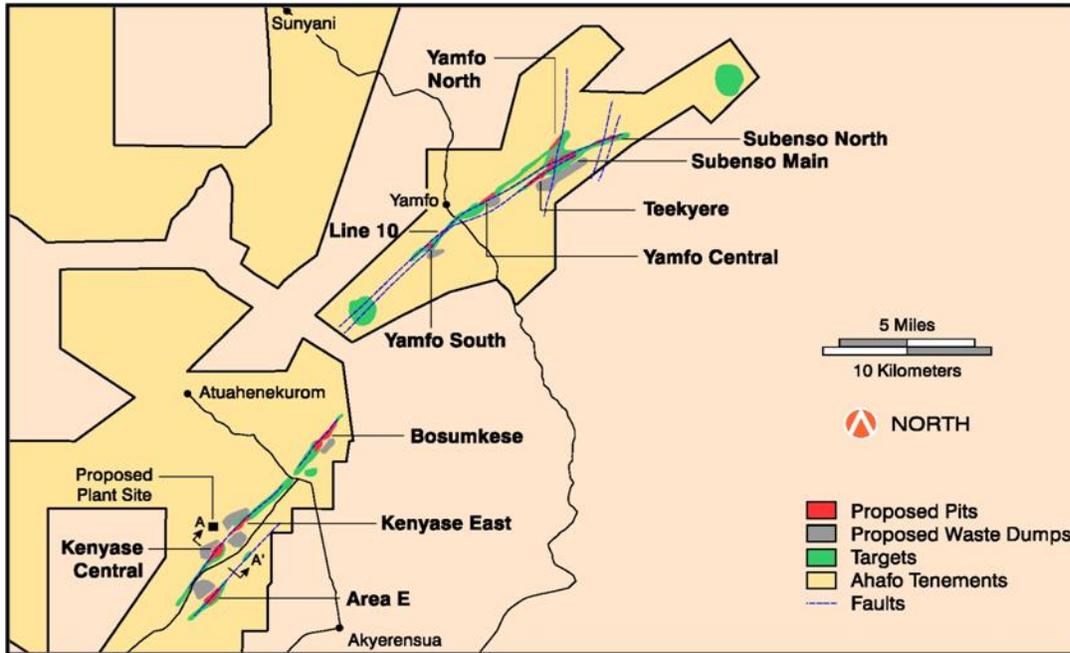


Figure 4: Ahafo South Project site overview¹⁵

The Newmont case files provide a further (undated) overview of the Ahafo South (and North) tenement (taken from CM43_2):

¹⁵ Source: http://www.africangoldgroup.com/index.php?option=com_content&view=article&id=148&Itemid=63 retrieved Oct 13th 2012

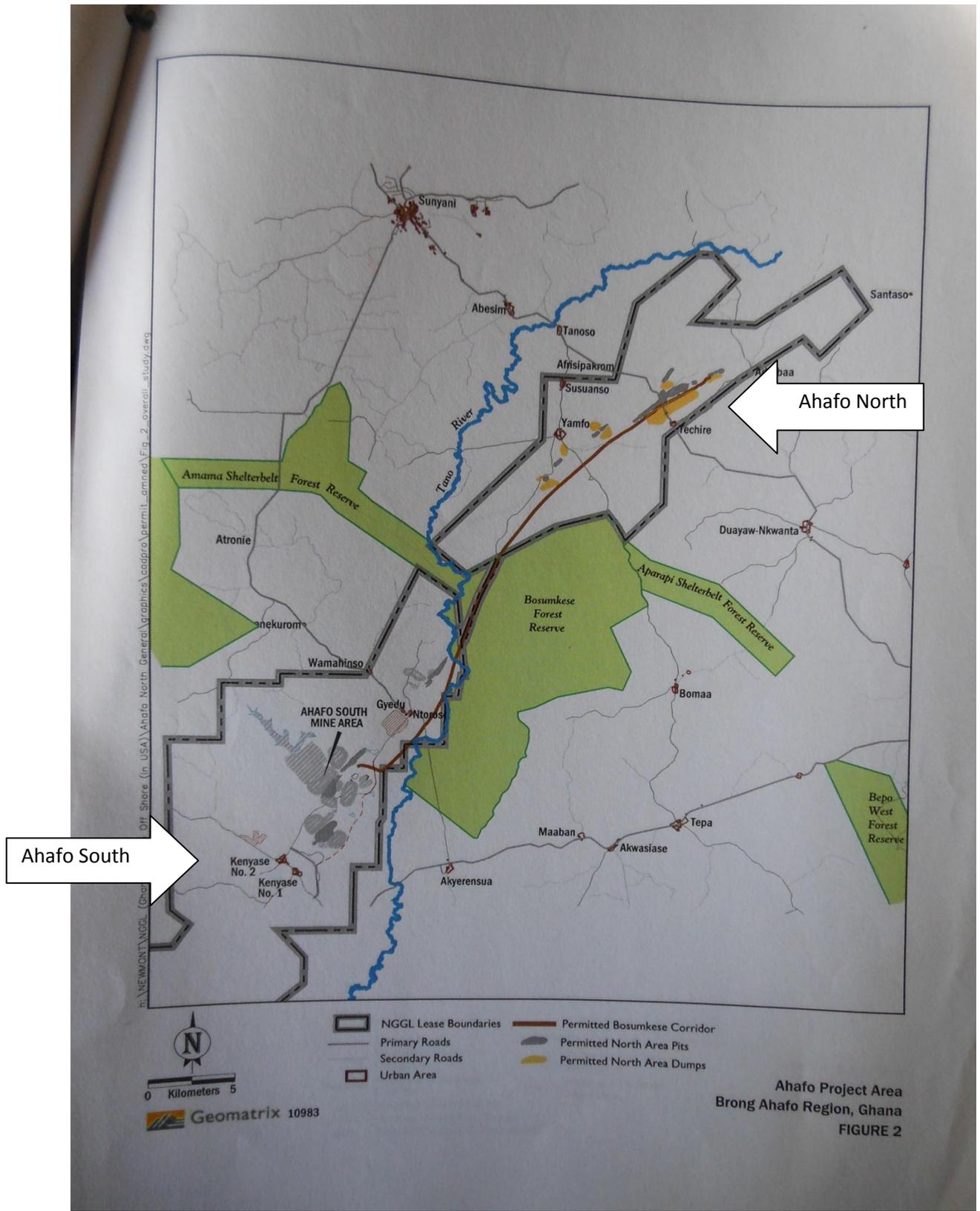


Figure 5: Ahafo South project site overview

5.2 Procedural EIA performance - Ahafo South Project

Table 18 below provides an overview of the procedural steps that are required in Ghana’s EIA process, the outputs that should be delivered at each step of the process, and the data obtained concerning the Ahafo South project that indicate whether the procedural steps have been followed and whether the procedurally required outputs have been delivered.

Step in EIA process	EIA application	Screening	Scoping	Environmental Assessment	Environmental Permit	Compliance Monitoring	Environmental Certificate	Compliance Assurance
Output	EIA registration	Starting document, Screening report, Preliminary Environmental Report (PER)	Scoping report with ToR, report on public participation	EIS, review report, report on public participation	Environmental Permit	EMP, Annual Environmental Reports (AERs), field visit reports, reports of public consultation	EC	Field visit reports, recommendations and directions to proponent by EPA, possibility of fine, suspension/ cancellation / revocation of EC
Fulfilled	<u>(Case file:</u> EIA is registered	<u>Ahafo South EIS:</u> No screening report retrieved but EIS was drafted, implying that screening took place	<u>Ahafo South EIS:</u> No scoping report retrieved but in the EIS was a summary of issues identified during scoping, indicating that scoping has taken place	<u>Ahafo South EIS:</u> EIS delivered, evidence of timely public participation in EIS <u>Interview data:</u> review took place and recommendations were provided by EPA	EIS accepted, permit issued fall 2005 (no EP retrieved)	<u>Case files:</u> EMP & AERs delivered together (4-4-2007); AER should be provided < 12 months of commencement of operations, EMP < 18 months, AER too late?; EPA performed field visit 11-9-2006	<u>Case files:</u> Environmental Certificate issued (19-2-2008), might have been issued >24 months after commencement of operations	<u>Case files:</u> EPA performed field visits & communicate recommendations and directions to proponent

Table 18: Procedural performance indicators results

With regard to procedural performance, the EIA process for Newmont’s Ahafo South project appears to have fulfilled all the necessary procedural requirements, except that the Annual Environmental Report (AER) 2006, delivered together with the Environmental Management Plan (EMP) on April 4th 2007, appears to have been handed in longer than 12 months after commencement of operations, in violation of the requirement stipulated in LI 1652; this cannot be established for certain as no exact date for the commencement of operations at Ahafo South has been determined.

5.2.1 Procedural performance - EIA stage – Ahafo South

Though no data have been retrieved with regard to the EIA application, the screening report, scoping report and terms of reference, the EIA has been registered by the EPA, as is evidenced by the fact that EPA has case files on the Ahafo South Project. The Environmental Permit has not been retrieved but was issued in the autumn of 2005, as can be deduced from CSP2's Technical Review of the Ahafo South EIS (CSP2 Report, 2005). Furthermore, interviews with EPA Principal Program Officers from the Mining Department and Brong Ahafo regional office indicate that the EPA has reviewed the EIS and made recommendations to the proponent with regard to the reduction of TSF land take; the strict compliance of 'nil discharge' of effluent into the environment; regular reporting of environmental incidence to the EPA and other stakeholders; the establishment of a grievances/ complaints office by Newmont to deal with public complaints resulting from the mine operations; revision of the proposed reclamation plan (interviews PPO Brong Ahafo; PPO Mining Department).

With regard to public participation, the EIS for Newmont's Ahafo South project indicates that "NGGL identified early on who are the local, regional and national stakeholders in the Ahafo Project (South)", and "All project stakeholders – individuals, groups and organizations with a legitimate interest in the Project – have been actively engaged in the consultation process" (EIS Ahafo South, p 5.12). The Newmont Ahafo South EIS provides an overview of public consultation activities performed in the period 29 March 2003 to 8th of July 2004 (p 5.13-5.14) as evidence of public participation during the environmental and social assessment stage.

5.2.2 Procedural performance – Follow-up stage – Ahafo South

Concerning compliance monitoring, the interviews with EPA staff indicated that companies self-report monitoring data in relation to EPA mining effluent guidelines (EPA Head of EAA Department; PPO Mining Department). Newmont has provided the EPA with the Annual Environmental Report (AER) 2006 and the Environmental Management Plan (EMP), both on April 4th 2007 (CM43_2). The finalized version of the EMP was delivered by Newmont to EPA on December 18th 2007 (ibid). The AER 2008, though no date for submission could be established from the case files, was found in file CM43_05, which (mainly) covers the years 2008-2009, and was presumably submitted in 2009.

Evidence of public participation during the compliance monitoring stage prior to the issuing of the EC was not retrieved, besides a petition to the board of directors of Newmont on April 24th 2007 sent by WACAM, an activist anti-mining NGO in Ghana (CM43_2). However, the Independent External Social Compliance Monitoring programme reports, required by IFC and drafted by independent external consultants between Oct 2005 and January 2007, indicate that the project affected communities were consulted by Newmont during this stage of the EIA follow-up process.

The EPA has performed field visits to the Ahafo South project site on September 12th 2007 and on December 5th 2007, the latter being an EMP verification visit, and the case files provide evidence that the EPA has issued recommendations to Newmont on September 11th 2006, December 5th 2007, and December 20th 2007. On December 17th 2007 the EPA gives notice to Newmont that the EMP has been reviewed, and that an Environmental Certificate for the Ahafo South project will be issued.

The Environmental Certificate for the Ahafo South project was issued on the 19th of February 2008 (see Annex II), with a validity of 2 years. As no exact date of commencement of operations was identified for the Ahafo South project it is not possible to determine with certainty whether the EC was issued within 24 months of commencement of operations. However, since the EP was issued in the autumn of 2005, it would appear that the EC was issued a few months later than according to the scheduled requirements.

Subsequently, Newmont self-reported to the EPA with regard to the progress on crack repairs of structures affected by blasting operations on June 18th 2008 and on February 23rd 2009, and EPA undertook a verification visit between 17-20 March 2009, and provided review comments and directions to Newmont on March 31st 2009 and May 5th 2009. A further EPA verification visit was undertaken on May 17th 2009 and shortly after, on June 4th 2009, EPA directs Newmont to adequately address blasting repairs at the shortest notice possible.

Public participation during this stage, after the EC was issued, is evidenced by the ongoing Independent External Social Compliance Monitoring programme that Newmont initiated to comply with IFC loan requirements, specifically in the reports spanning November 2008 to November 2009. Next to this, there was evidence of public participation during the field visits performed by EPA, and by a petition sent to Newmont by Concerned Farmers (signed by 215 project affected people) on February 26th 2008.

In sum, though for the EA stage not all information required to substantiate the procedural performance indicators was retrieved, it would appear that virtually all the procedural requirements of the Ghanaian EIA process have been fulfilled, except perhaps for some delay with regard to the delivery of the AER 2006 and the issuing of the EC by the EPA. Procedural performance can therefore be said to be high.

5.3 Substantive EIA performance - Ahafo South Project

This section provides the results and analysis with regard to the substantive performance indicators. The reader should note that the case files acquired for study in this research did not cover the EIA stage, thus for the analysis of substantive performance in the EIA stage use is made of interview data and secondary sources.

5.3.1 Substantive performance– EIA stage – Ahafo South

Table 19 and 20 below provide the data obtained with respect to the substantive performance indicators formulated for the EIA stage:

EIS stage – substantive indicators	<i>Quality of screening & scoping procedure</i>	<i>Quality of EIS</i>	<i>Completeness of EIS</i>	<i>Quality of review procedure</i>	<i>Quality of public participation</i>	<i>Voluntary change of project design due to EIA procedures</i>	<i>Voluntary withdrawal of projects with unacceptable impacts</i>
Information retrieved	No data	<u>CSP2 Report</u> : (1) Combining data makes it difficult to verify the validity (2) Impact	<u>CSP2 report</u> : incomplete studies, no raw data	<u>Personal observations</u> : unstructured evaluation	<u>Interview data</u> : Rigorous resettlement procedure with the full participation of project	<u>Interview data</u> : The reduction of TSF land take, strict compliance of 'nil discharge' of affluent into the environment, processing plant design due to future expansion of	N/A

		assessment does not provide adequate overview of impact significance		knowledge available to EPA	affected people and land owners (EPA regional office PPO)	productivity from the four pits, regular reporting of environmental incidence to the EPA and other stakeholders. Establishment of grievances/ complaints office by Newmont to deal with public complaints resulting from the mine operations (EPA regional office PPO)	
--	--	--	--	----------------------------	---	--	--

Table 19: Results on substantive indicators - EIS stage Ahafo South project (CSP2 Report 2005; EPA regional office PPO; personal observations)

EP stage – substantive indicators	<i>Influence EIS on EP decision</i>	<i>Quality of environmental permit procedure</i>	<i>Congruence of EP with EIS findings</i>	<i>Forced change of project design due to EIS/ permit under conditions</i>	<i>Forced withdrawal of project due to EIS / no permit</i>
Information retrieved	Case files: No EP retrieved, appears based on other EPs that EP uses standard format and conditions	(see quality of review procedure Table 23a)	Case files: No EP retrieved, appears based on other EPs that EP uses standard format and conditions <u>Interview data:</u> mitigating measures EIS are turned into commitments in the EP (EPA Head of EAA Department)	Case files: No EP retrieved, appears based on other EPs that EP uses standard format and conditions <u>Interview data:</u> mitigating measures EIS are turned into commitments in the EP (EPA Head of EAA Department)	N/A

Table 20: Results on substantive indicators - EP stage ((CM34_2; CM43_4; CM43_5; EPA Head of EAA Department)

In order to evaluate if adequate information for decision-making has been provided, the analysis of substantive performance is based on several criteria posed by Van de Riet (2003) (cf paragraph 3.4). Also, since the author is not an expert on the technical aspects of open pit gold mining, use is being made of secondary data, specifically an independent Technical Review of the Ahafo South EIS performed by the Centre for Science in Public Participation (CSP2 Report, 2005), and additional scientific literature on the gold mining process and associated impacts is used to verify statements in the Technical Review report.

5.3.1.1 Quality and completeness of the EIS

Regarding the quality of the EIS, the CSP2 report notes that “... Newmont has combined raw data to form composite or averaged results, upon which it appears to base its decisions...Combining data, and not disclosing the raw data, makes it difficult to verify the validity of Newmont’s conclusions” (2005: p4). Concerning the completeness of the EIS the CSP2 Report (2005) states that “Generally, the ESIA considers the correct topics, but lacks specific commitment, and uses noncommittal language such as “will strive for””(p4). Furthermore, “the data and reports upon which the ESIA is based are not presented in detail and are not available to the public...” and, most important for well-informed decision-making, “...critical studies that should have been completed prior to permit application...include the ongoing, but incomplete, studies of surface and ground water and acid-generation potential. Because the results of these studies are unknown, it is impossible to fully assess

the mine's potential impacts and design credible detailed reclamation plans" (CSP2 report, p3). Based on the CSP2 report, the quality and completeness of the EIS is here considered to be low.

As can be noted from the final assessment of impacts in the Ahafo South EIS, the risks for Acid Mine Drainage (AMD) to surface water, hydrology and groundwater, as well as the risks from the tailings management facility (TMF) and waste dumps on hydrology and groundwater, are considered to be low. Newmont has assessed the effects on groundwater in the EIS as follows: " The results of the waste rock analysis indicate that there should be no risk of acid mine drainage from the waste dump....Deposition of the TSF material is not expected to be a source of pollution to groundwater resources.... Very low potential for acid mine drainage of both ore material and waste rock material indicates that potential seepage from these facilities should not present any negative consequences on groundwater resources of the project area with respect to Acid Mine Drainage" (Ahafo South EIS, par 4.8.2.2).

According to Akcil & Koldas (2006; see also paragraph 4.1), the effects and dangers of AMD with large scale, open surface mines such as the Ahafo South project are unknown. It would therefore seem improbable that the AMD potential could be verified with such certainty as Newmont suggests that the potential for AMD could be convincingly deemed low. The improbability of an accurate representation of the potential for AMD in the Ahafo South EIS is strengthened by the findings of the CSP2 Report (2005), which identifies the determination of AMD potential as one of the three main weaknesses of the Ahafo South EIS: "Among the numerous studies...which should have been completed before mine permit application, three stand out as particularly important and which deficiencies creates extremely dangerous uncertainty. These are the Pit Lake Study, Geochemical Analysis, and Aquifer Characteristics (ESIA S-36). The first is essential to determine what will become of the pit; the second to determine reliably whether acid mine drainage will occur; and the third to determine how the mine will impact groundwater. These three studies form the foundation of major portions of the reclamation plan. Without them the reclamation plan and reclamation budget are suspect." (CSP2 Report, 2005: p7). The Ahafo South EIS's assessment of AMD potential and the assessment of the significance of the potential impact is considered in this study, in line with the conclusions of the CSP2 Report (2005), to be insufficient.

Another important issue is the cyanide that is used in the processing plant to treat the ore, and which subsequently is deposited with the processed ore in the tailings management facility: "The ESIA claims that photo degradation will treat cyanide in the tailings and other ponds (ESIA 4-125). This statement ignores that photo degradation only works at or near the surface of the pond, and therefore does not degrade buried or interstitial cyanide that is in the tails once the tails are deposited." (CSP2 Report, 2005: p6). The consequence of high levels of cyanide in the tailings management facility is that seepage from the tailings can deposit high levels of cyanide in the groundwater (cf Kjeldsen, 1998), where photo degradation cannot take place, and thus the risk of long-term and potentially widespread groundwater contamination (cf Mudd, 2007) is significant.

Lastly, the CSP2 Report (2005) notes that the Water Storage Dam (WSD) is located above the Tailing Storage Facility (TSF), which, combined with French drains under the TSF to allow runoff to disperse, constitutes a long-term risk: if the French drains get clogged, heavy rainfall (which is probable

considering climate conditions) might undercut the TSF (CSP2 Report, 2005). Furthermore, if the WSD would collapse the flooding water would directly impact on the TSF (ibid). These two factors would both result in the transportation of tailings beyond the project site, causing negative environmental impacts.

In sum, the conclusion with regard to the completeness and quality of the EIS, based on the review comments by the CSP2 Report (2005) and supported by additional scientific literature, is that no scientifically sound and reliable analysis can be confirmed to have taken place for the EIS, and the validity and transparency of information has not been secured. Thus, the EIS does not provide an adequate basis for well-informed decision-making and as a consequence does not safeguard environmental protection.

5.3.1.2 Quality of the review procedure

No written data was retrieved with regard to the quality of the review procedure. However, based on personal observations at different EPA offices, the administrative system of the EPA is not digitized and not methodically organized, which is likely to hinder the access to relevant evaluation knowledge; this may account for the oversight by EPA of the incomplete studies in the Ahafo South EIS. This tentative conclusion is further discussed in paragraph 5.4.1.3.

5.3.1.3 Quality of public participation

Anecdotal data was provided by the EPA Sunyani regional office Principal Program Officer (PPO) regarding the quality of public participation during the EIS stage; the PPO noted that a “rigorous resettlement procedure with the full participation of project affected people and land owners” had taken place. With respect to the public providing input on technical project design issues, no information such as for instance minutes of public hearings was retrieved, and due to circumstances (see Chapter 3) it was not possible to directly contact representatives of the affected communities. However, given the fact that the EIS does not provide a non-technical summary, it would seem challenging for the affected communities to fully understand the potential project impacts, to critically evaluate the validity of statements in the EIS, and to provide input for design changes.

5.3.1.4 Voluntary design changes

Three main design changes beneficial for the environment were implemented voluntarily by the proponent, according to the EPA Sunyani regional office PPO, in collaboration with the EPA. These were the reduction of TSF land take, a commitment to 'nil discharge' of affluent into the environment, and design changes to the processing plant due to future expansion of productivity of the four pits.

5.3.1.5 Environmental permit

Several EPA interviewees and members of the Technical Review Committee confirmed that the EIS is the basis for deciding on the EP. No Environmental Permit was retrieved regarding the Ahafo South EIS; various other Environmental Permits were retrieved though, and consistent similarities were identified. For various EIS's and supplementary EIS's, the first permit condition mentioned, Article (6.1) was that the holder of the permit 'should comply with the commitments in the EIS' (cf Annex III). Furthermore, the Head of the EAA department indicated that “The EP has sections: mitigating measures from the EIS are turned into commitments in the EP”. It would appear that this is a standard condition of the EP

represented by Art 6(1), which would imply that the EIS is of direct influence on the EP conditions. Therefore, it is concluded that the influence of the EIS on the EP decision is significant.

5.3.2 Substantive performance – Follow-up stage – Ahafo South

Table 21 and 22 below provide the data obtained with respect to the substantive performance indicators formulated for the Follow-up stage. The findings are discussed by first focusing on technical recommendations and instructions by EPA with regard to environmental impacts of the Ahafo South project and how Newmont responded to EPA comments by voluntarily initiating project design changes, and then by focusing on social impacts under discussion. The findings regarding each of these main themes are discussed in a chronological order.

CME stage – substantive indicators	<i>Quality of compliance and enforcement procedures</i>	<i>Quality of public participation</i>	<i>Voluntary environmentally beneficial design changes due to monitoring</i>	<i>Forced change of project design due to compliance monitoring</i>
Information retrieved	<p><u>Case files:</u> Site visit EPA on 12-9-2007, subsequently letters were sent to NGGL by EPA on 3 & 20-12-2007, in which EPA explicitly directs Newmont to comply with EPA remarks on blasting repairs; On 5-12-2007 EPA gives review comments on EMP verification visit; EPA performed verification visits regarding blasting instructions on 17-3-2009 until 20-3-2009, on 5-5-2009 and on 17-5-2009, letters were sent to proponent on 31-3-2009, 5-5-2009, and 4-6-2009</p>	<p><u>Case files:</u> EPA reports community involvement on 3-12-2007; 26-2-2008 Farmers Petition concerning forest reserve biodiversity and compensation (“violation Act 703 Art 73-74”); 20-10-2008 community threats to personnel. EPA memorandum of 31-3-2009 on field visit of 17 to 20-3-2009 notes public involvement, also on 5-5-2009, 17-5-2009 and on 4-6-2009, Furthermore, evidence of public participation from NGOs on 17-11-2005 (FIAN), 24-4-2007 (WACAM) <u>Interview data:</u> During compliance monitoring, changes are the result of community pressure (PPO Mining Department)</p>	<p><u>Case files:</u> 6-8-2008: NGGL: it will not be feasible to construct the new road due to social factors: more land acquisition would be necessary, and speculative activities have taken place on this land; intent of new strategy is to reduce impacts on communities’ farm lands; avoid resettlement of hamlets and people. NGGL proposes to upgrade and seal with bitumen the existing Ntotroso-Kenyasi feeder road, in line with Permit condition commitment 6.(1) <u>Interview data:</u> strengthening livelihood restoration through the introduction of AILAP programme; strengthening monitoring procedures (Independent Resettlement Expert; IESCM Report 2, Dec 2005; IESCM 3, May 2006)) <u>Secondary data:</u> Biodiversity management program in cooperation with Conservation International (ECMG 200-6-2009)</p>	<p><u>Case files:</u> 17-10-2006: Newmont withdraws reclamation plan due to concerns received from EPA on 11-9-2006; 3-12-2007: EPA directs that the company proceed to repair all houses by 31st March 2008. Failure to comply would lead the Agency to take legal action against the company for non-compliance <u>Interview data:</u> Reclamation plan controversial; in 2006 EPA refused EP due to reclamation plan, Newmont retracted and resubmitted in full compliance in 2008 and got the EP (PPO Mining Department)</p>

Table 21: Substantive CME performance – Ahafo South project (CM43_2; CM43_4; CM43_5; EPA PPO Mining Department; IESCM Reports 2005-2006; ECMG Reports 2006-2009)

EC stage – substantive indicators	<i>Aquaintance with monitoring outcomes for EC decision</i>	<i>Consent with monitoring outcomes for EC decision</i>	<i>Influence of monitoring outcomes on EC decision</i>	<i>Quality of environmental certificate procedure</i>	<i>Congruence of EC with EP and EIS requirements</i>	<i>Forced environmentally beneficial implementation design changes / Certificate under conditions</i>	<i>Forced withdrawal of project / no EC</i>

Information retrieved	No data	<u>Case files:</u> EPA not satisfied with non-compliance by NGGL on blasting repairs but EC is issued	<u>Case files:</u> No relation of monitoring outcomes to EC conditions	No data	<u>Case files:</u> No EP retrieved; no changes required by EC as compared to EIS	<u>Case files:</u> Conditions yes, but no design changes	N/A
------------------------------	---------	--	---	---------	---	---	-----

Table 22: Substantive EC performance – Ahafo South project (CM43_2; CM43_4; CM43_5)

To assess the quality of the follow-up process, use is made of criteria posed by Marshall et al. (2005) (cf paragraph 3.4). In the case files studied (CM43_2; CM43_4; and CM43_5), evidence of compliance monitoring by EPA was found on various occasions. EPA field visits to the Ahafo project were conducted on 11-9-2006, 12-9-2007, 17 until 20-3-2009, and 17-5-2009. Furthermore, correspondence was found between EPA and NGGL relating to technical instructions on project implementation and regarding the mitigation of social impacts.

5.3.2.1 Quality of compliance and enforcement procedures – Follow-up stage

On September 12th 2007, the EPA performed an EMP verification visit. The following recommendations with respect to the reclamation proposal were sent by the Head of the Mining Department to Newmont’s Regional Director ESR on Dec 5th 2007: “Reclamation criteria for mine pits must be incorporated in pit design; the Hydrological Services Department must be consulted on the effect of groundwater abstraction from the mine pit through dewatering bores and in-pit sump on the aquifer; the Company must raise the embankments of the TSF to increase its holding capacity rather than lateral expansion; the Reclamation Bond Agreement must be reviewed to incorporate the currently disturbed areas; total suspended solids of decant water in the environmental control dams must meet EPA’s effluent discharge guidelines for discharge into the external environment; the landfill site for domestic waste must be fenced with a secured entrance; Topsoil stockpiles must be labelled; and, since Newmont failed to comply with the schedule of the EP, the Agency must direct them to repair all the cracked buildings or else face prosecution at the law court.”

In response to these EPA comments, Newmont contacted the Hydrological Service Department. No further information regarding whether the other technical directions were complied with was found, though it would seem, given the absence of further directions by EPA with regard to these matters, that Newmont has complied with the EPA instructions described above. Regarding the findings concerning monitoring of the implementation of EPA direction on blasting repairs and subsequent enforcement actions taken, these are discussed below.

The Environmental Certificate (EC) was issued on 19-2-2008 (see Annex II). The directions that the EPA had just provided regarding blasting repairs did not appear to influence the conditions of the EC. The only mention concerning blasting damage in the EC conditions is: “(7) Blasting: The company shall continue to ensure that its blasting operations do not impact negatively on the integrity of the existing buildings and structures within the area of influence of the operations.” (EC Ahafo South, 19-2-2008)

After a next field visit on 17 to 20-3-2009 , letters were again sent to NGGL by EPA on 31-3-2009, 5-5-2009, and 4-6-2009, in which EPA explicitly directs Newmont to comply with EPA instructions on blasting repairs. The EPA Annual Report 2010 notes that in that year the “complaint against Newmont regarding cracks caused by blasting was finally resolved” (p36).

The omission of Newmont with regard to performing a baseline study on structures meant that no standard was available for the examination of monitoring observations against predefined criteria (cf Marshall et al., 2005). The EPA subsequently directed Newmont the responsibility for repairing all structures, as it was their negligence that led to the unavailability of a baseline study¹⁶. The EPA’s initial response to the monitoring observation seems appropriate, given that Newmont should have performed a baseline study. However, this intervention by the EPA did not have the desired effect; Newmont did not repair all structures before the deadline that EPA gave it before starting legal action.

The EPA did not wait with issuing the EC until compliance had been observed, nor did the EPA adjust the EC conditions based on Newmont’s non-compliance (See Annex II), and as far as can be determined, only a year after the issuing of the EC a next field visit was performed to evaluate the progress on the directed repairs. The observed progress was deemed unsatisfactory by EPA, but legal action did not follow: instead, EPA again reprimanded and directed Newmont to complete repairs.

Thus, the initial directions of EPA appear appropriate given the absence of a baseline study; EPA set the standard of demanding Newmont repair all structures so that compliance with these new standards could be monitored. However, EPA apparently did not initiate a systematic accompanying monitoring of the implementation of directions, considering the time interval with respect to the verification visits of 12-9-2007 and 17 to 20 March 2009, and the dissatisfaction of EPA with Newmont’s lack of compliance did not lead to more stringent conditions in the EC, or to legal action when Newmont did not comply. In conclusion, though the decision on blasting repairs appears appropriate, the action taken by EPA to ensure the implementation of the decision was apparently not sufficient to enforce compliance.

5.3.2.2 Quality of public participation – Follow-up stage – Ahafo South

Interviews with the EPA staff showed that most of their time was spent on public consultation, and that community complaints often trigger verification visits by EPA. The key issue under discussion in the Follow-up stage, as most of the correspondences in the case files are related to this subject, is the repair of blasting-affected structures owned by the PAPs. The EPA, during the EMP verification visit of 12-9-2007, received complaints from communities about blasting damage to their structures, and took up this issue with Newmont.

Besides the EPA engaging Newmont and the communities, another example of public participation was a Petition from Concerned Farmers Association New Abriem, signed by 215 PAPs, and sent to the Minister of Lands, Forestry and Mines on February 26th 2008. The petition was directed “against mining in Ajenua Bepo forest reserve. “ The Ajenua Bepo forest cover improves rainfall, and agriculture will

¹⁶ Though no EP was retrieved, in the recommendations of EPA sent to Newmont on Dec 5th 2007 it is stated that: “since Newmont failed to comply with the schedule of the EP, the Agency must direct them to repair all the cracked buildings or else face prosecution at the law court.”

suffer greatly if mining is undertaken. The forest reserve is a biodiversity and medicinal plant hotspot, which should be protected. An important further issue is compensation: Newmont has set up a Crop Compensation Committee to negotiate on behalf of affected farmers; this violates section 73 of Act 703. The Committee has no legal mandate to negotiate compensation for affected farmers. Section 74 provides for compensation payment: Newmont offered 4150 cedi for an acre of Cocoa trees (400 trees), which translates to 10 cedi per tree; one tree earns 15 cedi yearly for 30 to 60 years, and no compensation is given for loss of land. We are of opinion Newmont imposes compensation in violation of farmers rights, and NGGL has not provided adequate information on Resettlement of communities and types of buildings to be constructed” (Petition from Concerned Farmers Association New Abriem, 26-2-2008).

Two NGOs initiated actions to urge Newmont to safeguard food security. The Ghanaian NGO OUACAM or WACAM (Wassa Association of Communities Against Mining) sent a petition to Newmont’s Board of Directors on April 24th 2007 urging action to prevent negative effects on food security (CM43_2), and Fian International presented their ‘Ahafo Briefing’ to the Board of Directors of the IFC (Fian International, Nov 17th 2005) stating that “the project does not provide adequate measures for the restoration of livelihood for physically and economically displaced persons...The state of Ghana has not taken adequate measures to protect the right to food and water of the affected communities” (Fian International, Nov 17th 2005: p4). Fian concluded that the Ahafo South project violates human rights to food and water (ibid). No further documentation concerning these issues was retrieved; therefore it is not clear what the effect of the actions initiated by these NGOs was. WACAM noted “The campaigns are ongoing. As we do not force our wish on communities, there are some community people who want the company to operate and others who do not want it because they believe the company will destroy their livelihoods. What we did was to provide communities with alternative information based on which they can have informed positions.” (Personal communication).

5.3.2.3 Voluntary project design changes due to monitoring – Follow-up stage

A voluntary project design change was initiated by Newmont. The company wanted to create a bypass road to avoid using the local public road. However, “After re-evaluation NGGL acknowledges it will not be feasible to construct the new road due to social factors: more land acquisition would be necessary, and speculative activities have taken place” (letter from acting Regional Director ESR Newmont to Executive Director EPA, dd 6-8-2008), meaning that Newmont would have to negotiate compensation payments with the owners of affected land and structures. Newmont decided to retract the proposal for a new bypass road, the aim of the re-evaluated plan being “to reduce impacts on communities’ farm lands; avoid resettlement of hamlets and people” (ibid). Newmont decided to return to the original plan as proposed in the EIS “to upgrade and seal with bitumen the existing Ntotroso-Kenyasi feeder road, in line with Permit condition commitment 6.(1)”, which is regarded here as being a voluntary design change, or rather a voluntary withdrawal, due to interactions with the communities.

Voluntary design changes were also initiated by Newmont in response to recommendations made as a result of IFC involvement. The International Finance Corporation (IFC) extended a loan for the Ahafo South mine (IFC SPI 2005). As a condition to the loan, IFC requested an Independent External Social

Compliance Monitoring (IESCM) program regarding the implementation of the Resettlement Action Plan (RAP), for which a resettlement expert was selected:

“I was contracted and paid by Newmont after a recruitment process that was jointly led by IFC and Newmont. This is a fairly typical arrangement with IFC and other similar lenders. IFC prepared the Terms of Reference, Newmont approved them, Newmont requested proposals from consultants, IFC and Newmont jointly selected me, then Newmont passed a contract with me. IFC were involved in every mission (they directly participated in some), or at least participated in a debriefing conference call upon completion of the mission, and reviewed the report before it was published (asking questions or requesting modest modifications). Note that a similar process was followed for environmental issues¹⁷, with an Independent Environmental Consultant on board. In the case of this project, the two activities (env and social) were separate, but on some others they are integrated into one single package of services.” (Independent Resettlement Expert Ahafo South, personal communication)

One key issue that was identified in the IESCM December 2005 report was that “little progress was made to ensure and facilitate access of affected people to alternative land; little action is taken in the direction of the Chiefs and traditional landowners; the Land Bank (identifying land potentially available inside and outside of the Mine Concession) is not in place; dedicated staff to deal with land replacement is not in place” (IESCM Report 2, Dec 2005, p5). The Independent Resettlement Expert explained the background to these issues:

“The approach Newmont favoured was that people would replace their land themselves using traditional land allocation mechanisms. I was only partly convinced and requested (1) that they strengthen the checks on land replacement, (2) introduce a facilitation fee, (3) facilitate topographic and agronomic surveys of replacement land, and also (4) introduce a “Land Bank” to cater for the needs of people who could not replace their land themselves. Newmont’s response was to introduce a programme called AILAP (Agricultural Improvement and Land Access Program), which is described in some of the reports, and addressed all of this. My focus was from the beginning on livelihood restoration, including land replacement and other aspects.” (Independent Resettlement Expert Ahafo South, personal communication)

The AILAP program provided fertilizers to cover two acres for one crop season, and facilitated land access for PAPs compensated for cropped land in the Mine Take Area (IESCM Report 3, May 2006, p5). The Land Bank identified “land potentially available inside and outside of the Mine Concession” (IESCM Report 2, Dec 2005) to support PAPs seeking land by providing an overview of available farmland.

Besides the IESCM program, the IFC requested the Independent External Environmental, Health and Safety Compliance reports drafted by the Environmental Compliance Monitoring Group (ECMG). These indicate that Newmont formed a partnership with Conservation International to protect biodiversity (ECMG report April 2009, p22-23). One of the key recommendations in 2009 was that Newmont should “establish ecological corridors and buffer zones to prevent species extinction” (ibid, p23). Though the Bosumkese Forest reserve is not explicitly mentioned, given the location of the Ahafo South project and its expected expansion to the Ahafo North part of the concession, fragmentation of habitat seems plausible as a consequence of the Bosumkese corridor (see Figure 6b).

Newmont appears to have complied with the recommendations made by the ECMG: “The Biodiversity Management Plan (BMP) and the Biodiversity Implementation Plan (BIP) are now operational.

¹⁷ The Independent External Environmental, Health and Safety Compliance reports drafted by the Environmental Compliance Monitoring Group (ECMG)

Monitoring has now started on the Bosumkese and Amama forests and ECMG considers the biodiversity monitoring issues to be closed and that NGGL is compliant with OP 4.04” (ECMG, Jan 2010, p5).

5.3.2.4 Forced project design changes - Follow-up stage

With respect to EPA’s technical review and instructions based on monitoring observations regarding Newmont’s reclamation proposal, first, on September 11th 2006, EPA provided Newmont with “concerns regarding the size of the pit and its attended waste rock dump and the proposal for partial post closure backfilling of the pit” (Vice-President African Operations Newmont, to Executive Director EPA, dd 17-10-2006; CM43_2). In response, “Newmont has decided to withdraw the May 2006 proposal from consideration by the Agency. The requirement for partial post-closure backfill and other current economic factors render the project sub-standard from an economic point of view. Newmont intends to re-assess and evaluate the projects’ potential in a manner that is acceptable to EPA and from an economic stance for Newmont, and anticipates a re-submittal of the revised project in the future.”(ibid). The withdrawal of the reclamation proposal due to EPA concerns could be seen as a voluntary change by Newmont: the company chooses to withdraw and revise the reclamation plan in order for a new proposal to be acceptable to both the EPA and Newmont.

However, the interview data suggest that the withdrawal and resubmission of the reclamation plan was in fact a *forced change*:

“Newmont’s reclamation plan was controversial: they wanted to fill the pits with water and teach the people to fish for a living, but they were all farmers and the water would cause malaria. In 2006 the EPA refused a permit due to the reclamation plan. Newmont then retracted their submission and in 2008 resubmitted a proposal. This time they complied with all criteria and got the EP” (PPO of the Mining Department)

The difficulty in interpreting this quote is that, while no EP for the Ahafo South case was retrieved, the secondary data suggests that the EP was already issued in late 2005 (CSP2 Report 2005), which would be congruent, given the time needed for preparation of the mine site, with Newmont’s statement that “our Ahafo mine poured its first gold in August 2006” (Newmont Annual Report 2006, p12). No decisive information can be provided here, but it would appear that the withdrawal of the reclamation plan was due to the influence of the EPA and therefore constitutes a forced change of project design.

The technical instructions of EPA regarding the reclamation plan and the subsequent forced design changes by Newmont took place during the follow-up stage, indicating that the reclamation plan was not finished before the EP was issued. The EIA regulations (LI 1652) under Article (14.3) note that “An EIS for mining and other extractive industries shall include reclamation plans”. This provision in LI 1652 does not indicate whether the reclamation plan should also be approved, but this would appear prudent: if the reclamation plan was not yet agreed upon at the time of issuing the EP, relevant information was not taken into account in the decision to grant Newmont the EP for the Ahafo South project.

5.3.3 Discussion of results: Substantive performance level Ahafo South project

Notwithstanding the positive effects of the Ghanaian EIA process (the voluntary and forced design changes by Newmont in response to interactions with either the EPA or the communities; cf paragraph

5.3), it would appear that the EIA process during the EIA stage has not delivered the desired quality of information, and during the Follow-up stage the compliance of Newmont was insufficient to ensure environmental and socio-economic impact mitigation. Thus, the substantive performance of the EIA process for both the EIA and Follow-up stage regarding the Ahafo South project, in light of the evaluation criteria here maintained, is considered to be low.

During the EIA stage, as discussed in paragraph 6.3.1.1, the completeness and quality of the EIS are considered insufficient as a basis for well-informed decision-making and as a consequence does not safeguard environmental protection. No information was retrieved regarding the effectiveness of the public providing project design input, as would be desirable for EIA (cf paragraph 2.4.1.1), but public involvement concerning design issues would seem challenging given the absence of a non-technical EIS summary.

In the Follow-up stage, technical project design directions were provided by EPA on two occasions. Whether monitoring of compliance with these technical recommendations was performed is unclear from the data obtained; the focus of attention of the EPA concerning monitoring as reflected in the field visit reports is only concerned with the blasting repair issues. Public participation in the follow-up stage consisted of community complaints towards Newmont and EPA regarding blasting repairs. Newmont's non-compliance with EPA directions on this matter extends for a period of some four years before the issue is resolved, and though EPA has monitored the progress on the EPA directions on the blasting repairs and indicates (3-12-2007) that non-compliance will result in legal action, no legal action has been initiated¹⁸.

Public participation consisted furthermore of the petitions by the Farmers representatives and WACAM, and the Fian report. No further information is available on the Farmers representatives; the interviewees however were familiar with the actions of the NGOs, Fian International and WACAM, and their views on these NGOs are discussed below.

The Fian report makes a reference to the IESCM Dec 2005 report to substantiate its claims. When asked about his opinion on the Fian report and the actual implementation success of the Ahafo South resettlement plan, the Independent Resettlement Expert noted:

“The Fian report was quite a one-sided document. Newmont have generally been doing a good job in respect of resettlement and social issues. In fact it is one of the best resettlements I have ever seen, and I have seen quite a few. Also, they have always taken my recommendations seriously and tried to work on them. Any resettlement is challenging and there are always some people who are unhappy even in the best of programmes, but alleging of human rights violations in this case is simply ethically wrong. It is interesting to note that Newmont had the openness to interact with the FIAN people when they were at site, and so did I. I have no clear evidence but it seems to me that FIAN, like other NGOs with similar agendas in Ghana, have been pushed into adopting this extreme language by OUACAM, who may be pursuing a local political agenda. At the end of the day, these

¹⁸ Two issues should be noted here: (1) the last correspondence in the case file (June 4th 2009) shows that the Executive Director of EPA has taken over corresponding with Newmont, indicating that the EPA was taking matters higher on the ladder of importance and may have been preparing for legal action and (2) later in 2009, a cyanide spill occurred at the Ahafo South project site, which resulted in a special parliamentary commission being installed (interviews EPA staff) to determine an exceptional fine for Newmont, beyond the normal capped fine under EIA regulations, of 7 million new Ghana cedi (about 2,4 million euro)

NGOs have very little audience, if any at all, within the affected communities. They are typically in touch with one or two disgruntled individuals but have no broader audience” (Independent Resettlement Expert Ahafo South, personal communication)

Not only the Independent Resettlement Expert was critical of WACAM; this opinion was in fact shared also by all EPA and ARL interviewees:

“they are like most NGOs, when they apply for funds they use these mostly for themselves, they try to spin information to make more donors interested.”; “they say that they are an NGO, but they are biased and not realistic...They lost credibility; they never participate, but they have a big mouth afterwards”; “WACAM is losing ground I think; they used to be active in the Western region, but now they are moving here. I heard that they went to (...) but were thrown out by the people because they didn’t want them there.”; “WACAM do provide a service for the community and sponsor activities by the community, but their aim is to discredit the mining sector. They are not focused on providing alternatives; if they would help with giving investment advice (concerning compensation payments) to locals, there could be a win-win situation” (EPA/ARL staff)

The interviewees, when asked what would have happened if no EIA had been performed, noted that the impacts of the mine on the environment and the local communities would have been more severe. The EPA staff pointed out the design changes that had occurred as a result of suggestions from EPA; the interviewees from CSP2 noted “The EIA process is critical in mining and protecting human health and the environment...without EIA, the Ahafo South mine would have even more deficiencies and problems than CSP2 identified in its report”.

Next to the Ghanaian EIA process, specific to the Ahafo South case is the involvement of IFC as an international donor setting and monitoring conditions to the Ahafo South project additional to EPA recommendations (IESCM Reports 2005-2009; ECMG reports 2006-2009). The IFC conditions, though not part of the EIA process (cf paragraph 1.2), do influence the outcomes observed in the Ahafo South project, as they led to voluntary design changes by Newmont concerning environmental impact mitigation on the Bosumkese and Amama forest reserves (ECMG Reports 2009-2010), and to socio-economic impact mitigation (IESCM 2005-2009).

As the reader may have noted, no information of EPA directions with regard to impacts on the Bosumkese Forest reserve was found; only the Independent External Monitoring program initiated due to IFC involvement (ECMG reports 2006-2009) addresses this issue. One of the EPA interviewees noted “Newmont wanted to expand their operations into a forest reserve area. They received a permit from the forestry authority and got cabinet approval” (PPO Mining Department). The reason EPA is not addressing the impacts on the Bosumkese Forest reserve is that the mandate of the EPA does not cover forest reserves: these are the exclusive responsibility of the Forestry Commission.

One important issue of notice with regard to the IFC involvement is that no information from the IESCM or ECMG programs seems to have been shared with EPA. There appears to be no direct contact between these parties: the experts involved as part of the IFC regulations all noted that they had no contact with EPA concerning their findings and had not themselves shared their reports with EPA.

This concludes the discussion on the substantive performance of the Ahafo South project. The next section provides an explanation for the observed outcomes based on the capacity assessment model developed in paragraph 2.3.

5.4 Explaining EIA performance by actor capacities for the Ahafo South project

In the previous paragraphs it is argued that EIA performance in the Ahafo South project can be considered low. The central question in this section is: how can the level of EIA performance concerning the Ahafo South project be explained by the capacities of the actors involved?

As a start for the analysis, the outcomes of the substantive EIA performance assessment are used. The main issues contributing to EIA performance being assessed as low for the Ahafo South project are, during the EIA stage, the quality and completeness of the EIS (paragraph 5.4.1) and, during the follow-up stage, Newmont's non-compliance with EPA directions regarding blasting repairs and the forced changes to the reclamation plan (paragraph 5.4.2).

However, the reader should note that, as was discussed in paragraph 3.2.2, the case files retrieved only covered the Follow-up stage of the Ahafo South project. As a consequence, the explanation of substantive performance in the EIA stage is by necessity organized differently to the explanation of EIA performance during the Follow-up stage. The explanation for EIA stage performance is based on interviews, personal observations and secondary data. The explanation for Follow-up stage performance is based on an analysis of primary data from the EPA Ahafo South case files, supplemented with interview data. Furthermore, no direct data is available with regard to reconstructing the network capacity of the EPA and the proponent during the EIA stage; the network data for the Ahafo South project will therefore only be discussed in paragraph 5.4.2 in relation to EIA system performance in the Follow-up stage.

The conceptual model and capacity indicators regarding actor capacities (cf paragraph 2.3) are used as a guideline for the analysis provided below. No inhibiting effect of a prior history of conflict or cooperation is expected, as the region has no formal history of mining and constitutes Newmont's first mining project in Ghana. After providing an analysis of the background of the substantive performance findings, an explanation will be constructed using the capacity hypotheses introduced in paragraph 2.4 to identify the influence of actor capacities on EIA performance.

5.4.1 Capacities and the completeness and quality of the EIS – EIA stage – Ahafo South

The completeness and quality of the Ahafo South EIS was deemed insufficient, covering the topics that are required under LI 1652 (Art 14) but lacking specific commitments and comprising of unfinished critical studies (CSP2 Report 2005). Nevertheless, the Environmental Permit was issued by EPA. Since all procedural steps prescribed by the EIA regulations were fulfilled, either the review by EPA did not filter out the omissions or, if it did, EPA did not attach such importance to these omissions so as to forego issuing the Environmental Permit. To investigate the probable causes for this outcome, and the extent to which actor capacities influenced EIA performance, we now follow the conceptual model and associated hypotheses and analyze the data obtained.

In paragraph 5.4.1.1, the ownership and initial power of the different actors is characterized in relation to the tasks that are required of them. This provides an insight into the influence of these capacities, and the (extent of the) inhibiting effect of context factors on these capacities. Due to the absence of detailed information on interactions during the EIA stage, the capacities leadership and adaptability (paragraph

5.4.1.2) cannot be adequately addressed. The indications that did arise from the analysis of available data are summarized in a tentative explanation of the influence of actor capacities and context factors on the quality and completeness of the Ahafo South EIS in paragraph 5.4.1.3.

5.4.1.1 Ownership and the quality and completeness of the EIS

Concerning the quality and completeness of the EIS, the *formal role and responsibility* of the proponent is writing the EIS, and the task of the EPA is to review the EIS and decide whether it is acceptable and whether an EP can be issued (cf paragraphs 4.2.1 and 4.2.2). The focus in this section will be on these two actors and not on the PAPs, as these are not directly influencing the (technical) quality and completeness of the EIS.

EPA

The *orientation of the EPA towards EIA goals* is deemed fully congruent. The EPA, as the Agency responsible for safeguarding the EIA process in Ghana, was instituted with the aim to fulfil the goals of the EIA regulations. With respect to the EPA's *orientation to other actors*, the EPA under its mandate has to remain critical with regard to the technical information the proponent provides it with to ensure qualitatively good information, and EPA may take action to enforce compliance; thus a partially antagonistic relation towards the (economic) goals of the proponent is expected where environmental protection requirements are costly for the proponent.

Characterizing the *initial power* of the EPA, considering the knowledge base of the EPA at the onset of the Ahafo South project, the EPA headquarters' Mining Department staff *educational background* consisted of three Msc graduates in Mineral Development Engineering, Applied Geology, Mining, and a MA in Sociology (ibid, p. 56). The Brong Ahafo regional office had no employee specifically educated on mining, but included two Msc graduates in Environmental Science and Natural Resource Management (ibid, p56). Based on the interviews, most of the staff had been working at the EPA for several years or from the founding of the EPA, and had some to extensive *experience with EIA*. Based on personal observations at different EPA offices, the administrative system of the EPA is not digitized and not methodically organized, which is likely to hinder the access to relevant *evaluation knowledge*.

The EPA's resources, specifically the *staff hours allocated to the EIA process*, in 2005 at the time the Ahafo South EIS was being drafted and reviewed, the EPA headquarters Mining Department constituted of five full-time employees, one of which was an administrative assistant, whereas the Brong Ahafo regional office consisted of thirteen staff members, eight out of which were support staff, e.g. administrators and drivers (EPA Annual Report 2005). With regard to the *travel expenses allocated* for meetings and site visits, no specified budget for travelling was found in the EPA Annual reports, but an internal request for a travel budget suggests daily reimbursable costs are around 50 cedi per person (which based on personal experience is deemed sufficient but not generous). The *equipment available*, such as databases, computers, vehicles, sampling and modelling software are not clearly described in the EPA Annual Report (EPA AR 2005). What is noted in the EPA AR (2005) is that the EPA staff threatened to strike for improvement of services (p. ix), whereby the EPA staff indicated that the constrained resources hampered operations and task fulfilment. The EPA's *source of funding* is a yearly

allocated budget from the Ministry of Finance; for the year 2005, the total EPA budget amounted to about 290.000 euro¹⁹ (ibid, p 46). Considering that the EPA at that time had 279 staff members dispersed over 13 regional offices and one headquarter office (ibid), even when considering cost differences between developed and developing countries, this seems a very limited budget for EPA to operate on.

The EPA, based on its mandate (cf p[paragraph 4.2.1), has the *formal incentive* to safeguard adequate implementation of the EIA process. However, two capacities limit the position of the EPA to perform its tasks: EPA's level of resources, and EPA's ownership of the EIA process as reflected in its mandate. First of all, the *resources* allocated to EPA are inadequate for the performance of its tasks (EPA Annual Report 2005, p.ix). Secondly, the *enforcement penalties are not in balance with possible breaches of compliance*: "the maximum fine is 200 cedi, which does not provide any incentive for the companies to comply" (Interview PPO Mining Department). Furthermore, the lack of resources hampers effective utilization of EPA's legal enforcement option: the EPA Annual Report 2005 notes that: "Legal department programmes were not executed due to unavailability of staff and resources" (p. x). Thus, it appears that the only assuredly effective enforcement option the EPA can initiate is closing down the proponent's operations and/or revoking the EP, which is likely to be exceedingly costly to the proponent, and EPA might choose not to utilize this option unless there are immediate concerns.

In sum, based on the assessment of the EPA's ownership guided by the indicators provided in paragraph 3.5.1, the EPA is fully aligned with achieving EIA goals, but is limited in its resource capacity and with regard to its mandate, specifically the enforcement options it can impose on the proponent to comply.

Proponent

Newmont's goal is to ensure economic benefits from the proposed activity. It is likely that the proponent participates in the EIA process because it has to; the EIA process is a legal requirement to fulfil, which might be seen as time-consuming and/or costly (cf Runhaar et al., 2012 in press). Therefore, the proponent's *orientation towards EIA goals* is considered to a greater or lesser extent antagonistic. Because the EPA's goals are aligned with the EIA process goals, the *orientation of the proponent to EPA* is considered to be antagonistic as well.

Concerning the *initial power* of the proponent, no limiting effect is expected from either a lack of knowledge, resources or network connections. The company's profits are calculated in millions up to billions of USD, which places them in a good position to maintain knowledgeable staff, and maintain network relations that are crucial to their entrepreneurship.

Next to the *formal incentive* to participate in the EIA process to obtain an Environmental Permit, of specific importance is LI 1652 Art (23): the EIS that the proponent is required to provide to EPA forms the basis for the reclamation work plan, which describes the measures that will be taken at the end of the mine life during decommissioning of the mine (cf paragraph 4.2.2). The reclamation plan under Art

¹⁹ The total EPA budget calculated in new Ghana cedi was Ghc 692.998,-; the amount in euro was calculated using an exchange rate of 2.4 cedi = 1 euro.

(23) forms the basis for the reclamation bond that the proponent has to post as a bank deposit in case any problems arise after mine decommissioning. Combined with the economic goal orientation of the proponent, this provides a clear *incentive*: if the proponent manages somehow to reduce the perception of impacts, the estimated reclamation costs will be reduced, and this will reduce the reclamation bond sum that the proponent has to post.

5.4.1.2 Leadership, Adaptability and the quality and completeness of the EIS

There is not enough data obtained with regard to leadership in the EIA stage either by the proponent or by the EPA to provide an in-depth analysis of documents triangulated with interview data (cf paragraph 3.2.2), as is performed for the Follow-up stage (cf paragraph 5.4.2). The lack of data also affects the analysis of adaptability; it is unclear whether any changes in the use of knowledge, resources or network were initiated by either the EPA or the proponent during the EIA stage.

5.4.1.3 Explanation of the quality and completeness of the Ahafo South EIS

Based on the previous paragraphs, a tentative explanation is constructed for the insufficient quality of the Ahafo South EIS by relating these findings to the hypotheses introduced in paragraph 2.4.

Concerning the quality and completeness of the EIS, only the goals of the EPA are aligned with the EIA process goals (H1). However, can we state, reflecting on H1, that the EPA in this situation where substantive performance is deemed low showed minimum compliance, or that EPA showed below or above minimum compliance with the EIA process requirements in Ghana? This assessment is not possible because the review criteria and the type of evaluation knowledge that are being used by EPA are not known to the researcher. This points not only to missing data, but also to a required improvement to the capacity hypotheses: when concerning the EPA's tasks and assessing the level of compliance with the 'minimum requirements of the EIA process', these are not as clear as they are regarding the proponent: the proponent has to adhere to the criteria that the EPA brings forward. However, to assess what the requirements the EPA internally has to meet, it is not enough to review the EIA regulations; this requires a further in-depth study of the EPA and its internal functioning. It goes beyond the scope of this research to delve further into this matter at this point, but we will return to this in the conclusions in Chapter 9. Returning to providing an answer to H1, in this situation the evidence is inconclusive.

Regarding H2, Newmont's goals were not aligned with the EIA process due to the incentive to reduce the perception of impacts in order to reduce the reclamation bond sum. However, also here the question is: can we state that Newmont showed minimum-compliance with EIA regulations, or above or below-minimum compliance? Following the EIA regulations, the Ahafo South EIS covers all required topics. That this is not a guarantee for a complete and scientifically valid study has already been argued above (cf paragraph 5.3.1.1). One could argue that, since the EIS is accepted, it must have complied with the EIA requirements, and therefore it adhered to minimum standards. However, this provides no further insight into the causes of the fact that the EIS was approved despite the fact that the information in the EIS does not provide an adequate representation of project impacts, according to the evaluation criteria maintained here. Again, the evidence does not allow for decisive conclusions, because the insight into the internal valuation criteria used by EPA when reviewing the Ahafo South EIS is missing.

Thus, also here, the evidence to substantiate any decisive claims on Newmont's compliance with EIA requirements is inconclusive.

Moving to H3, what is however clear from the evidence is that the goals of the proponent are not aligned with those of the EPA. The interviews noted some evidence of conflict, but the documentation obtained shows that the EIS has been permitted, therefore any conflicts that might have played a role between the two actors appear to have been resolved. Here we can use this argument, as opposed to when answering H1 and H2, because the answer is not dependent on knowledge of the EPA review criteria.

Concerning H5, if, as was discussed in paragraph 5.3.1.2, my personal observations (which appear to be supported by EPA Annual Report 2009, p6, stating that "resource and logistic constraints continue to hamper operations") concerning the non-methodically organized administrative system of the EPA and subsequent apparent difficulties to ensure completeness of the EIS review are correct, then here a tentative conclusion may be drawn that this specific aspect of the EPA's knowledge capacity, the type of evaluation knowledge available to the EPA, may have contributed to reduced EIA performance because important information was unavailable during the review process.

In regard to H6, with respect to EPA's resources, based on EPA's Annual Reports (2005-2010) it can be concluded that EPA possessed limited resources in relation to the tasks it has. For the proponent, no limiting effect from a lack of knowledge, resources is expected to play a role in determining the outcome of the EIA stage.

Concerning H7-11, no data is available for the EIA stage.

In sum, though the limited data does not allow for any decisive conclusions, it would seem plausible that EPA's limited resources, together with the unstructured evaluation knowledge available to EPA, hampered EPA in its efforts to ensure well-informed decision-making and as a consequence reduced environmental protection. Furthermore, the proponent's mandate under LI 1652, and the resulting incentive structure for the proponent, effectively orientating the proponent to oppose EIA goals, seems to have had the effect that the independence of the information provided in the EIS could not be guaranteed. These two issues are, based on the data collected, considered the most probable causes for the observed low quality and completeness of the EIS. A further discussion of these tentative conclusions, involving a discussion of these findings in relation to the capacity hypotheses, can be found in the comparison of cases in Chapter 7.

5.4.2 Explaining (non-)compliance in the Follow-up stage - Ahafo South

In the Follow-up stage, the actors with a *formal role and responsibility* with regard to the blasting issues are the key actors in the EIA system: the EPA, the proponent and the PAPs. Newmont, through its blasting actions, has caused damage to structures owned by the affected community. An assessment of potential blasting effects was mandatorily addressed in the Ahafo South EIS; in a written notice sent by EPA to Newmont on Dec 5th 2007 it is stated that: "since Newmont failed to comply with the schedule of the EP, the Agency must direct them to repair all the cracked buildings or else face prosecution at the

law court.” However, Newmont’s non-compliance with EPA directions extends for a period of some four years before the issue is resolved, and though EPA has monitored the progress of implementation of the EPA directions in this matter, and EPA indicates that non-compliance will result in legal action (3-12-2007), no legal action has been initiated.

To get an insight into the dynamics of the compliance monitoring and enforcement by the EPA and the response from Newmont, and to identify how the capacities of the EPA, proponent and PAPs led to the observed outcomes, an analysis of the correspondence and minutes of various meetings between the EPA, proponent and PAPs is performed below. The capacities and capacity indicators (see paragraph 2.3.2 and 3.4.1) are marked in italics in the analysis, to identify key aspects relevant to explaining the outcome of the interactions.

5.4.2.1 Actor capacities influencing EIA performance in the Follow-up stage

In paragraph 5.4.1.1 it was explained that the EPA with respect to *ownership* is fully aligned with EIA process goals, but is restrained in taking effective action due to limited *resources* (funding, amount of staff, equipment) and *knowledge* (unstructured administrative system). Furthermore, with respect to EPA’s *mandate*, EPA has limited enforcement options.

The goals of the PAPs are aligned with those of the EPA (see Box 2): both strive for repairs of blasting-affected structures. As the goals of the EPA are congruent with EIA process goals, the goals of the PAPs are, by association, aligned with the EIA process goals. However, the initial power of the PAPs is low: the rural communities are for about 75% subsistence farmers with an illiteracy rate of about 60% and half of the inhabitants living below the poverty line (SDAP report 2010).

The proponent, based on the data obtained from the Newmont Annual Report (2005), does not appear to be limited by a lack of knowledge or resources. With respect to the network capacity of the EPA, PAPs and Newmont, Annex IV provides the reconstruction of the Ahafo South network using data obtained from the EPA case files.

The proponent’s *orientation towards the goals* of the PAPs and EPA and vice versa is antagonistic. The proponent is focused on an economical solution to the blasting damage issues brought forward by the communities, as evidenced by Box 1.

Regional Manager NGGL to Head of Mining Department of EPA, dd 4-10-2007: update on blasting issue and building consultant report.

“At last site visit of Regional EPA team (S. A. & P. N.) to Ahafo Mine, on 12-9-2007, a review was carried out with them concerning blasting damage to houses. In feb 2006 NGGL started receiving complaints from landlords in Kenyasi of building damage due to blasting; Dormaa Landlords Association together with Asutifi District Chief Executive commissioned Architectural Engineering Services Limited (AESL) to review buildings, NGGL commissioned Building and Roads Research Institute (BRRI) and independent Australian consultant to do the same. Additionally NGGL had ongoing monitoring performed by Ghana Mines Department and review of blasting by Principal Inspector of Mines, mr. M. B.. Conclusion was that 44 structures had unexplained damage, all experts tended to agree.

When communicated to landlord representatives in June 2007, landlords demanded compensation for all 143 structures, and when this was refused the meeting ended without agreement. Landlords waited outside the District Assembly Hall and blocked NGGL and BRRI vehicles from leaving and shouted insults; with help from District Assembly eventually the vehicles could leave.

Box 1:Regional Manager NGGL to Head of Mining Department of EPA, dd 4-10-2007 (CM43_2)

There is explicit conflict visible in the interaction described in Box 1: Newmont's *framing of the issue* does not get accepted by the PAPs. The EPA's *orientation towards the goals* of the PAPs is in congruence, as can be seen in Box 2.

Director of Mining at EPA, to the regional Director Environment and Social Responsibility, dd 3-12-2007, regarding blasting complaints: "The company failed to comply with the basic condition of performing a baseline study of structures and ensuring blasting does not cause any significant changes in existing environmental conditions: since the company failed to comply, it has no justification selecting 44 out of 145 complaints for repair. We want to direct that the company proceed to repair all houses by 31st March 2008. Failure to comply would lead the Agency to take legal action against the company for non-compliance."

Box 2: Director of Mining at EPA to Regional Director ESR Newmont, dd 3-12-2007 (ibid)

The EPA has a *formal incentive* to provide directions, because the company has "failed to comply with the schedule of the EP" (Memorandum report EPA on EMP verification visit, dd 5-12-2007, CM43_2). In response to EPA's direction, the proponent aims to *determine the agenda* by setting up a meeting with the EPA using the *discourse / issue framing* of 'discussing NGGL's plans to go forward' (Box 3).

Regional Manager NGGL to Head of Mining Department of EPA, dd 12-12-2007: response to letter by EPA dated 3-12-2007, inviting EPA to meeting on 8-1-2008 at office of Chamber of Mines to discuss NGGL plans to go forward on blasting repair issue.

Box 3: Regional Manager NGGL to Head of Mining Department of EPA, dd 12-12-2007 (ibid)

The proponent is *competing* with the EPA over the approach to the blasting repairs. The EPA's response is clear in how the EPA *frames the issue* (Box 4); there is no room for negotiation.

Head of Mining Department of EPA to General Manger ESR, dd 20-12-2007: "The Agency has no intention to participate in the proposed meeting for the simple reason that the letter written to the company on the above subject is straightforward and needs only compliance and not any further discussion."

Box 4: Head of Mining Department of EPA to General Manger ESR, dd 20-12-2007 (ibid)

The next evidence of contact between EPA and the proponent regarding the progress on blasting repairs was dated over a year later. After a field visit by the EPA Mining Department from 17-20 March 2009, the EPA notifies Newmont that they should "report to the Agency by 18-4-2009 on this issue as well as actions taken to forestall future occurrences", however no response from Newmont was retrieved. After a second field visit on 5-5-2009, when progress is still not satisfactory, a *change in policy level* can be observed when the Executive Director takes over correspondence with Newmont from the Head of the Mining Department (Box 5).

Letter by Executive Director EPA to General Manager ESR NGGL, dd 4-6-2009. Report on verification visit of 17-5-2009: "Agency is seriously concerned about your commitment to ensure speedy repairs. We direct you to complete repairs within the shortest time, and take steps to ameliorate blasting impacts on Akwarekrom and its environs."

Box 5: Executive Director EPA to General Manager ESR NGGL, dd 4-6-2009

Based on the correspondence outlined above, the following pattern can be observed. In response to the complaints by the PAPs Newmont first tries to determine the amount of structures to be repaired, and when facing resistance from the PAPs appears to avoid further direct contact. The EPA shows leadership directed towards EIA goals by directing the proponent to repair all structures; however, in response to EPA's direction, Newmont responds by trying to set the EPA's agenda and influence the process rules by continuing to push for its desired outcome.

When it becomes clear that the EPA does not accept this approach by Newmont, the company does not seek further contact on this issue with EPA. When EPA, after more than a year, checks the progress, the progress on blasting repairs is not satisfactory. The EPA subsequently writes Newmont to express dissatisfaction and again directs speedy repairs, and EPA performs a second field visit to assess the effect of this latest direction. When still no improvement is observed, there is a shift observable in the internal policy level at which EPA addresses the matter: the Executive Director takes over correspondence with Newmont from the Head of the Mining Department. No further correspondence on this matter was retrieved, but the EPA Annual Report indicates that it took until 2010 for Newmont to finally restore all blasting-affected structures in a way that is satisfactory to EPA.

5.4.2.2 Explanation of non-compliance in the Follow-up stage

In this section, we now focus on applying the capacity hypotheses introduced in paragraph 2.4 to explain how capacities have influenced the observed outcome.

Concerning H1, as noted in the previous paragraph, the EPA's goals are fully congruent with EIA process goals. As was explained in paragraph 5.4.1.3, to establish whether EPA adhered to the minimum requirements of the EIA process, we need to establish what EPA's assessment criteria are. In this case, it would seem to be possible to infer from the content of the correspondence of EPA with Newmont that the EPA's goal is to ensure that their directions are taken seriously and lead to changes in the approach by Newmont. However, this outcome is not observed: outside written correspondences, the EPA did not actively enforce Newmont's compliance with EPA directions, even though the evidence shows that Newmont violated one of the Ahafo South EP conditions and EPA indicated it will enforce its directions through legal action.

EPA, judging by the tone of the letters sent to Newmont, clearly wanted Newmont to comply, yet action was restrained. Two key issues prevented EPA from taking action. First of all, legal action is not expected by EPA to have the desired effect: EPA's legal department is understaffed, and due to the unstructured administrative system of EPA, the required data to substantiate a legal case are difficult to gather (EPA Annual Report, 2005; 2009). This leaves as the only viable enforcement alternative closing down the Ahafo South mine, which seems rather drastic considering that there is no emergency situation requiring immediate action on such scale. Secondly, EPA was restrained by limited resources, and considering the time interval between verification visits, had no structured monitoring system in place.

Regarding H2, Newmont's goals are not aligned with EIA process goals in this situation: Newmont, through its initial action towards the communities, attempting to dictate them which structures are eligible for repair, and through attempting to negotiate with EPA over the approach to follow concerning the blasting repairs, provides clear indications that its preferred solution is not in line with EPA directions, and therefore not aligned with EIA process goals. Newmont shows non-compliance, which according to H2 indicates that Newmont does not appear to experience dependence on EPA to achieve its goals. It is of course not verified whether Newmont was aware of the restraints on EPA's part with respect to its enforcement options, but it would seem that the pattern of written correspondence and no further consequences would be observed by the Newmont staff and therefore it does seem probable that Newmont had enough knowledge of EPA's constraints not to feel threatened. Thus, as there is no

gain for Newmont to be expected from compliance with EPA directions, but also no likely enforcement action that would be a deterrent to Newmont, there is no incentive for Newmont to comply with EPA directions.

Considering H3, the goals of the EPA and the PAPs are aligned: both strive for Newmont to repair blasting-affected structures. This discourse coalition indeed keeps the topic of blasting repairs on the agenda with Newmont. However, despite the dominance of this topic, the goals of EPA and the PAPs are not achieved until after a struggle of about four years, despite what would be expected based on H3. This seems to be due to the fact that there are no real enforcement options that EPA can use, but also none that the PAPs can use, outside perhaps physical force.

The goals of the proponent are not aligned with those of the EPA and PAPs: in line with H4, a resolution of conflicts is only expected when actors are interdependent. Considering the absence of enforcement options of the EPA and PAPs, Newmont's dependence on the other stakeholders is low: there does not appear to be a gain for Newmont in complying, but also no loss in not complying with EPA directions.

Referring to H5, the EPA and PAPs are both resource-constrained (EPA Annual Report; SDAP report 2010). Concerning H6, the EPA does not structurally monitor the implementation of the directions when these are first given in late 2007. Only in early 2009, when then EPA learns that there is little progress, the monitoring of compliance is intensified, with two field visits being undertaken within the span of two months, and with the original directions towards Newmont being repeatedly reiterated.

With regard to H7, based on the reconstructed network (see Annex IV), it appears that the network capacity of the PAPs and EPA are limited. The PAPs may have knowledge about Newmont's non-compliance, but only during EPA field visits do they voice their concerns; they do not seem to actively file grievances in writing or otherwise to EPA, and there are no indications that the PAPs are actively getting other actors involved to pressure Newmont to comply. EPA does not involve other actors to pressure Newmont either.

With respect to H8, at the onset of the interactions, the PAPs are confrontational towards Newmont, showing explicit hostility when blocking Newmont staff from leaving the meeting in June 2007. The explicit conflict indicates a lack of control for both Newmont and the PAPs in achieving their goals: the PAPs want to compel Newmont to repair their damaged structures, and Newmont does not want to accommodate the PAPs because this is economically uninteresting. Newmont responds by avoiding direct contact with the PAPs, which prevents the PAPs from using physical force as a last resort to motivate Newmont to comply, but also prevents any resolution of the conflict through collaboration.

EPA's leadership is clearly focused on (re)gaining control over Newmont. Due to the fact that Newmont avoids the PAPs, the disagreements are not resolved, and as a consequence, EPA's leadership continues to be directed towards regaining control. It should be noted though that, with respect to H8, conflict is not the cause that negatively affects EIA performance because it keeps EPA's leadership efforts focused on conflict resolution and regaining control. Rather, conflict is a sign of a lack of control, pointing to the underlying incentive structure that is at the root of Newmont's non-compliance. It seems that H8 requires further revision, as will be discussed in Chapter 9.

Referring to H9, the EPA and the PAPs are in a discourse coalition, jointly striving for the mitigation of negative socio-economic impacts. However, the collaboration between these two actors is incidental rather than structured; perhaps this, next to the incentive structure which is believed to be at the heart of the explanation of non-compliance by Newmont, reduces the effectiveness of their shared effort. EPA and the PAPs compete with Newmont over control, and Newmont avoids contact with EPA and the PAPs. Thus, besides the EPA and PAPs towards each other, none of the actors are exhibiting a collaborative interaction style. In line with H9, the observed outcome is low EIA performance. However, it does appear that H9, just as H8, requires revision (cf Chapter 9).

Concerning H10, the EPA and PAPs are confronted with Newmont's (passive) resistance. No change in the means employed by any of the parties is observed; thus, no indication of adaptability is found, except for the instance when the EPA, in June 2009, exhibits an internal policy level shift when the Executive Director takes over communicating with Newmont from the Head of the Mining Department. One can argue that this is a shift in the use of network, but it does not constitute the involvement of any actors outside EPA that may help leverage compliance by Newmont. In line with H10, as none of the actors clearly appear to change the means they employ to achieve their aims, the associated EIA performance level is low.

Regarding H11, the EPA and PAPs are confronted with resistance from Newmont and vice versa. Newmont does not show any change in the means it employs, and, as was argued above, neither do the PAPs and EPA. The disagreement lingers on for years, with the EPA and PAPs appearing to become more frustrated with the developments over time. For four years the EPA and PAPs do not achieve their aims, until finally, for reasons unknown to the researcher, Newmont complies with the directions of EPA, and the EPA and PAPs manage to achieve their goals, whereas Newmont does not.

So, what can we conclude from the above assessment of the influence of actor capacity on EIA performance in the Follow-up stage? In sum, it appears that the lack of ownership of the EIA process by Newmont, specifically the lack of incentives to comply, is the main driver behind non-compliance.

The limited viable enforcement options of EPA are not able to provide a counterweight to the disincentives for Newmont. Furthermore, EPA's its limited resources and delayed evaluation knowledge availability, and the absence of enforcement options of the PAPs together with low network capacity of both EPA and the PAPs, do not allow for EPA and the PAPs to adapt their strategy. The result is a lingering conflict, and low success in achieving the mitigation of negative socio-economical impacts.

This concludes the discussion of findings with regard to the Ahafo South project. The next chapter provides a similar discussion of the results obtained with respect to the second case studied for this research, ARL's Nzema Gold Project.

Chapter 6 Case II: ARL's Nzema Gold Project

The second case study for which the performance of the EIA system is explained by actor capacities is the Nzema Gold project. The proponent is Adamus Resources Limited (ARL), an Australian gold mining company listed on the Australian Securities Exchange (ASX), TSX Venture Exchange (TSX-V) and Frankfurt Stock Exchange Open Market (FSE)²⁰. In 2008, the company made a net loss of over 20 million USD (ARL Annual Report 2008, p2), which, after a loss of over 15 million USD in 2009 increased to a net loss of over 82 million USD in 2010 (ARL Annual Report 2010, p2). The Nzema mine has an estimated total project cost of 87 million USD, an expected mine life of over 10 years and an expected production of 100.000 oz/yr (ibid), representing respectively an estimated total mine life value of 1.79 billion USD and a daily project turnover of 490,000 USD²¹.

After a brief introduction of the Nzema project in paragraph 6.1, the results for procedural EIA performance (paragraph 6.2) and substantive EIA performance (paragraph 6.3) in the Nzema case are discussed, and the observed performance is explained by the capacities of the actors involved in paragraph 6.4.

6.1 Project description

The Nzema Gold project, originally the Southern Ashanti Gold Project but renamed after the Nzema east district where the project is situated, is located approximately 280 km west of Accra. The total concession area is 92.3 km² (92300 ha), and Nzema Gold operations span 0.4% of the total concession area (396 ha or 3.96 km²) (Summary EIS Nzema, 2008). The area has no formal history of mining, though before the independence of Ghana underground mining was performed by the colonialists (Salman Chief Nana Kwamena Bentun II).

The Nzema EIS, an Environmental and Social Impact Assessment (ESIA), was drafted in 2008, and the EP was issued on 12-12-2008. The main potential environmental impacts of the Nzema project, according to the EIS Summary, are Acid Mine Drainage (AMD), impacts on hydrology and surface water (possible impacts without safeguards: modification of stream hydrology, alteration, erosion, possible deterioration in water quality especially pH, suspended solids, cyanide, heavy metals, oil and grease), hydrogeology and leaching of contaminants into groundwater (results of numerical flow model scenario's indicate a max radius of contamination plumes 700m-1km; in ten years the plume would still be confined to a 200 m radius from the pits), soil erosion and sedimentation, impacts on the ecological environment (loss of small tracts of secondary forest, unlikely to impact conservation species), and noise and vibrations (processing and blasting).

Main impacts on the socio-economic environment, according to the Nzema EIS are due to resettlement and the influx of people (Summary Nzema EIS): ARL states that the project generates over 300 local jobs during construction and notes that the mine can, together with the District Authorities, have a positive impact on socio-economic development; ARL implements training programmes to enable locals to

²⁰ <http://www.abnnewswire.net/companies/en/28664/Adamus-Resources-Limited> retrieved 18 Oct 2012

²¹ Calculated using gold ounce price of 1791,30 USD, source: www.goldprice.org retrieved Oct 5th 2012

access Nzema Gold Operations employment opportunities (ibid). A potential negative socio-economic impact of the mine is that the influx of (male) workers tends to upset the existing social cohesion; prostitution, alcohol, drugs, and crime tend to go up, as well as pressure on housing, clinics, schools, and water availability (ibid; SDAP Report, 2010).

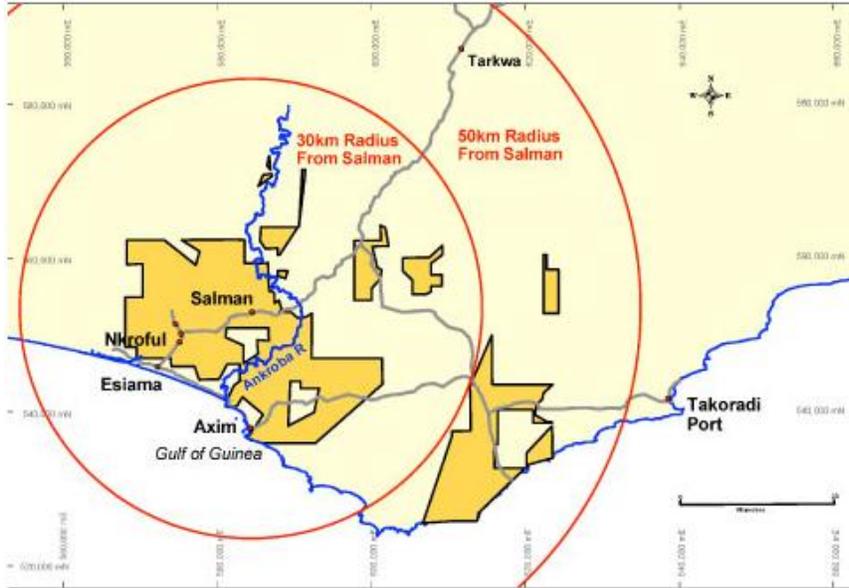


Figure 6: Nzema project site overview

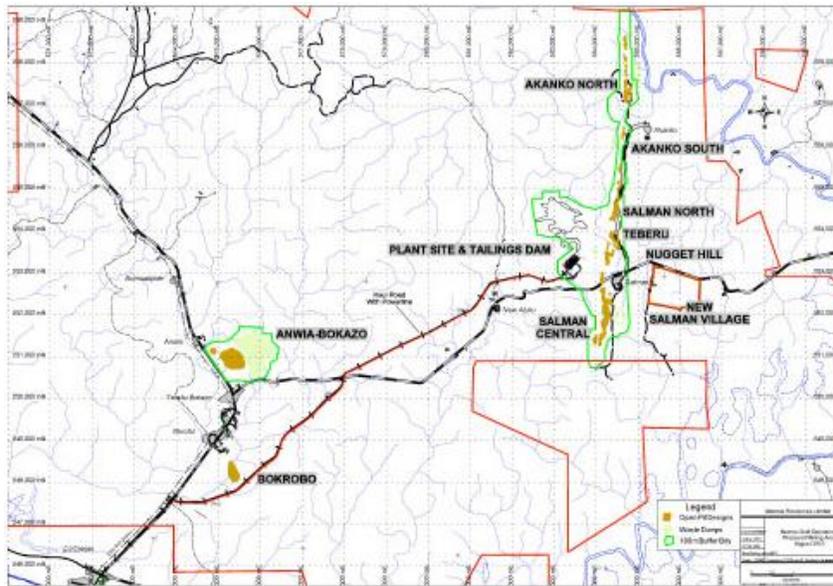


Figure 7: Nzema project site overview

Source: <http://www.endeavourmining.com/s/Ghana.asp> (retrieved 15 Oct 2012)

6.2 Procedural EIA performance – Nzema project

The first step in assessing the performance of the Nzema project is determining procedural performance, to verify whether all required steps have been taken during the EIA process. Table 23 below provides an overview of the procedural steps that are required in Ghana’s EIA process, the outputs that should be delivered at each step of the process, and the data obtained with regard to the Nzema project which indicates whether the procedural steps have been followed and whether the required outputs have been delivered.

Step in EIA process	EIA application	Screening	Scoping	Environmental Assessment	Environmental Permit	Compliance Monitoring	Environmental Certificate	Compliance Assurance
Output	EIA registration	Starting document, Screening report, Preliminary Environmental Report (PER)	Scoping report with ToR, report on public participation	EIS, review report, report on public participation	Environmental Permit	EMP, Annual Environmental Reports (AERs), field visit reports, reports of public consultation	EC	Field visit reports, recommendations and directions to proponent by EPA, possibility of fine, suspension/cancellation/revocation of EC
Fulfilled	Case file: EIA is registered	Case file: No screening report retrieved but EIS was drafted, implying that screening took place	Nzema EIS: No scoping report retrieved but in Appendix 1.2 to Nzema EIS (nov 2008) it is mentioned that there exists a scoping report (4-10-2006) with ToR & public hearing at Salman	Nzema EIS: EIS delivered Nov 2008; earlier review comments by EPA (from 4-10-2006) mentioned in EIS (“report does not properly state project location; location of sediment control structures must be provided on map & incorporated in EIS; EIS must incorporate TSF”); evidence of public participation in EIS Interview data: ARL’s CRM & BFM confirm public participation took place already at an early stage	Nzema EIS: EIS accepted, permit issued on 12-12-2008; no copy of permit retrieved	Case file: EPA performed field visit on 29-31 March 2010 & public hearings on 26-5-2010 and 6-6-2010; First AER delivered on 11-5-2010; EMP delivered to EPA on 20-8-2010; quarterly resettlement update delivered Sept 2010; evidence of at least 15 interactions ARL-PAPs; Commencement of pre-mining 20-10-2010, commencement of mining 1-12-2010	Case file: Environmental Certificate not yet issued Interview data: ARL explained that EPA is waiting for ARL’s Akoben audit data to base EC decision on results	N/A

Table 23:Procedural EIA performance – Nzema project (Nzema EIS (Nov 2008); CM1046_4; interviews ARL BFM & CRM)

6.2.1 Procedural performance – EIA stage

Though no copy of the report has been obtained, evidence from the Nzema EIS and interviews with ARL's BFM and CRM indicates that screening and scoping have taken place and the EPA has provided review comments on the scoping report, which have been taken into account in the Nzema EIS (Nzema EIS, Appendix 1.2). The EIS contains evidence of public participation in the form of an overview of issues discussed during public engagement and actions taken or intended to be taken. The Environmental Permit has been issued on 12-12-2008 (according to the supplementary EIS TSF and bypass).

6.2.2 Procedural performance – Follow-up stage

EPA performed a field visit from 29 to 31 March 2010 (EPA internal memorandum 22-4-2010; PPO Mining Department); the field visit was aimed at the verification of information provided by ARL in the supplementary EIS on the revised TSF and bypass road, and was directed at consultation of the PAPs. The first Annual Environmental Report (AER) was delivered by ARL to EPA on May 11th 2010. The EPA Head of the Mining Department on July 5th 2010 provided review comments to ARL's General Manager with respect to the supplementary EIS proposing changes regarding the TSF and bypass. No evidence was found of non-compliance by ARL, and accordingly no enforcement actions by EPA were identified.

The Environmental Management Plan (EMP) was delivered by ARL to EPA on August 20th 2010); both the first AER and the EMP were delivered by ARL to EPA before commencement of mining on Dec 1st 2010. The Environmental Certificate, which is to be issued within 24 months of commencement of operations according to the Ghana EIA regulations (LI 1652), should be issued at the latest on 1-12-2012. The Business Finance Manager of ARL during our interview noted that ARL agreed with EPA to wait for the Akoben²² audit data as a basis for the decision on the Environmental Certificate.

Considering the information retrieved from the case files, interviews and EIS for the Nzema project, it appears that all procedural conditions have been fully met. Thus, with respect to procedural performance, the Nzema case shows a high level of performance.

6.3 Substantive EIA performance – Nzema project

This section provides and analyzes the results with regard to the substantive performance indicators. Most written data was available for the Follow-up stage. For the EIA stage, data from interviews was used where written information was absent.

6.3.1 Substantive EIA performance – EIA stage

Table 24 and 25 below provide the data obtained with respect to the substantive performance indicators formulated for the EIA stage:

²² Akoben is the mining rating system that the Ghanaian EPA has developed to communicate the environmental performance of large scale gold mines in Ghana; the first ratings were published in 2009, and the EPA intends to publicly rate all (16) large scale gold mines in Ghana under the Akoben system (see also <http://www.epaghanaakoben.org>)

EIS stage – substantive indicators	Quality of screening & scoping procedure	Quality of EIS	Completeness of EIS	Quality of review procedure	Quality of public participation	Voluntary change of project design due to EIA procedures	Voluntary withdrawal
Information retrieved	Nzema EIS: Only written data retrieved are review comments mentioned in EIS <u>interview data:</u> Regional EPA performed verification of baseline data & advised to add Amansuri wetlands assessment to ToR and broaden scope of public participation (EPA staff & ARL BFM)	Nzema EIS: Baseline study indicates acidic surface water and soils, elevated concentration Fe ⁻ (potential of cyanometallic complexes transported off-site, acidic environment may aggravate WAD cyanide releases); WAD cyanide release mitigated by precipitation and chemical detoxification; Amansuri wetland at mouth of river (24 km downstream) is internationally significant biodiversity hotspot but no mitigation strategy proposed in EIS	Nzema EIS: ‘Preliminary’ geochemical tests show acidification not an issue; for some waste samples additional Non Acid Generation testing ‘will be’ done, sapprolite is ‘expected to have low transmissivity and high storativity’; groundwater hydrogeology study (fractures acting as conduits) admittedly possibly incomplete	Case file: No written EIS review comments retrieved for project EIS (but during follow-up 20-10-2010 handwritten comment on EMP: ‘potential for acid generation has not yet been determined’); <u>personal observations:</u> TRC process	Case file: No written data concerning EIA stage; <u>interview data:</u> ARL BFM ‘spent two days with EPA off-site to prepare public hearing’ to ‘incorporate issues at early stage’; speculation named by all, employment by most: Alt Livelihoods program & RNC	Case file: No written data concerning EIA stage; <u>interview data:</u> use of hydrofoam blocks for resettlement; volitional adherence to future IFC rules	N/A

Table 24: Substantive performance – EIS stage (Nzema EIS; CM1046_4; Interviews EPA staff/ARL BFM; personal observations)

EP stage – substantive indicators	Influence EIS on EP decision	Quality of environmental permit procedure	Congruence of EP with EIS findings	Forced change of project design due to EIS/ permit under conditions	Forced withdrawal / no permit
Information retrieved	<u>interview data:</u> mitigating measures EIS are turned into commitments in the EP (EPA Head of EAA Department)	<u>Case file /Interview data:</u> Procedural quality assurance; see also quality of review procedure Table 28a	EP issued 12-12-2008 (AER 2010), however no EP retrieved; <u>interview data:</u> mitigating measures EIS are turned into commitments in the EP (EPA Head of EAA Department)	No EP retrieved, but typically EP has conditions specified	N/A

Table 25: Substantive performance – EP stage (AER 2010; CM1046_4; interview: EPA Head of EAA Department; personal observations)

The analysis of substantive performance is here based on several criteria posed by Van de Riet (2003) (cf paragraph 3.4) in order to evaluate if adequate information for decision-making has been provided during the EIA stage.

6.3.1.1 Quality of screening and scoping

Concerning the *quality of screening and scoping*, interviews with EPA and ARL staff all confirm that the EPA regional office verified the baseline data provided in ARL’s screening and scoping reports, leading to two directions by EPA: first, that the potential impact on the Amansuri wetlands, a biodiversity hotspot located 24 kilometres downstream from the project site, should be assessed in further detail, and

second that the scope of public participation should be broadened to include all relevant stakeholders. The interviews and Nzema EIS data confirm that these topics have been subsequently addressed by ARL.

6.3.1.2 Completeness and quality of the EIS

Concerning the *completeness and quality of the EIS*, the Nzema EIS mentions the Amansuri wetlands, but does not discuss any possible impacts or mitigation measures. However, if acid mine drainage or cyanide spills enter surface or groundwater, the Amansuri wetlands might be threatened by pollution. Also, other threats to ecosystems such as farmland losses and enhanced erosion might affect the Amansuri wetlands (cf Schueler et al., 2011); these topics do not appear to be fully addressed in the Nzema EIS. One important further issue to be noted with respect to the completeness of the Nzema EIS is that not all necessary tests were performed to provide an adequate overview of potential impacts: geochemical and hydrogeological testing is incomplete. Considering that the two main environmental impacts to be expected from gold mining, namely acid mine drainage (Waybrant et al., 2002) and cyanide spills to surface water (cf Johnson et al., 2008) or leaching into groundwater (Kjeldsen, 1999), these tests are crucial for determining potential environmental impacts.

To assess acid mine drainage, which can result from the tailings as well as from the waste dumps, the “preliminary testing of tailing slurry” (Nzema Project EIS) does not provide a complete and adequate overview of potential AMD. Regarding potential cyanide releases, the EIS notes that precipitation and detoxification significantly reduce WAD cyanide release. It would seem prudent to treat cyanide from the heap leach process to reduce the concentration of WAD cyanide, especially because the baseline study in the EIS points to an overall acidic existing environment with regard to surface waters and soil, and elevated concentration of iron in soil, surface water and groundwater. An acidic environment would facilitate the dissolution of Weak Acid Dissociable (WAD) cyanide, one of the species of cyanide that are considered most environmentally hazardous (Kjeldsen, 1999). The Nzema EIS baseline study showed that elevated concentrations of iron exist in the natural environment; increased levels of iron allow for cyanide to form cyanometallic complexes when for instance leached from waste dumps and tailings storages into soils and groundwater. These are particularly persistent species of cyanide molecules (cf Kjeldsen, 1999), which can remain intact for a long time, allowing for off-site transport via groundwater. The environmental significance of cyanometallic complexes on the environment is disputed however (cf Johnson et al., 2008), so it is not clear what the significance of this potential impact may be, making it difficult to agree upon acceptable standards and to determine whether the Nzema EIS has provided a complete and adequate overview of potential impacts in this regard.

6.3.1.3 Quality of the review procedure

It would appear that the EPA only became aware of the incompleteness of tests in the Nzema EIS to determine potential acid mine drainage after the EP was issued during the follow-up stage: on September 20th2010, handwritten EPA review comments were noted on the EMP (2010-2013), presumably (based on the handwriting as seen on other documents) by the Head of the Mining Department, who writes: “ARL should have established the potential for acid generation so that specific mitigative measures shall be prescribed. If not yet done, ARL should do this urgently and get back to EPA”. This indicates that the EIS review procedure had not identified this issue of relevance prior to the issuing of the EP, which will be addressed further in paragraph 6.4.1.1.

6.3.1.4 Quality of public participation

No written data on the exact content of *public participation* during the drafting of the Nzema EIS was retrieved, although the EIS notes that public participation has been performed, and this is confirmed by interviews with ARL staff. In preparation for public hearings, ARL and the EPA staff took part in a two day meeting off-site. The interviewees, both the EPA staff and ARL employees, all indicated that the main issue in dealing with the affected communities during the EIA stage was speculative activity; as compensation of structures affected by the mining operation is mandatory, many local people started creating extra structures or houses, so that they would be eligible for compensation money. A second main issue during public participation, mentioned by almost all interviewees, was the creation of employment opportunities for local people.

6.3.1.5 Voluntary design changes

Concerning *voluntary design changes* initiated by ARL due to the EIA process, regarding the resettlement of Salman, ARL's (former) Community Relations Manager (CRM) explained that the use of hydrofoam blocks was suggested by ARL for the construction of New Salman. The reasons for this, according to the CRM, were that New Salman was going to be located on the concession area to allow the PAPs access to their farmlands and hydrofoam buildings would not be affected by blasting, and because ARL, as part of its Alternative Livelihood program, would leave the hydrofoam block production machine and train local people in the use of the hydrofoam block machine so they could start producing their own hydrofoam blocks for retail purposes. Furthermore, ARL's CRM noted that ARL voluntarily already ensured that the Nzema project design was in compliance with future IFC rules.

Summarizing the key issues from the discussion above, though the regional EPA had directed ARL to further investigate impacts on the Amansuri wetlands and ARL complied with this direction, no mitigation strategy on this topic was proposed. Public participation already took place during scoping, and appears to have focused on (the mitigation of) social impacts, being mostly concerned with compensation for structures and land and the generation of employment for local people. Voluntary design changes initiated by ARL were the use of hydrofoam blocks for the construction of New Salman, and a proactive compliance of the project design with future IFC regulations. The quality of the main EIS with regard to its scientific reliability and validity appears insufficient with respect to determining AMD potential. Whether further attention was required for potential cyanide and waste effects on hydrology, hydrogeology and the Amansuri wetlands was required is a matter of perspective. However, since the Nzema EIS cannot be considered to provide an adequate assessment of environmental impacts due to its incompleteness, and therefore does not provide input for well-informed decision-making on this topic, EIA performance, in relation to the criteria here maintained (cf paragraph 3.4), with regard to the quality and completeness of the EIS is considered low.

6.3.2 Substantive EIA performance – Follow-up stage

This section discusses the findings with regard to the performance indicators for substantive EIA performance in the follow-up stage. The main focus is on compliance monitoring and enforcement with regard to the Environmental Permit; the Environmental Certificate has not yet been issued, therefore no data on the EC stage or subsequent compliance assurance with the EC has been retrieved. Table 26 and

27 provide a summarized overview of the findings concerning the substantive performance indicators for the follow-up stage. To assess the quality of the follow-up process, use is made of criteria posed by Marshall et al. (2005) (cf paragraph 3.4).

CME stage – substantive indicators	<i>Quality of compliance and enforcement procedures</i>	<i>Quality of public participation</i>	<i>Voluntary environmentally beneficial design changes due to monitoring</i>	<i>Forced change of project design due to compliance monitoring</i>
Information retrieved	<u>Case file:</u> Monitoring via self-reporting by company (AER 11-5-2010; EMP 20-8-2010, Quarterly Resettlement update Sept 2010;, one verification visit by EPA (29-31 March 2010) but report (22-4-2010) provides no technical project design recommendations; 5-7-2010 Review comments by Head of Mining Department to ARL on supplementary TSF and bypass <u>Interview data:</u> Monitoring performed by regional office & focused on community engagement (EPA staff/ARLBFM), community issues central to EPA regional office tasks (all EPA interviewees)	<u>Case file:</u> 29-31 March 2010 verification visit by EPA also aimed at community consultation; Two public hearings on supplementary EIS (26-5-2010 & 9-6-2010); 15 identified occasions of interaction ARL with communities with EPA not directly involved <u>Interview data:</u> ‘EIA never ends really, community complaints can keep coming’ (EPA reg office), ‘EPA performed regular field visits since EP, reg office focused on social impacts’ (ARL BFM)	<u>Case file:</u> 20-7-2010 Supplementary EIS revised TSF 30% reduced footprint, proposed bypass avoids communities, water abstraction from Ankobra river instead of boreholes; review comments by Head of Mining Department (5-7-2010) regarding supplementary EIS on revised TSF and bypass, EP issued 20-12-2010 <u>Interview data:</u> Change in TSF because of rainfall, risk of tailings discharge, more economic, initiated in consultation with EPA (ARL/EPA)*, bypass design due to community input (EPA/Chief), T-Bokazo development fund on recommendation of EPA (ARL BFM)	<u>Case file:</u> EPA directions on compensation evaluation method (22-4-2010), reclamation bond sum (7-7-2010)

Table 26: Substantive performance – Follow-up stage (*accounts on whether the TSF design change was initiated in consultation with EPA or not varied among interviewees, though the majority indicates EPA provided directions in this matter)

EC stage – substantive indicators	<i>Aquaintance with monitoring outcomes for EC decision</i>	<i>Consent with monitoring outcomes for EC decision</i>	<i>Influence of monitoring outcomes on EC decision</i>	<i>Quality of environmental certificate procedure</i>	<i>Congruence of EC with EP and EIS requirements</i>	<i>Forced environmentally beneficial implementation design changes / Certificate under conditions</i>	<i>Forced withdrawal of project / no EC</i>
Information retrieved	N/A	N/A	N/A	No data (Akoben ²³ rating is used to inform EC decision)	No EP retrieved; EC not yet issued	N/A (EC not yet issued)	N/A

Table 27: Substantive performance – Follow-up stage

In the follow-up stage, as interviews with EPA staff indicated, monitoring takes place mainly in the form of self-reporting by the company, which has sent its Annual Environmental Report 2010, the EMP and a resettlement update to EPA for information.

6.3.2.1 Quality of compliance monitoring procedures

With respect to the *quality of compliance procedures*, concerning the technical project impacts there is some evidence that monitoring outcomes were compared to predefined standards: the Annual Environmental Report (AER) 2010, sent by ARL to EPA on 11-5-2010, assesses water quality against the quality guidelines for mining effluents as provided by EPA, in relation to WB/IFC effluent guidelines, and

²³ cf <http://www.epaghanaakoben.org/>

against drinking water guidelines from WHO and the Ghana Water Company (see Appendix ...). The results in the AER 2010 tend to confirm compliance with all mining effluent guidelines. No recommendations or correspondences with respect to the main project EIS from EPA to ARL have been retrieved, and no indications of non-compliance by the company were obtained from the case file studied.

The EPA performed one verification visit (29-31 March 2010), aimed at assessing the information that ARL had provided with regard to the supplementary EIS concerning the revised design for the Tailing Storage Facility (TSF) and proposed bypass road to access the mine site. However, though the field visit report describes the design changes proposed by ARL, no technical review comments are provided; the only directions made by EPA concern a revision of the compensation payment determination method.

On 5-7-2010 the Head of the Mining Department provided technical review comments to ARL. The review comments noted that the description of the TSF is inadequate; after review of the supplementary EIS and additional info (not further specified), the EPA indicates that the methods used regarding the studies of the soil permeability liner and erosion cover concerning the TSF are unclear, as well as the origin of the material to be used (EPA review comments, 5-7-2010). On Sept 20th 2010, handwritten EPA review comments were made on the EMP (2010-2013) noting that concerning the: “possibility of acid generating material ARL should have established the potential for acid generation so that specific mitigative measures shall be prescribed. If not yet done, ARL should do this urgently and get back to EPA”, indicating that the EIS review procedure had not identified this issue of relevance prior to the issuing of the EP. No evidence has been retrieved confirming that these comments were provided to ARL, though this would seem probable given their content.

Reflecting on the criteria by Marshall et al. (2005), *compliance monitoring* appears to have included the collection of data and the comparison with predefined standards and expectations. Monitoring information was based on self-reporting by the proponent, whereby the EPA regional office according to the interviewees (EPA staff/ARL CRM and BFM) performed verification visits. However, it is hard to judge the adequacy of the monitoring scheme and methods used by ARL and EPA; the author is no mining expert and therefore cannot determine whether monitoring techniques and the placement of measuring points were adequate. Also, the interviews (ARL BFM, EPA regional office PO) appear to indicate that the EPA regional office during verification visits focuses mostly on social impacts, and not on independent sampling of surface and groundwater to compare geochemical results with those reported by ARL.

No clear evidence was found with regard to *valuation of monitoring observations* by EPA; though one field visit was conducted, the resulting conclusions and recommendations are focused on social issues rather than technical design issues concerning the mine design. Based on personal observations, no geochemical testing equipment was found present at the EPA regional offices. No indications have been retrieved that EPA conducted its own geochemical field monitoring. This does not mean that such activities did not occur: these findings may be due to the selection of information retrieved, being based on one (out of four) EPA headquarters case files concerning the Nzema project. It may be that additional monitoring information was present at for instance the regional office of the EPA, or that such

information was contained in other case files than the one studied for this research. Considering the information retrieved, it would appear that ARL complied with the EIA regulations and EPA mining effluent guidelines, and, given the absence of enforcement actions or correspondences by EPA, that the company incorporated EPA's review comments and directions. This seems to indicate that, as far as the self-reported monitoring information provided by ARL to EPA is accurate, *appropriate action in response to monitoring and evaluation outcomes* has been taken.

6.3.2.2 Quality of public participation

The EPA, in response to the verification visit that took place on 29-31 March 2010, provides directions to ARL with regard to the compensation evaluation process that the company maintains, which was deemed inadequate by EPA and should be revised. Furthermore, with regard to the use of hydrofoam blocks in the construction of the resettlement village, the EPA directs ARL to consult the Salman community on whether they were satisfied with the use of hydrofoam blocks.

Public participation, based on the case files and interview data, appears to have been extensive during the Follow-up stage. All interviewees (EPA staff/ARL BFM and CRM) indicated that public participation took up most of their time during this stage. The EPA Sekondi regional office Program Officer (PO) directly involved in the Nzema project noted that "The EPA spends any amount of time on the relation between ARL and the communities. We ask questions and provide information at every stage. EIA never ends really, complaints can keep coming to the EPA or District Assembly (who may handle socio-economic complaints themselves)."

The EPA organized two *public hearings* on the supplementary EIS concerning the revised TSF and bypass road and the proposed water abstraction from Ankobra river on 26-5-2010, where 600 people attended, and on 9-6-2010 when 350 people attended "including regulatory agencies, chiefs, people from affected communities, media and other stakeholders" (EPA internal report on public hearings concerning TSF and bypass and water abstraction (PPO F.A.O.; no date). According to the 20-7-2010 EPA internal memo, public participation had led to the *voluntary change of the design of the bypass road* by the proponent to the alternative as it was ultimately submitted for permitting to the EPA. This seems to indicate that public participation was effectuated as intended in the EIA process for this situation; public involvement entailed input on desired project design as seen by the affected communities, and this input was used to determine the final proposal for the bypass road as it was sent to EPA for permitting.

The input from the affected communities provided during these public hearings, however, as reflected in the EPA internal report (EPA internal memo PPO F.A.O.; no date), were focused on issues such as providing employment and electricity to the communities, and miscellaneous requests such as the repair of a kindergarten, providing a school bus for local children, fixing a broken borehole, constructing a speed ramp, and adhering to local traditions such as introducing the employees to the chief and performing annual purification rites regarding the river with financial support of the company (*ibid*). With respect to environmental impacts, it was mentioned by the PAPs that ARL should mitigate noise and dust pollution during construction of the bypass.

The reported input from the communities during the public hearings does not seem to consist of suggestions on the design of the bypass road; this appears to be incongruent with the 20-7-2010 EPA internal memo reporting that public participation led to *voluntary change of the design of the bypass road* by the proponent. Besides the public hearings, there were other instances of public participation identified, in which the EPA was not directly participating. These meetings between ARL and the communities may shed some light on the role of public participation in determining the final bypass road design.

ARL initiated contact with the various affected communities on at least fifteen occasions during 2009 and 2010 to address concerns and discuss implementation and project design change issues, specifically concerning the transport of equipment and whether this should be done using the public road or by constructing a bypass road. Some of the communities actively resisted any proposals by ARL (for further details see paragraphs 6.3.2.1 and 6.3.2.2); others accepted the proposed bypass road without objections. It would appear that the final design of the bypass was determined by ARL in response to the resisting communities, to “avoid all four communities (Nkroful, Teleku-Bokazo, Akuembo and new Aluku)” (EPA internal memo 20-7-2010, sent by Head of Mining Department to EPA Executive Director). Thus, the voluntary design changes by ARL to the bypass road seem to have been the result of community pressure. That this scenario is probable is supported by the EPA Mining Department PPO who noted that: “during the Follow-up stage, changes are the result of community pressures.”

Concerning the resettlement of Salman, the CRM in our interview noted that extensive action was taken to provide an adequate overview of the consequences of using hydrofoam blocks for the resettlement village. These actions included organizing a bus trip for interested community members to other resettlement villages where hydrofoam blocks were used to assess the satisfaction of local inhabitants, and a video was made from these visits and shown to the community of Salman. Subsequently, the village deliberated for about three weeks and then issued a notice in writing to ARL that it accepted the use of hydrofoam blocks for resettlement construction (Interview CRM).

One key aspect of the Alternative Livelihoods strategy that ARL has initiated for new Salman to compensate the loss of farmlands and livelihoods is focused on teaching the community how to produce hydrofoam blocks: ARL’s former CRM noted in our interview that the equipment for this was very expensive (500.000 USD) and would, after construction was finished, be left for the communities to start their own hydrofoam block factory. However, during the interviews with community members it was mentioned that the company did not, to the knowledge of the interviewees, train any community members on its use, and during the site visit it was observed that the machinery remained unused. Furthermore, ARL’s Quarterly Resettlement update report (Sept 2010) notes that “The district is the wettest part of the country; rainfall throughout the year does not auger well for construction. The production of hydrofoam blocks is very challenging, the main problems being frequent equipment breakdown and wet laterite which cannot be screened” (ARL Quarterly Resettlement update Sept 2010). It would thus appear that this aspect of ARL’s Alternative Livelihoods program was not effectuated in practice.

6.3.2.3 Voluntary design changes

According to the EPA Memorandum report 22-4-2010, the “permitted 2008 EIS included a TSF design covering 130 ha; ARL proposed to reduce the size to 91 ha, which might affect compensation, flow regime and minimize land-take”, and with respect to water abstraction: “due to low and variable borehole yields, ARL proposes to switch to the use of river water”. Based on the 22-4-2010 Memorandum report by the EPA and supported by the findings from the interviews with EPA staff and ARL employees, ARL voluntarily initiated these design changes to reduce the footprint of the TSF, though the interviewees differed in their account of how exactly these design changes were identified.

The EPA staff and CRM noted that these design changes concerning the TSF were initiated based on EPA recommendations; according to ARL’s CRM, “because the Nzema region has the highest rainfall in Ghana, and the tailings dam would accumulate a lot of water, constituting a risk of tailings discharge”. According to ARL’s BFM, ARL initiated the TSF design changes not based on EPA recommendation but rather by its own volition to reduce costs as well as environmental impacts. ARL’s BFM further noted that the most suitable alternative design for the bypass road to the mine, avoiding the use of public roads, was initiated based on input from public participation, which is supported by the EPA internal report on the public hearings concerning the revisions of the TSF and bypass and water abstraction (PPO F.A.O.; no date; see also paragraph 6.2.2.2).

A further design change with respect to water abstraction was initiated by ARL, according to the Nzema EIS because water abstraction from the local aquifers provided an unreliable yield. ARL proposed to switch from using water from boreholes as input for the processing plant to abstracting water from Ankobra river.

6.3.2.4 Forced design changes

On July 1st 2010, ARL notified the EPA that it had reviewed the Reclamation Security Agreement, which is the contract between ARL and the EPA that specifies the conditions with regard to payment of the reclamation bond bank guarantee in case environmental damage occurs at the mine site. ARL had indicated the amount that according to them should be posted as a bank guarantee serving as a reclamation bond. The EPA responded on July 7th, notifying ARL that the indicated sum “has been quoted arbitrarily”; EPA directs the company to adjust the reclamation bond sum to an amount over three times the size of the bank guarantee noted by ARL. No further information on whether ARL complied with this direction was found, but given the absence of further compliance enforcement by EPA this appears to be the case.

6.3.3 Discussion of results – Substantive performance - Nzema project

In the EIA stage of the Nzema EIA process, as noted above, the main project EIS cannot be considered to provide an adequate assessment of impacts due to its incompleteness, and therefore in relation to the criteria here maintained, the quality and completeness of the EIS is considered low.

The public hearings for which information was obtained took place during the Follow-up stage, taking the main EIS as the basis for determining the demarcation of the EIA and Follow-up stage. ARL determined the final bypass road design based on input from the affected communities. Public

participation concerning the supplementary EIS did seem to provide input on proposed project design, however, the discussions concerning the bypass were addressed during interactions between ARL and the communities, without direct involvement of the EPA. The ultimate design for the bypass road appears to have been chosen mainly to avoid resistance from the local communities, and not so much with regard to avoiding negative environmental impacts (cf paragraph 6.2.2.2). Considering that the design changes did in fact result directly from issues raised during public involvement, the effect of public participation on the proposed final bypass road design do appear to be in line with the goals of EIA. Thus, with regard to public participation, EIA performance in the Nzema case appears to be high, given the evaluation criteria maintained here.

The voluntary change that the proponent initiated during the Follow-up stage in revising the TSF design appears to have a positive effect on preventing potential negative environmental impacts, as the revised TSF design has a 30% reduced footprint. Based on the interviews with ARL and EPA staff, it appears that ARL has initiated the changes in TSF design for two reasons: to prevent tailings discharge due to flooding and to reduce costs (Interviews ARL BFM, CRM; interviews EPA staff). This appears to be a win-win outcome due to the EIA process. ARL furthermore switched from the use of water from aquifers to water abstraction from the Ankobra river to enhance the stability of water availability.

Only one EPA field visit was identified, but the report on the field visit did not identify technical design issues to be addressed, focusing instead on social issues and providing directions to ARL to revise the compensation payment method. Review comments were provided to ARL by EPA on technical design issues concerning the supplementary EIS covering the revised TSF and bypass road. No information was found concerning whether these directions were implemented; however, the absence of any correspondence indicating non-compliance by ARL would appear to suggest that the review comments were integrated by ARL in the project design.

When asked what would have happened if no EIA had been performed, the EPA staff all pointed towards beneficial design changes, mostly referring to the revised TSF and some to changes as the result of community participation. ARL's BFM noted that this would have made ARL's tasks increasingly difficult, not only with regard to community relations, but also because of the stability that the EIA process bring: "lack of certainty is a problem for companies; the government doesn't support the investor...he EPA is straightforward, the guidelines are clear... sometimes we meet with them for clarifications, to prevent misunderstandings... I am not a supporter of government involvement... this business is dependent on relationships, and with a change in the political landscape every four ears this is very challenging".

In sum, the EIA performance in the Nzema case provides a mixed picture: on the one hand, the Nzema Project EIS does not seem to provide the quality and completeness that is required for well-informed decision-making; on the other hand, public involvement in the Follow-up stage, and based on interviews also in the EIA stage, has been extensive and has led to project design changes. Furthermore, the proponent initiated voluntary design changes that reduce environmental and social impacts, and there appears to be no lack of compliance by ARL with EPA directions and permit conditions. Thus, weighing the insufficient quality and completeness of the EIS in the EIA stage in relation to the environmentally

beneficial voluntary design change of the TSF and the apparently beneficial effect of public participation on the bypass road design in the Follow-up stage, the EIA performance level for the Nzema project is considered to be of overall moderate quality.

6.4 Explaining EIA performance by actor capacities in the Nzema project

Two main issues arising from the substantive performance assessment are further explained in this section. These are, during the EIA stage, the quality and completeness of the EIS, and during the Follow-up stage, the quality of public participation and compliance monitoring by EPA concerning the design changes proposed in the supplementary EIS on the revised TSF and bypass road.

Based on the capacity indicators regarding actor capacities (cf paragraph 3.5.1) the quality and completeness of the EIS and the accompanying review procedure are discussed in paragraph 6.4.1. Paragraph 6.4.2 provides an analysis and explanation of the effect of public participation on substantive EIA performance in the Nzema case, after which an explanation will be constructed using the capacity hypotheses introduced in paragraph 2.4 to identify the influence of actor capacities on EIA performance.

The reader should note that, as was discussed in paragraph 3.2.2, the case files retrieved only covered the Follow-up stage of the Nzema project. As a consequence, the explanation of substantive performance in the EIA stage is by necessity organized differently to the explanation of Newmont's non-compliance during the Follow-up stage. The explanation for EIA stage performance is based on interviews, personal observations and secondary data. The explanation for the Follow-up stage performance is based on an analysis of primary data from the EPA Nzema case files, supplemented with interview data.

Furthermore, as the case files obtained only cover the Follow-up stage, no direct data is available with regard to the network capacity of the EPA and the proponent during the EIA stage; the network data for the Nzema project (Annex V) will therefore only be discussed in paragraph 6.4.2 when explaining the EIA system performance in the Follow-up stage of the Nzema project.

6.4.1 Explaining the quality and completeness of the EIS and the review procedure – Nzema project

Following the conceptual model of actor capacities in relation to EIA system performance, the actors that have a *formal role and responsibility* concerning the quality and completeness of the EIS are: the proponent as the actor responsible for drafting the EIS, and: the EPA, responsible for reviewing the EIS and deciding on the Environmental Permit.

In paragraph 6.4.1.1, the ownership and initial power of the EPA and ARL are characterized in relation to the tasks that are required of them. This provides an insight into the influence of these capacities, and the (extent of the) inhibiting effect of context factors on these capacities. No inhibiting effect of a prior history of conflict or cooperation is expected, as the region has no formal history of mining and constitutes ARL's first mining project in Ghana. Due to the absence of detailed information on interactions during the EIA stage (cf paragraph 3.2.2), the capacities leadership and adaptability cannot be adequately addressed, and are therefore only discussed in relation to the Follow-up stage of the Nzema EIA process (cf paragraph 6.4.2). The indications that did arise from the analysis of available data

on the EIA stage are summarized in a tentative explanation of the influence of actor capacities and context factors on the quality and completeness of the Nzema EIS at the end of paragraph 6.4.1.1.

6.4.1.1 Ownership and the quality and completeness of the EIS and the review procedure

Below, a short overview is provided of the ownership capacity of EP and ARL. Next, the quality and completeness of the EIS is discussed in relation to the capacity indicators provided in paragraph 3.5.1.

EPA

The EPA, as the Agency responsible for safeguarding the EIA process in Ghana, was instituted with the aim to fulfil the goals of the EIA regulations, and therefore the *orientation of the EPA towards EIA goals* is deemed fully congruent. With respect to the EPA's *orientation to other actors*, the EPA under its mandate has to remain critical with regard to the technical information the proponent provides it with to ensure qualitatively good information, and EPA may take action to enforce compliance; thus a partially antagonistic relation towards the (economic) goals of the proponent is expected where environmental protection requirements are costly for the proponent.

Characterizing the *initial power* of the EPA, the knowledge base of the EPA at the onset of the Nzema project, the EPA headquarters' Mining Department staff *educational background* consisted of seven Msc graduates in Mineral Development Engineering, Applied Geology, Mining, Petrol Geoscience, Environmental Engineering, Geological Engineering and a MA in Sociology (EPA Annual Report 2008, p50). The Western region regional office had no employee specifically educated on mining, but included two Msc graduates in Environmental Resources and Geography, and two Bsc graduates in Agriculture and Chemical Engineering (ibid, p56). Based on the interviews, most of the staff had been working at the EPA for several years or from the founding of the EPA, and had some to extensive *experience with EIA*. Based on personal observations at different EPA offices, the administrative system of the EPA is not digitized and not methodically organized, which is likely to hinder the access to relevant *evaluation knowledge*.

The EPA's resources, specifically the *staff hours allocated to the EIA process*, in 2008 at the time the Nzema EIS was being drafted and reviewed, the EPA headquarters Mining Department constituted of eight full-time employees, one of which was an administrative assistant, whereas the Western region regional office consisted of nine staff members, four out of which were support staff, e.g. administrators and drivers (ibid, p56). With regard to the *travel expenses allocated* for meetings and site visits, no specified budget for travelling was found in the EPA Annual reports, but an internal request for a travel budget suggests daily reimbursable costs are around 50 cedi per person (which based on personal experience is deemed sufficient but not generous). The *equipment available*, such as databases, computers, vehicles, sampling and modelling software consisted of 71 vehicles, out of which 59 were mobile and 21 unservicable, 20 computers functioning at 10 reg offices and 5 at two district offices, and note is made of repeated hard drives crashing (ibid, p xiii; p37). The EPA's *source of funding*, a yearly allocated budget from the Ministry of Finance, for the year 2008 amounted to about 1,1 million euro²⁴

²⁴ The total EPA budget calculated in new Ghana cedi was Ghc 692.998,-; the amount in euro was calculated using an exchange rate of 2.4 cedi = 1 euro.

(ibid, p 42). Though this budget constitutes a fourfold increase as compared to 2005 (cf paragraph 5.4.1.1), this seems a modest budget for EPA to operate on.

The EPA, based on its mandate (cf p[paragraph 4.2.1), has the *formal incentive* to safeguard adequate implementation of the EIA process. However, two capacities limit the position of the EPA to perform its tasks: EPA's level of resources, and EPA's ownership of the EIA process as reflected in its mandate. First of all, with regard to the *resources* allocated to EPA, "resource and logistical constraints continue to affect the operations of the Agency in carrying out its mandate and implanting programmes" in 2009 (EPA Annual Report 2009, p6), and therefore presumably this was also the case in 2008.

Furthermore, the *enforcement penalties* are *not in balance with possible breaches of compliance*: "the maximum fine is 200 cedi, which does not provide any incentive for the companies to comply" (Interview PPO Mining Department). Furthermore, in 2009, "information for drafting court processes remained a problem and there is a lack of willingness from officers to attend court on behalf of the Agency. Producing documentary evidence for court purposes remained frustrating due to the lack of a proper filing system. The biggest constraint is inadequacy of lawyers and there is the need to recruit at least two more lawyers" (EPA Annual Report 23009, p6). Thus, it appears that the only assuredly effective enforcement option the EPA can initiate is closing down the proponent's operations and/or revoking the EP, which is likely to be exceedingly costly to the proponent, and EPA might choose not to utilize this option unless there are immediate concerns.

In sum, based on the assessment of the EPA's ownership guided by the indicators provided in paragraph 3.5, the EPA is fully aligned with achieving EIA goals, but is limited in its resource capacity and with regard to its mandate, specifically the enforcement options it can impose on the proponent to comply.

Proponent

ARL's goal is to ensure economic benefits from the proposed activity and is likely to participate in the EIA process because it has to. Therefore, the proponent's *orientation towards EIA goals* is considered to a greater or lesser extent antagonistic (cf Runhaar et al., 2012 in press) and, because the EPA's goals are aligned with the EIA process goals, the *orientation of the proponent to EPA* is considered to be antagonistic as well.

Concerning the *initial power* of the proponent, no limiting effect is expected from either a lack of knowledge, resources or network connections. The company's profits are calculated in millions of USD, which places them in a good position to maintain knowledgeable staff, and maintain network relations that are crucial to their entrepreneurship.

Next to the *formal incentive* to participate in the EIA process to obtain an Environmental Permit, of specific importance is LI 1652 Art (23): the EIS, that the proponent is required to provide to EPA, forms the basis for the reclamation work plan (cf paragraph 4.2.2). The reclamation plan under Art (23) forms the basis for the reclamation bond that the proponent has to post as a bank deposit in case any problems arise after mine decommissioning. Combined with the economic goal orientation of the proponent, this provides a clear *incentive*: if the proponent manages somehow to reduce the perception

of impacts, the estimated reclamation costs will be reduced, and this will reduce the reclamation bond sum that the proponent has to post.

Now that the ownership and initial power of the EPA and ARL at the start of the Nzema EIA stage are characterized, we turn to the discussion on the quality and completeness of the EIS. The completeness and quality of the EIS should be assured by EPA before the Environmental Permit is issued. It would therefore at first glance appear that the omissions in the Nzema EIS are due to a gap in the EPA review procedure. That this is possible was indicated by one of the EPA staff interviewed, who, when asked which improvements to the EIA process should be implemented, noted that “The EPA has gaps in its guidelines, there are no clear standards; we should specify more what we need and set standards”. However, identifying a potential gap in the review procedure is not yet an explanation of this gap by using the capacities of the actors involved, as is our point of entry. More information is needed concerning what exactly happens during the review process to be able to assess which actor capacities influenced its outcome.

The EPA Head of the Environmental Assessment and Audit (EAA) department explained that the review leading up to the EP is as follows:

“The EIS is reviewed by the Technical Review Committee. Two or three people write minutes, compare notes and write the decisions in summary. The written summary and review notes are bundled for decision-making. A cross-check is performed. The TRC is advisory; the final EP decision is up to the Executive Director, though the decision is usually in congruence with the TRC advice. There are three options for a report review: accept (sometimes with minor improvements), revise or reject. A quality check is performed by the EAA department; this is a procedural check”

On May 16th 2012, I was allowed to sit in on a meeting of the national Technical Review Committee (TRC) at EPA headquarters in Accra. The meeting was chaired by a fixed chairman from the Council of Scientific and Industrial Research, and the members of the TRC were EPA employees from the EAA-, Mining-, Oil and Gas-, and Finance department, and a representative from Town and Country Planning, a governmental body separate from EPA. The meeting lasted from 10.30 to about 13.30 and ten projects in various stages of the environmental assessment process were discussed. The agenda overview stated the proposals alongside with the document type under review (four scoping reports, five EIS's, one Preliminary Environmental Report (PER) and an Environmental Management Plan (EMP)) and the (two or three) reviewers that had prepared their review of the project document.

Based on my personal observations, the reviewers had generally handwritten comments prepared, but no indication was seen of a commonly shared assessment grid used as a baseline for reviewing the documents. If this observation is correct, this indicates a potential gap in the review process with respect to the *type of evaluation knowledge used*, one of the indicators for the knowledge capacity. A methodical, pre-structured frame of reference for performing reviews can facilitate information sharing effectiveness, and, especially when the reviewers are for instance time-constrained, using a standardized assessment grid for the review of environmental reports can be a relatively straightforward way to safeguard the completeness of the review.

What became clear from the discussions is that the quality of the reports was generally deemed low by the TRC; only one scoping report was deemed to provide enough basis to continue to the EIS stage; seven required revision; one was rejected and had to be redone; and regarding one project EIS the proponent was to be invited because the scale of the project had increased enormously since scoping. Concerning at least three of the projects reviewed, different members of the TRC agreed that the report was misleading. For instance, regarding a proposed dredging project on the Volta river which claimed to remove weeds and clear waterways while financing its operation by selling dredged sand, one reviewer noted that “it was more likely that the proponent intended to dredge for alluvial gold deposits” (this project EIS was to be redone); regarding an oil and gas station, one reviewer reported that “it seems the report is a covert attempt to hide that they are creating a transport terminal, they expect someone to bulldozer this through”; and on a third project concerning gas transport the chairman noted that “it seems the proponent has something else in mind which they are not telling us”.

One main *incentive* for the proponent is that the reclamation bond sum that needs to be deposited in case environmental damage occurs at the project site after mine closure is estimated based on the environmental impact assessment and reclamation work plan as agreed upon between the proponent and EPA. The goals of the proponent and the EPA are in this situation antagonistic: the proponent wants to maximize economic gain and due to the incentive structure benefits most from not providing an accurate overview of project impacts, and the EPA, in line with the goals of the EIA process, wants to have a complete and accurate overview of project impacts in order to take an informed decision on the Environmental Permit and the size of the reclamation bond sum.

Based on the discussion above, *the proponent's ownership of the EIA process* appears a main determinant with regard to the quality of the EIS; the proponent has the knowledge, resources and network to perform an adequate environmental assessment, but, next to the *formal incentive* to perform an environmental assessment to obtain a permit, for the proponent there exists also the *incentive to reduce the perceived impacts* of the process. The proponent's economic goals are *not aligned with the EIA goals*, which means that if the proponent can deliver an apparently good assessment and get this approved by EPA, then both the proponent's formal goal of receiving a permit and its economic goal of reducing impact perception so as to reduce the reclamation bond sum would be achieved.

A second main determinant regarding the outcome of the EIS review is the review process by EPA, and specifically *the EPA's knowledge capacity* insofar as it is reflected in the type of evaluation information used during the review. The TRC appears well-aware of the general incentive of proponents to deliver misleading reports, but there are apparently no clear assessment criteria established to safeguard the completeness of the review process. Furthermore, the reports, together with the knowledge and experience that the reviewers possess and which is not observable for an outsider, constitute the main input for the review process. It is unclear to what extent information from field visits by the EPA was included in the review. The consequence of the lack of standardized assessment criteria for the review process is that it is not sure if all reviewers use the same evaluation criteria, and whether they have used all relevant criteria in their review. This allows for omissions in identifying relevant issues that need to be resolved before issuing the EP.

In sum, the key actor capacities explaining the low quality of the Nzema EIS are the *ownership of the proponent*, specifically its task to write the environmental assessment report in combination with its incentive to distort EPA's perception of project impacts, and the *knowledge capacity of EPA*, specifically concerning the unclear method of review and lack of clarity with regard to the type of information used in the review. As noted with regard to the influence of the EIS on the EP decision, mitigating measures from the EIS are turned into commitments in the EP. Thus, if the EPA makes omissions in the review process, and an EIS of insufficient quality is accepted, then the commitments (or lack thereof) in the EIS become the conditions on which the EP is based. This means that the conditions of the EP in such a situation are inadequate to safeguard the goals of the EIA process of well-informed decision-making and environmental protection, and thus EIA performance concerning the quality and completeness of the EIS is low.

6.4.2 Explaining public participation and voluntary changes in the follow-up stage – Nzema project

EIA performance in the Follow-up stage with regard to the supplementary EIS on the revised TSF and bypass road appears to have had the desired effect in accordance with the EIA process goals. The EPA consulted with ARL about the TSF design, which according to the interviews was in danger of spilling tailings when heavy rainfall was to cause a flood. ARL reviewed the TSF design and came up with an alternative design, which reduced the risk of flood, reduced the TSF footprint, and was more economical for ARL. Also, with respect to public participation, the final design of the bypass road was determined based on deliberations with the affected communities, after which the proponent voluntarily decided to alter the implementation of the bypass road to access the mine site. Again, this appears to be an instance where the EIA process goals were achieved through the joint actions of the key stakeholders involved.

The successful redesign of the TSF can be explained by the congruence of *ownership regarding both the proponent and EPA*: the proponent has an economic incentive to alter the project implementation design, and the new design has the added benefit that it better protects the environment. This win-win situation aligned the goals of the proponent and EPA, and as the EPA's goals are aligned with the EIA process goals, this also aligned the proponent's goals with EIA goals.

To explain how the decision on the final bypass design was reached, the analysis of actor capacities and their effect on the observed outcomes starts with the interactions between the proponent and the PAPs; only when the concerns of the affected communities were addressed and lead to a mutual agreement could the supplementary EIS be drafted and sent to EPA for review. After analyzing the interactions between ARL and the PAPs, the focus is on the role of the EPA who had to decide on the environmental permit for the supplementary bypass road, and performed one verification visit and two public hearings.

To get an insight into the dynamics of public participation and how the capacities of the proponent and PAPs led to the observed outcomes, an analysis of the minutes of various meetings between the proponent and PAPs is performed below, using the capacity indicators (see paragraph ...) and marking them in italics in the analysis, to identify key aspects relevant to explaining the outcome of the deliberations.

6.4.2.1 Nkroful: Public participation in the supplementary EIS – Follow-up stage

On 24 September 2009, the District Assembly set a meeting on equipment transportation by ARL to the mining site at Salman along the route via Teleku-Bokazo and Nkroful villages by notifying the Chiefs of Nkroful and Teleku-Bokazo. On 28 September, the District Assembly sends notification that the meeting has been postponed to Oct 6th. It becomes clear from the minutes of two meetings taking place on Oct 20th that the meeting on Oct 6th did take place, but the Chiefs and elders of Nkroful and Teleku-Bokazo did not attend. First, the focus is on the interactions between ARL and Nkroful (see Box 6).

9.00-10.00 District Assembly (District Chief Executive; Deputy District Coordinating Director)/ARL (Business and Finance Manager; Community Relations Manager; HR Administration); Communications Officer/**Nkroful traditional leadership** (Chief, secretary, queen mother, elder)
ARL proposes bypass road from Esiama rice paddy to Salman, with compensation paid to affected farmers and employment for local people. Royal Nkroful Stool rejects ARL proposal to use Nkroful/Teleku-Bokazo road and suggests Tarkwa/Bamiankor road instead, or Asanda road. ARL insists on Esiama corridor because of proximity to power source. Meeting ends in stalemate, DCE arranges next meeting for 23 Oct 2010.

Box 6: Meeting Oct 20th 2009 on supplementary EIS – bypass road

The *discourse / issue framing* by ARL towards Nkroful was ‘a proposal involving compensation payments and creating employment opportunities’. This did not get accepted by the Nkroful leadership, and the parties are at a stalemate at the end of the meeting. The next contact on this issue involved the same attendees as the meeting of Oct 20th, except that the District Chief Executive is absent (see Box 7).

Oct 23rd: 1.) Meeting at Nkroful Palace between ARL (BFM & CRM) and Chiefs and elders **Royal Nkroful Stool**. ARL reiterates using either normal road or Esiama corridor. Royal stool demands DCE be part of meeting and states that ARL was cause of the arrest of the Abusuakpanyin (chief) and some of his elders; the stool should be purified and compensation paid before any further discussion. ARL contacted chief of Nsein to assist in resolving differences between ARL and Nkroful leadership.

Box 7: Meeting Oct 23rd 2009 on supplementary EIS – bypass road

The *discourse / issue framing* of ARL was a ‘reiteration’ of their previous proposal; ARL shows *leadership* by putting the same issue of access to the mine site on the agenda, which needs to be addressed before the final proposed design of the bypass road can be sent to EPA for review and permitting. The Nkroful Chief does not address the content of the meeting, namely the bypass road, but instead shows *leadership* by determining the topic under discussion as he shifts the focus to control over the process rules by ‘demanding the presence of the DCE’, and making accusations towards ARL for which ‘compensation payments’ and ‘purification rituals’ should be performed. The Nkroful Chief and ARL are *competing*; ARL is focused on achieving goals that are required both for its mining operations and with regard to the EIA process, the Nkroful leadership is not focused on EIA goals but rather on its own benefit. ARL notifies the Nkroful Royal Stool that ARL will seek to *expand the network of actors* that are involved in the negotiations.

ARL kept the District Assembly informed about the proceedings: on Oct 26th ARL’s Project Manager Infrastructure wrote to the District Engineer that the “bypass design is still being deliberated, when discussion is concluded we seek your consent and approval of the proposed bypass design.” The next meeting where the topic is discussed is the Consultative Committee Meeting organized by ARL and held at Nov 13th (see Box 8).

Nov 13th: Minutes of Consultative Committee meeting ARL/Paramount chiefs/chiefs/farmers representative/police/BNI/District Assembly. Subject: ARL updates key primary communities.

The meeting is a platform for the key primary communities to meet periodically to enable ARL to update them on the project (first held in March 2009). CEO ARL involved for about 12 years, recounted financial difficulties over the years, the worse being the 2008 global crunch. Chief Operating Officer ARL expressed gratitude for all cooperating and assured employment opportunities, and challenged staff to exhibit professional standards, behave well in the community and treat the people with dignity. Failure to abide by these values will not be compromised.

Nananom (Chiefs) state that for peace in the communities ARL has to 1) offer contracts, 2) employ locals with at least 30% employment quota, 3) unskilled labour in particular should come from community. Awulaemo (Paramount Chiefs) state 1) their availability and capacity to resolve community issues, 2) ARL should resource them to do so, 3) compensation should be paid promptly, 4) galamsey should be treated with tact despite its illegality, 5) chiefs and communities should be moderate with their demands at this stage. DCE states 1) government will facilitate work of investors, but they should stick to the law, 2) ARL should honour social responsibility to communities, 3) local people should be considered for contracts, 4) contractors should register with Assemblies for monitoring purposes, 5) ARL should ensure sound environmental practices, 6) paramount chiefs accepted DCE's call and promised to meet Nkroful Chiefs and elders next day, 7) communities against bypass/power construction be reprimanded and should not take entrenched position, 8) appeal to Paramount chiefs to assist in advising Nkroful people to cooperate with bypass and power construction.

Box 8: Meeting Oct 23rd 2009 on supplementary EIS – bypass road

ARL shows *leadership* as it calls a meeting and determines who is invited and what is on the agenda; the *discourse / issue framing* by ARL was formulated as 'updating key communities', This formulation, along with the representation of ARL by the CEO and COO, indicates that ARL attaches importance to the meeting. The attendee list clarifies that the *network policy level* for this meeting involves high-ranking traditional leaders, along with local government and police, and community representatives. The Nkroful Chief and elders do not participate; instead a 'representative of the Nkroful Abusuakpanyinli' is noted to be present. The Paramount chiefs offer assistance to ARL, and the District Assembly requests assistance from the Paramount Chiefs on behalf of ARL. The DCE states that 'communities against the bypass should be reprimanded', which further underlines that the DCE forms a *discourse coalition* with ARL. The next and final meeting takes place on Nov 14th 2009 (see Box 9).

Nov 14th: Minutes of meeting between **Paramount chiefs** and **Nkroful royal stool**. In meeting of 13th Nov the DCE appealed to Nkroful Abusuakpanyin and Concern citizens of Teleku-Bokazo not to take entrenched position with regard to opposing bypass/powerline. Awulaemo (Paramount Chiefs) entreated Abusuakpanyin to weigh positive aspects and allow bypass/power construction without any destruction. Awulaemo said ARL will compensate farmers, would create employment for people of Nkroful, construction would facilitate ARL, main Esiam/Nkroful/Bokazu road would not be congested. Abusuakpanyin agreed to request by Awulaemo.

Box 9: Meeting Nov 14th 2009 on supplementary EIS – bypass road

It would appear that ARL, as the Paramount Chiefs requested in the meeting of Nov 13th, were '*resourced*' by ARL to 'resolve community issues'. The Paramount Chiefs 'entreated' the Nkroful Chief to allow ARL to continue as proposed, and the Nkroful Chief 'agreed to the request'.

The main capacities involved for ARL in resolving the stalemate with the Nkroful leadership were their *network capacity* and *adaptability*. When negotiations with the Nkroful Chief were in a deadlock, first ARL *adapted* from focusing on collaboration and information –sharing towards getting the Chief of Nseim involved; when this did not result in the desired effect, the issue was discussed at a higher policy level involving the local traditional hierarchy. With support from the local formal government, and by '*resourcing*' the Paramount Chiefs, who outrank the village chiefs such as the Nkroful Royal Stool, the Nkroful Chief was forced to change his stance. Thus, ARL, the District Assembly and, it would seem, the

Paramount Chiefs managed to achieve their goals, which ARL managed by *changing the use of its network*; the Nkroful leadership could not *adapt* by shifting its use of knowledge, resources or network, and had to forego its goals and seize resistance.

An indication of the *incentive* for the Nkroful leadership to take a competing stance becomes clear from an EPA memorandum reflecting the EPA team’s experiences when performing a verification visit and consultative meeting with the PAPs on April 22nd 2010: “The Nkroful community wants the company to delineate 25 acre where the Nkroful Miners Association was working earlier for local’s small scale mining”. It appears that the Nkroful leadership was resisting ARL because a part of the Nkroful community is involved in galamsey operations, which would be threatened by the opening of ARL’s Nzema mine. This is congruent with the remark made by the Paramount Chiefs in the Consultative Meeting of Oct 23rd noting that “galamsey should be treated with tact despite its illegality”, and is supported by interview data from the EPA staff directly involved, who all indicate that both Nkroful and Teleku-Bokazo communities were engaged in galamsey.

ARL’s proposal, or rather ARL’s presence, is evidently not in line with the goals of the Nkroful leadership. ARL’s goals appear to be closely in line with the goals of the District Assembly, as these take the initiative and show *leadership* to invite the Nkroful Chief and elders, host the meetings and request assistance from the Paramount Chiefs on behalf of ARL. One of the interviewees provided an insight with regard to the *incentive* to do so for the District Assembly: “The District Assembly can decide if mining is accepted; they are responsible for development planning and are landowners” (EPA Sekondi regional office PO). There is a financial incentive for the District Assembly to collaborate with the proponent: under the Administrator of Stool Lands Act (Act 481), the District Assembly receives an annual ground rent from the mine, and the national government, to whom the District Assembly is subordinate, receives royalties from the mine.

6.4.2.2 Teleku-Bokazo: Public participation in the supplementary EIS – Follow-up stage

On Oct 20th 2009, a meeting took place between ARL and Teleku-Bokazo. The District Assembly, on behalf of ARL, showed *leadership* by setting a meeting on the agenda on equipment transportation by ARL to the mining site at Salman along the route via Teleku-Bokazo.

<p>10.00-11.30: District Assembly (District Chief Executive; Deputy District Coordinating Director))/ARL (Business and Finance Manager; Community Relations Manager) /Teleku-Bokazo concerned youth representatives (S. D., E., S. S. and 7 other members)</p> <p>ARL announces that they need to transport heavy equipment through Nkroful/Teleku-Bokazo road to Salman. Security measures will be taken, transport will last about 1 ½ years. Chairman of concerned citizens raises no objections because it is a public road, but urges ARL to ensure safety of local people. Chairman of concerned citizens the shifts attention to allegations made by concerned citizens at public hearing against ARL. DCE suggests ARL consider creating a bypass access road from Esiam to Salman to avoid accidents.</p>
--

Box 10: Meeting Oct 20th 2009 ARL and Teleku-Bokazo on equipment transport

Regarding discourse / issue framing, ARL ‘announced’ heavy equipment transport via the public road. This was accepted by the Teleku-Bokazo representatives, but they *shifted the topic under discussion* to ‘allegations’ made against ARL. When asked about these ‘allegations by concerned citizens’, different interviewees named the following issues: the EPA PPO of the Mining Department noted that “ARL

agitated the community, they paraded their concession and got chased off by the community”; the Chief of Salman indicated that “Teleku-Bokazo created speculative buildings. ARL was not happy with this, and employed the military police to tear down structures at Teleku-Bokazo”; the EPA Sekondi PO responded that “In Nkroful and Teleku-Bokazo, employment was the main issue. Both towns are quite developed. Local people engaged in galamsey opposed the coming of the mine”; ARL’s CRM noted that “In Teleku-Bokazo ARL engaged the situation too easy in the beginning. There were two challenges: (i) partial resettlement and (ii) ARL did not have a large upgrade to offer. The EPA was not comfortable with partial resettlement because Teleku-Bokazo did not support this, and the galamsey were confrontational”.

After the meeting of Oct 20th, ARL’s CRM sent a letter to Teleku-Bokazo concerning a power access survey that was going to be undertaken. The people of Teleku-Bokazo had a community meeting on Nov 4th and called for a new letter on the proposed power line ‘for further consideration’. The EPA Sekondi PO remarked on this: “The youth groups of Teleku-Bokazo used a deliberate strategy to oppose the mine; the EPA tried to translate the environmental impacts in local dialect, however the people didn’t have the ability to understand what this meant. Nevertheless, they kept asking for more information”.

During our interview, ARL’s BFM elaborated on his experience with the communities, which provides a further insight into the practice behind public participation during the mining EIA process:

“Civil society is generally unsatisfied, because they see no benefits in development of the country from the money the mines pay to the government. There is no playbook for working with the communities, and they are smarter than they look. The communities compare mining cases to inform themselves. They look at example case from around Obuasi and other places. They try to enhance their negotiation position. The communities are sometimes verbally abusing and insulting people from ARL. They may have their own agenda’s, being for instance active in galamsey or speculation. There were some issues between some of the communities, for instance Teleku-Bokazo was making fun of Salman because they were cooperating with us. But after they saw the resettlement village, they went back on their position, and both communities are now collaborating. One main issue we have is that we have to negotiate with the communities, because the government delegates this task to us. We as a mining company are time-constrained, any prolonging of our schedule costs us money. The communities know this and have all the time in the world, so it is in their interest to prolong negotiations so that we give in to their demands.” (ARL BFM)

Another meeting was called by ARL with Teleku-Bokazo, hosted by the District Assembly:

Nov 9th: 1.) Meeting at District Assembly called by ARL in response to community meeting which took place on 4 Nov 2009, and in which the leadership of the Concern proposed for a new letter on the proposed power line for further consideration. Meeting is attended by ARL Land Manager Officer and HR Manager/**Teleku-Bokazo** Concerned Youth/ Deputy District Chief Executive representing DCE. Deputy DCE explains DCE absence but continued support and involvement, and calls on both parties to cooperate for the mutual benefit of the district and development partners. ARL explains survey and that due to high voltage farmers are not allowed to work under power lines, but compensation will be provided. The Concern leadership states that ARL was inconsistent, which when repeated would thwart the purpose ARL wants to achieve. Also they state some elements in the company speculate ARL would employ military force. The leadership agrees to the proposals on several conditions and emphasized the need of a written document for future reference as and when engagement becomes necessary. They agreed for an MoU endorsed by both parties to avert any future litigations. ARL thanked Concern for their understanding and support for the bypass road and power project, and condemned the alleged statement of military attack and asked to be notified if any staff makes such statement. A draft MoU is formulated and read for adoption in the meeting. The Deputy DCE, who mediated the meeting on behalf of the DCE, thanks both parties for leadership skills shown and appeals to both parties to adhere to the rules laid out.

Box 11: Meeting Nov 9th 2009 on supplementary EIS – bypass road power line

On Nov 11th and 12th, a Memorandum of Understanding was signed between ARL and Teleku-Bokazo.

The effect on *EIA goal achievement* by this development was that community opposition was ‘resolved’ and a decision was formed which was accepted by all parties; based on this decision *ARL had achieved its goal* and could propose a final design plan for the bypass road in the supplementary EIS, and in January 2010 the supplementary EIS for the TSF and bypass was sent to EPA.

6.4.2.3 EPA: Compliance monitoring, public participation and forced design changes in the supplementary EIS – Follow-up stage

From 29th-31st March 2010 the EPA undertook a ‘verification visit and consultative meeting’ with the affected communities. Besides Nkroful and Teleku-Bokazo, the EPA team consisting of the Head of the Mining Department, the Mining Department PPO, and the EPA Sekondi regional office PO, met with the Chiefs of Anwia, Kikam, Dominase, Bokro and Salman. All communities except Salman and Teleku-Bokazo expressed dissatisfaction with the employment created for their community, and all villages except Teleku-Bokazo raised issues regarding compensation payments and/or the compensation determination process. The Mining Department PPO noted at the end of his report:

Conclusion: Bypass welcome, compensation issues. No objection to Ankobra river water abstraction, but worries about river pollution, requested alternative water supply. DCE of Ellembelle district not at post, no consultation possible.
Recommendations: Compensation evaluation by ARL inadequate, must be reviewed. Company should be directed to engage communities frequently to educate them on community programmes to eliminate mistrust. Use of hydrofoam bricks at Salman may create discontent and aggravate post-resettlement challenges; communities must be made to officially state their position. Company must be directed to stop using hydrofoam and switch to usual sandcrete bricks if community requests this. Agency must hold public forum to discuss all outstanding issues relating to compensation and resettlement. Community seems to have endless issues; must be requested to submit list of issues to enable Agency to seek appropriate response from ARL.

Box 12: EPA Memorandum April 22nd 2010 – bypass road and water abstraction

The input that the communities expressed towards the EPA team were not concerned with the bypass road or water abstraction, but rather focused on socio-economic impacts. Based on the monitoring observations, EPA directed ARL to revise its compensation method, constituting a *forced design change*. About two months after the verification visit, the EPA organized two public hearings at the New Salman site concerning the revised TSF and bypass and ARL’s water abstraction plans. As noted in paragraph 6.2.2.2, the communities focused mostly on employment issues, requests for electricity, and various miscellaneous requests with a direct impact on village life. The reporting PPO of the Mining Department concluded with regard to the public hearings:

Conclusion and recommendations: The 2 public hearings were attended by approximately 950 people including regulatory agencies, chiefs, people from affected communities, media and other stakeholders. Chiefs and communities have no objections, but some concerns to be addressed by ARL. Recommendation: ARL must develop harmonious working relation with communities to ensure peace. ARL must be issued with the requisite permits.

Box 13: Report on public hearings – supplementary EIS TSF and bypass (EPA internal memo PPO F.A.O.; no date)

After the two public hearings, on July 5th 2010, the EPA showed *leadership towards EIA goals* when putting review comments concerning the supplementary EIS on the TSF and bypass on the agenda with ARL. The comments related mostly to a lack of detail in the description of the proposed activities. For instance, the TSF description is deemed inadequate, as it does not include all design information. Furthermore, key issues identified were the description of the low permeability soil liner under the TSF

to prevent leaching and the method used to determine and monitor its adequacy, the origin of the materials used for construction of the low permeability liner, the non-specificity of descriptions in the supplementary EIS regarding the design of the cut-off trenches, the decant water towers, and the absence of current baseline data on surface and underground water relevant to the TSF design proposed. The last review comment states: “Report must also include liability estimates for the two proposals to form the basis for the posting of the reclamation bond” (Review comments EPA on supplementary EIS TSF and bypass, 5-7-2010, EPA Head of Mining Department). On July 7th, EPA directs ARL to change the estimated reclamation bond sum (Reclamation Security Agreement review comments, dd 7-7-2010) to a sum over three times the amount suggested by ARL, which constitutes a *forced design change*.

On July 20th 2010, the EPA Head of the Mining Department sent an internal memo to the Executive Director to inform him about the status of the supplementary EIS regarding the TSF and bypass road:

Jul 20th: EPA internal memo: update on EIA by ARL. Subject TSF/Bypass/water abstraction. Sent by Head of Mining Department to Executive Director EPA.
Bypass route proposed in supplementary EIS will avoid all four communities (Nkroful, Teleku-Bokazo, Akumebo, new Aluku).
TSF: revised version on same location with 30% reduced footprint and utilizing new cross-valley embankments in North-, South, and East walls of facility. Changes proposed include (i) relocating embankments to minimize footprint, (ii) higher final design elevation to minimize footprint, (iii) introduction of water storage dam to supply mill with fresh water, (iv) relocation of supernatant pond, (v) abandonment of original plan to source borrow material for embankment from within the TSF footprint.

Box 14: Update on supplementary EIS TSF and bypass (EPA internal memo 20-7-2010, Head of the Mining Department)

ARL’s BFM noted, when asked about the review comments by EPA: “During the writing of the supplementary EIS, the EPA asked us to improve the compaction of the ground; it should be lined to prevent seepage. Also, they wanted us to line the grading surface to prevent erosion”. The EPA appears to have set relevant issues on the agenda with ARL to promote the achievement of EIA goals. It seems that all review comments were addressed to EPA’s satisfaction; the Environmental Permit for the supplementary EIS on the revised TSF and bypass was issued on Dec 20th 2010.

6.4.3 Explaining EIA performance by actor capacity – Nzema project

In paragraphs 6.3.1 and 6.3.2 it is argued that EIA performance in the Nzema project can be considered low for the EIA stage and high for the Follow-up stage, resulting in an overall assessment of the Nzema EIA performance as being moderate. The central question in this section is: how can the level of EIA performance concerning the Nzema project be explained by the capacities of the actors involved?

As a start for the analysis, the outcomes of the substantive EIA performance assessment are used. The main issues contributing to EIA performance being assessed as moderate for the Nzema project are, during the EIA stage, the low quality and completeness of the EIS (paragraph 6.3.1) and, during the follow-up stage, the apparently high effectiveness of public participation in determining the bypass road design (paragraph 6.3.2).

6.4.3.1 Explaining the quality and completeness and the review process in the EIA stage

Based on the previous paragraphs, a tentative explanation is constructed for the insufficient quality of the Ahafo South EIS by relating these findings to the hypotheses introduced in paragraph 2.4.

Concerning the quality and completeness of the EIS, only the goals of the EPA are aligned with the EIA process goals (H1). However, can we state, reflecting on H1, that the EPA in this situation where substantive performance is deemed low showed minimum compliance, or that EPA showed below or above minimum compliance with the EIA process requirements in Ghana? This assessment is not possible because the review criteria and the type of evaluation knowledge that are being used by EPA are not known to the researcher. This points not only to missing data, but also to a required improvement to the capacity hypotheses: when concerning the EPA's tasks and assessing the level of compliance with the 'minimum requirements of the EIA process', these are not as clear as they are regarding the proponent: the proponent has to adhere to the criteria that the EPA brings forward. However, to assess what the requirements the EPA internally has to meet, it is not enough to review the EIA regulations; this requires a further in-depth study of the EPA and its internal functioning. It goes beyond the scope of this research to delve further into this matter at this point, but we will return to this in the conclusions in Chapter 9. Returning to providing an answer to H1, in this situation the evidence is inconclusive.

Regarding H2, ARL's goals were not aligned with the EIA process due to the incentive to reduce the perception of impacts in order to reduce the reclamation bond sum. However, also here the question is: can we state that ARL showed minimum-compliance with EIA regulations, or above or below-minimum compliance? Following the EIA regulations, the Nzema EIS covers all required topics. That this is not a guarantee for a complete and scientifically valid study has already been argued above (cf paragraph 6.3.1.2). One could argue that, since the EIS is accepted, it must have complied with the EIA requirements, and therefore it adhered to minimum standards. However, this provides no further insight into the causes of the fact that the EIS was approved despite the fact that the information in the EIS does not provide an adequate representation of project impacts, according to the evaluation criteria maintained here. Again, the evidence does not allow for decisive conclusions, because the insight into the internal valuation criteria used by EPA when reviewing the Nzema EIS is missing. Thus, also here, the evidence to substantiate any decisive claims on Newmont's compliance with EIA requirements is inconclusive.

Moving to H3, what is however clear from the evidence is that the goals of the proponent are not aligned with those of the EPA. The interviews noted some evidence of conflict, but the documentation obtained shows that the EIS has been permitted, therefore any conflicts that might have played a role between the two actors appear to have been resolved. Here we can use this argument, as opposed to when answering H1 and H2, because the answer is not dependent on knowledge of the EPA review criteria.

Concerning H5, if, as was discussed in paragraph 5.3.1.2, my personal observations (which appear to be supported by EPA Annual Report 2009, p6, stating that "resource and logistic constraints continue to hamper operations") regarding the absence of a standardized assessment grid to ensure completeness of the EIS review during the TRC are correct, then here a tentative conclusion may be drawn that this specific aspect of the EPA's knowledge capacity, the type of evaluation knowledge available to the EPA during the review process, may have contributed to reduced EIA performance because important information was unavailable.

In regard to H6, with respect to EPA's resources, based on EPA's Annual Reports (2005-2010) it can be concluded that EPA possessed limited resources in relation to the tasks it has. For the proponent, no limiting effect from a lack of knowledge, resources is expected to play a role in determining the outcome of the EIA stage.

Concerning H7-11, no data is available for the EIA stage.

In sum, though the limited data does not allow for any decisive conclusions, it would seem plausible that EPA's limited resources, together with the unstructured evaluation knowledge available to EPA, hampered EPA in its efforts to ensure well-informed decision-making and as a consequence reduced environmental protection. Furthermore, the proponent's mandate under LI 1652, and the resulting incentive structure for the proponent, effectively orientating the proponent to oppose EIA goals, seems to have had the effect that the independence of the information provided in the EIS could not be guaranteed. These two issues are, based on the data collected, considered the most probable causes for the observed low quality and completeness of the EIS. A further discussion of these tentative conclusions, involving a discussion of these findings in relation to the capacity hypotheses, can be found in the comparison of cases in Chapter 7.

6.4.3.2 Explaining the performance of the Follow-up stage

In order to construct an explanation of the findings with regard to EIA performance of the Nzema case in the Follow-up stage, the findings from paragraph 6.4.2 concerning the interactions of the key actors regarding the Supplementary TSF and bypass road are related to the hypotheses introduced in paragraph 2.4. First, the focus is on the interactions concerning the bypass road design, which involve ARL and the PAPs of Nkroful and Teleku-Bokazo.

With regard to H1, ARL's goals are aligned with the EIA process goals in the Follow-up stage: in order for the proponent to get access to the mine site, a decision needs to be made on the bypass road. ARL appears to be adhering to the minimum requirements of the EIA process by consulting with the communities and keeping the EPA informed; no directions by EPA were found on this issue.

Concerning H2, the Nkroful and Teleku-Bokazo leadership is not aligned with EIA goals, and the actions of the PAPs can be characterized as below-minimum participation in the EIA process: both community leaders do not provide any input with regard to the bypass road, but rather shifts the focus to allegations towards ARL, and apparently aim to stop progress of ARL with regard to getting access to the mine site. One of the goals of the Nkroful and Teleku-Bokazo leadership seems to be protecting the interests of local galamsey (cf paragraph 6.4.2.1). Though for this goal the PAPs are dependent on ARL to give in to their pressure, this goal is not an EIA goal; within the EIA process there is no incentive for the PAPs that helps them to achieve their aims, and thus there is no interdependence of the PAPs on ARL to achieve EIA goals. This explains the below-minimum compliance with EIA process requirements.

Referring to H3, the goals of ARL and the District Assembly (DA) are aligned and a discourse coalition can be identified between the two actors: the DA offers their facilities for meeting between ARL and the PAPs; the District Chief Executive (DCE) mediates meetings between ARL and Nkroful and Teleku-Bokazo, and even makes a request to the Paramount Chiefs on behalf of ARL with respect to resolving

the Nkroful Chief's resistance to the bypass road. The outcome of the interactions between ARL and the DA on one side and the Nkroful and Teleku-Bokazo leadership on the other side is that ARL and the DA achieve their goal, which is in line with what would be expected following H3.

In regard to H4, the Nkroful and Teleku-Bokazo leadership goals are not aligned with the goals of ARL. The Nkroful leadership does not show any indication of attempting to resolve the conflict. As was noted in relation to H2, the Nkroful leadership is dependent on ARL to achieve its aims, but its aim is to discourage ARL from accessing the mine to protect the galamsey. Thus, there is an incentive for the Nkroful leadership to prolong the conflict. Only when the Paramount Chiefs, who are the higher authorities in the traditional leadership system and thus outrank the Nkroful Chief, make a request to the Nkroful Chief does he give in and allow ARL to proceed with the bypass road.

The situation with Teleku-Bokazo appears less polarized, as here no additional actors are involved before the conflict is resolved. As the interviewees noted, Teleku-Bokazo used delaying the EIA process as a means to pressure ARL so as to enhance its own negotiation position with the aim of receiving higher compensation payments. Tentatively, this is considered the reason that Teleku-Bokazo is more inclined to come to a resolution of the conflict than Nkroful, if ARL provides conditions acceptable to ARL.

With respect to H5 and H6, no indication of a limiting effect of knowledge or resources was found for ARL. The strength of these capacities, as well as the strength of their network capacity, with regard to the Nkroful and Teleku-Bokazo leadership is unknown. Concerning H7, the data indicate that ARL is well-connected (see Annex II) and able to maintain relations with the DA and the Paramount Chiefs that help ARL in achieving its goals.

Referring to H8, there is a clear conflict between the Nkroful leadership and ARL, and ARL is attempting to gain control over the Nkroful Chief. This effectively blocks progress towards a decision on the bypass road. However, it is not necessarily the case that this constitutes a negative effect on EIA performance, because there are no clear descriptions as to how the public should be involved in order for public participation to constitute desired EIA performance. What is clear though is that the conflict and the type of knowledge used by the Nkroful leadership keep the focus of interactions away from the deliberation of the actual content of the proposed bypass design, and in this sense it can be argued that the existence of conflict prevents the actual content of the decision being discussed, which, according to the substantive performance indicators developed for this research, prevents effective public participation and thus limits EIA performance.

With regard to Teleku-Bokazo, no explicit conflict was noted, only the threat of conflict; though there was resistance to ARL's proposal, it appears, based on the interview data, that Teleku-Bokazo was using the threat of disruption and conflict as a means to strengthen its negotiation position rather than using force as a sign of a lack of control.

Concerning H9, with respect to the discourse coalition between ARL and the DA, their collaboration by itself is not enough to compel the Nkroful Chief to collaborate. Only when the Paramount Chiefs start collaborating with ARL and the DA is a marked change discernible in the behaviour of the Nkroful Chief.

However, the effect of introducing the Paramount Chief is not based on the collaboration strategy of the Paramount Chiefs per se; rather, the effectiveness of the Paramount Chiefs stems from their formal authority in the traditional leadership system which gives them the positional power to motivate the Nkroful Chief to collaborate. Thus, it would appear that H9 requires some revision, as the hypothesized effect of merely a larger amount of actors exhibiting a collaborative interaction style is not sufficient to determine process outcomes.

With respect to Teleku-Bokazo, the collaborative action of ARL and the DA appears to have been sufficient in getting Teleku-Bokazo to accept ARL's proposal. This seems to be in line with the suggestion that Teleku-Bokazo, rather than being fundamentally opposed to the proposal by ARL, used resistance as a strategy to strengthen its negotiation position.

Regarding H10, from the data obtained it can be clearly identified that ARL was able to change the means it employed to achieve its goals when faced with resistance. When the discourse coalition of ARL and the DA, setting the agenda to discuss knowledge-sharing concerning the bypass road, failed to lead to the outcome desired by ARL (and the DA), ARL shifted to discussing the resistance at a higher policy level and, with support from the DA, involving the Paramount Chiefs to engage the Nkroful Chief. As the Paramount Chiefs noted, ARL should resource them to do so, which is interpreted to mean that some kind of compensation was provided by ARL to the Paramount Chiefs for their support. Thus, clearly identifiable, ARL shifted from the use of knowledge to the use of network and the use of resources to address the conflict with the Nkroful Chief. The result was that ARL achieved its goal, in line with what would be expected following H10.

Regarding Teleku-Bokazo, ARL did concede to conditions posed by Teleku-Bokazo, which may involve a use of resources by ARL to resolve the disagreement. However, the precise nature of the conditions that ARL and Teleku-Bokazo agreed upon is unknown therefore it cannot be concluded with certainty that ARL shifted from using knowledge as a basis to convince Teleku-Bokazo towards using resources to resolve the disagreement.

Lastly, concerning H11, the Nkroful Chief could not maintain the focus on his initial goals when the resistance to his goals increased as a result of the involvement of the Paramount Chiefs. The Nkroful Chief could not go against these traditional leaders with a higher rank with the same leadership system, and therefore the request that was made by the Paramount Chiefs to Nkroful to change its position, and thereby the goals it was striving for, could not be ignored.

Teleku-Bokazo did change its position towards ARL's proposal, but it appears that this did not require them to change their goals: rather, resistance was used as a means to achieve the goal of getting ARL to agree to conditions posed by Teleku-Bokazo.

The last finding of the substantive performance assessment for the Follow-up stage that requires an explanation is the compliance monitoring performed by EPA regarding the Supplementary EIA on the revised TSF and bypass road.

Concerning H1, it would appear, based on the interviews with both EPA and ARL staff, that the revision of the TSF created a win-win situation: the goals of the proponent and EPA were aligned, both with each other and with the goals of the EIA process of providing information for well-informed decision-making and environmental protection. In line with H1, as far as can be deduced, ARL complied with all EPA directions and recommendations regarding the TSF design, resulting in a reduced footprint of the TSF and a more economical design of the TSF. With regard to the PAPS, their orientation towards the EIA goal of socio-economic impact mitigation was deemed to be congruent with EIA goals and therefore with EPA goals. However, the direction that EPA gave ARL with regard to revising the compensation payment method appears to go against the goal of ARL to maximize economical project implementation.

Following H2, if ARL was not dependent on EPA to achieve its goals, below-minimum compliance would be expected. ARL however appears to have complied with this EPA direction, indicating that ARL experienced dependence on EPA to achieve its aims. ARL, besides running an economic operation, also needs EPA approval for the bypass road, which is crucial to mine operations. This appears, based also on interview data with ARL staff, to have provided the interdependence and thereby the incentive for ARL to comply.

With regard to H3, concerning the revision of the TSF design the goals of EPA and ARL are aligned, leading to the achievement of mutually desired goals. ARL managed to enhance the economy of its operation, and the more environmentally friendly design of the TSF aligned with EPA's goal of environmental protection.

Considering H4, regarding the revision of compensation payments, ARL and the PAPS of Salman are in an antagonistic relation. Nevertheless, ARL collaborated with the PAPS, which is deemed to be an effect of ARL dependence on EPA to achieve its goals, as was indicated with respect to H2.

Referring to H5, H6 and H7, though the EPA has rather modest resources, and possibly is hampered with regard to the type of evaluation knowledge it has available (e.g. unstructured administrative system, unknown method of review) this does not appear to have led to reduced EIA performance with regard to the TSF. ARL is not expected to be hampered by a lack of knowledge, resources or network (cf paragraph 6.4.1.1). The knowledge that the PAPS contributed to the public hearings on the bypass road did not concern any input on the practical design that was being proposed; no objections were raised against the proposed bypass road. Instead, the PAPS shifted attention to the compensation payment method and various issues with ARL that affect daily village life. It would seem that the limited resources of the PAPS were more of a concern to them than the construction of the bypass road.

With regard to H8, there is no explicit conflict ongoing between the PAPS, ARL and EPA, and thus no limiting effect of conflict on leadership towards EIA goals was observed. Furthermore, concerning the TSF design, EPA and ARL are collaborating without conflict. Concerning the PAPS and ARL, in response to the PAPS request for revision of compensation payments, ARL collaborated with the PAPS, facilitating goal achievement. In line with H9, the overall expressed collaborative interaction styles of the actors coincided with high EIA performance (see also Chapter 9).

As there was no strong resistance to the TSF or bypass design proposed, concerning H10, there was no need for adaptive behaviour of the actors. The resistance that the PAPs showed towards ARL was not directed to the bypass road but to socio-economic concerns. It seems that ARL has complied with revising its compensation payment method, thereby enhancing the resources available to the community. This however does not constitute a shift from for instance utilizing resources to involving network actors, but rather constitutes an expansion of the allocation of resources with regard to an already established compensation arrangement, and thus is not seen as an example of adaptability.

With respect to H11, though the increase of compensation payments made to the PAPs goes against the aim of ARL to economize operations, this action does support ARL's goal with regard to maintaining good relations with the community and thereby safeguarding acceptance of the bypass road, which is crucial to the mining operations. Thus, ARL appears to have been willing to compromise in response to the PAPs's request on one goal to achieve agreement on another goal.

So, what can we conclude from the above assessment of the influence of actor capacity on EIA performance in the Follow-up stage?

The ownership of ARL, specifically its incentive to reduce the perception of impacts to reduce the reclamation bond sum appears to have been influential with regard to the quality and completeness of the EIS. Furthermore, it appears that the limited evaluation knowledge available to EPA due to the unstructured administrative system, and possibly the unclarities with regard to the TRC review, may have led to omissions in the EIS review, leading to the observed limiting effect on EIA performance.

Concerning public participation, specifically the interactions between ARL and the PAPs, the lack of ownership of the PAPs with regard to EIA goals hampered effective public participation. ARL's adaptability overcame this resistance by shifting from using knowledge towards engaging new network actors in the cases of Nkroful and Salman, whereby ARL also utilized resources to gather the support from the Paramount Chiefs. In the case of Teleku-Bokazo, ARL did not need to engage other network actors; by negotiating a compromise, indicative of the capacity leadership, directly with Teleku-Bokazo community resistance was overcome. The resulting effect of ARL's adaptability was that the final bypass road design could be determined and the EIA process could move towards EPA issuing the EP for the bypass road.

With regard to the revision of the TSF, co-ownership of EIA goals between ARL and EPA seems to have been the reason for the win-win situation observed: ARL had an incentive to participate, because this led to economic gains for ARL. An added benefit was that the revised TSF design was more protective of the environment, serving the goals of EPA, and leading to high EIA performance.

With this we come to the conclusion of the discussion of findings concerning ARL's Nzema Gold Project. In the next chapter, the findings for both cases are briefly discussed, focusing on the similarities and differences that were observed.

Chapter 7 Case comparison

This chapter briefly compares the results obtained for both cases by focusing on the similarities and differences. First the similarities and differences are discussed in paragraphs 7.1 and 7.2, leading to conclusions based on the comparison in paragraph 7.3

7.1 Similarities

The findings regarding the completeness and quality of the EIS in the EIA stage for both cases, though it must be noted that the data collected regarding this issue are incomplete, show great similarities: for both cases, the tentative conclusion is that low EIA performance on this matter is caused by the incentive that the proponent has to reduce the perception of impacts in the EIS in order to reduce the reclamation bond sum. Furthermore, in both situations, using different personal observations, the type of evaluation knowledge available to EPA appears to be limited due to the unstructured administrative system and the unclarity with regard to the assessment criteria used in the review. Though these findings should be considered tentative, the similarity is apparent.

A second similarity concerning the EIA stage in both cases is that within the EIA process little attention appears to be given to mitigating negative impacts on biodiversity: both the Bosumkese Forest reserve and the Amansuri wetlands are described in the EIS's, but no mitigative measures were found. The Bosumkese Forest reserve is mentioned in the Ahafo South EIS, but the description of impacts in the EIS notes that no main impacts are expected, and therefore no mitigative measures are necessary. However, from the overview of the concession area, it is clear that a connecting corridor would pass through the Bosumkese Forest reserve, separating the Bosumkese forest from the Amama shelterbelt forest (cf Figure 5). The IFC's ECMG report 2009 notes that Newmont is to construct an ecological corridor to prevent ecosystem fragmentation, but no further information on this topic was retrieved. It may be that the Bosumkese corridor was treated more elaborately in the EIS that was drafted for the Ahafo North project, but this falls outside the scope of this research. In the Nzema case, the EPA regional office PPO had requested an explicit assessment of impacts in the scoping review regarding the wetlands, but besides the assessment covering the wetlands in the EIS, no further discussion was found on this topic. The reason for this limited attention for issues regarding biodiversity may be a lack of policy integration: the Forestry Commission is responsible for permitting activities concerning forests and wetlands, and these are not covered in the mandate or permitting procedure of the EPA.

A third similarity, which is evident in both the EIA stage and the Follow-up stage, is the role of the Minerals and Mining Act (Act 703). Besides participating in the EIA process, the proponents and PAPs also have to negotiate compensation and resettlement agreements. Based on the data gathered, issues which have arisen due to these negotiations between the PAPs and the proponent are also apparent in the public participation events during the EIA process. In fact, where community participation is concerned, nearly all the comments that the PAPs raise have to do with socio-economic impact mitigation, compensation, employment, resettlement and impacts of the mine on structures owned by the PAPs. As socio-economic impacts are also covered in the EIA process in Ghana, the EPA has a mandate to address these issues in the EIA process. However, as a consequence of this, the discourse

coalition between the PAPs and EPA tends to dominate all interactions of EPA with the proponents where the PAPs are involved. This seems to reduce the attention available from EPA for environmental monitoring and providing technical design comments to the proponent. As was noted earlier, all EPA, ARL and PAPs interviewees note that the main issue for the EPA concerns socio-economic impact mitigation and community concerns.

In both cases, hardly any NGO involvement is seen reflected in the case files, and where it is observed, this consists of the NGOs advocating against the mine in some form of another, rather than the formation of partnerships with the mine to influence the mining effects. Furthermore, all EPA, ARL and PAPs interviewees note that the NGOs that were involved provide a one-sided, distorted image of the mining industry and are advocating more for sponsor attention than for actual improvements to project implementation. The general consensus observed was that the NGOs are working for their own benefit rather than for the benefit of the PAPs, and have little support in the communities.

Another similarity that can be observed is that, looking at the network data (cf Annex IV and V), the proponent seems to be well-connected, whereas the EPA, based on the reconstructed network as derived from the interactions observed in the case files, does not appear to be as well-connected as the proponents and does not generally show adaptability by engaging new network actors to enhance the pressure on the proponents. The network data for the PAPs are inconclusive; based on the data retrieved, the PAPs seem to have limited network connections with policy makers, outside of invitations by other stakeholders to participate in deliberations.

A last similarity observed is that, where the PAPs are concerned, they tend to show an antagonistic relationship towards the proponent, and may use various means, ranging from erecting speculative structures to stalling the proponents' operations to physical intimidation and force to enhance their negotiation position. Considering the general lack of resources of rural communities in Ghana, it seems that the PAPs have limited official means of pressuring the proponents, and therefore resort to means of pressure outside of the formal system.

7.2 Differences

During the Follow-up stage, one major distinction that can be observed is that Newmont did not comply with EPA directions, whereas ARL appears to have fully complied with EPA directions. The key difference identified between the two situations is that Newmont had no economic incentive to adhere to EPA directions, whereas ARL had a clear economic incentive to maintain good relations with EPA, but also with the PAPs, due to the fact that access to the mine site depended on the approval of the other stakeholders.

A further difference that could be observed is that ARL showed variation of leadership interaction styles, starting initially with a collaborative approach, but when this failed, shifting to compromising (in the cases of Teleku-Bokzao and Salman), and when this would fail switching to adaptability by engaging new network actors, taking matters to a higher policy level, and where needed resourcing network actors so as to gather their support and form a discourse coalition to pressure the unwilling PAPs. Newmont, on the contrary, in the issue regarding the blasting repairs started with a competing strategy, both towards

the PAPs and toward EPA, and when this did not have the desired effect, avoiding direct contact with these actors. Only after a long-lasting antagonism did Newmont finally compromise and comply with EPA directions.

Also different between the two cases was the involvement of IFC: ARL did not receive a loan from IFC, whereas Newmont did. The result of IFC involvement was that more information was available online, such as the Ahafo South EIS, and the reports from the Independent External Monitoring experts (IESCM 2005-009; ECMG 2006-2009). However, though IFC demands additional EIA requirements from Newmont, compliance within the Ghanaian EIA process was actually observed to be lower for Newmont than for ARL. Furthermore, based on interviews, the information available to the IFC was not shared with EPA.

7.3 Conclusions based on the comparison

Regarding the similarities between the two cases, regarding the quality and completeness of the EIS, though the data are incomplete, a similar pattern does emerge, where the ownership of the proponent with regard to the EIA process goal of providing scientifically valid information for well-informed decision-making appears lacking due to the incentive to reduce the perception of impacts in the EIS in order to reduce the reclamation bond sum to be posted. Furthermore, limited or unclear evaluation knowledge availability for the EPA seems to have led to omissions in the review of the EIS.

With respect to policy integration, little attention is given in the EIS with regard to mitigating impacts on the Bosumkese Forest reserve and the Amansuri wetlands, because these issues fall outside the EPA mandate. Furthermore, the Minerals and Mining Act (Act 703) appears in both cases to have led the PAPs to use public participation possibilities in the EIA process to raise issues that they have with the proponent as a result of negotiations over compensation payments, thereby eclipsing the focus on the topics under discussion in relation to the EIA process and replacing these with socio-economic concerns.

With regard to public participation it is further observed that the PAPs use various means outside of the formal structures provided by the EIA legislation and the Minerals and Mining Act to enhance their negotiation position. Regarding the role of NGOs in public participation, hardly any NGO involvement is noticed, and the NGOs that do petition the proponents appear to have little audience amongst the PAPs.

Lastly, it seems, based on the network data from both cases, that the proponent is in a strong position to act as a knowledge gate, as the proponents have access to more information and exhibit more network connectivity than the EPA and the PAPs.

The main difference observed between the two cases was the compliance of the proponent with, and their orientation towards EIA process goals. Where the incentives of the proponent overlap with those of the EPA, and are thus aligned with EIA process goals, high EIA performance is observed; where this is not the case, low EIA performance is seen. Lastly, though the IFC is involved in the Ahafo South project and poses additional constraints on the proponent, this does not improve EIA performance. Arguably, the economic incentives for the proponent determine the observed EIA performance more than the exposure of the project.

Chapter 8 Mining sector level analysis

This chapter briefly outlines the current status of the mining sector in Ghana. Key issues that need to be addressed in Ghana's mining sector are identified, and the integration of policies adjacent to the EIA regulations and their effects are identified.

8.1 Current status of the mining sector in Ghana

The mining sector in Ghana has experienced its main growth in the two decades after the introduction of the Economic Recovery Programme / Structural Adjustment Policy (cf Chapter 4). Currently, according to the EPA annual reports, few new mines open (see Table 28); the Ahafo South project and the Nzema project were the last two of the large scale surface gold mines in Ghana to open.

EPA Annual Reports	2005	2006	2007	2008	2009	2010
Total EIA proposals	657	307	1730	2105	2798	2762
Total mining EIA proposals	128	190	533	331	No data (not in top 6)	No data
Mining as % of total	19½ %	60,9%	30.8%	15,7%	No data (not in top 6)	No data (not in top 6)

Table 28: Development of mining sector 2005-2010 (EPA Annual Reports 2005-2010)

However, besides the large scale, open pit gold mines, the small-scale mining industry, consisting both of registered artisanal mine < 10 ha, and the illegal galamsey operations is a significant source of negative environmental impacts in Ghana, with estimates concerning employment of local Ghanaians in the small-scale mining industry ranging from 30,000-100,000 people (cf Babut et al., 2003). Most of the mining applications received by EPA (cf Table 28) are related to small-scale mines or expansions on existing large-scale mines (EPA Annual Reports 2005-2010).

8.2 Key issues in Ghana's mining sector

The EPA Annual report 2009 provides an overview of the results of an evaluation undertaken of mining applications received by EPA. Out of all registered mines, 1748 applications were evaluated. The results showed that 138 (7.9%) of the permits for these mines were found to be valid, 1103 (63.1%) expired, and concerning 507 (29%) the data received by EPA are incomplete. In total 983 (=56.2% of all mining applications evaluated) concerned gold mines. Regarding gold mine specific data, the permits for 100 (10.2%) were valid at the time of the evaluation, 639 (65%) expired, and for 244 (24.8%) of the registered mines the data were incomplete. In response to these findings, the EPA notes that "despite resource and logistical constraints the Agency needs to develop mechanisms to monitor the increasing number of undertakings which have been permitted to ensure that they are complying with permitting conditions" (EPA Annual Report 2009, p6).

The EPA recognized that “the continuous uses of the traditional environmental management methods have proven too expensive and require tremendous resources”, (Sekyi, 2011), and established the Akoben²⁵ rating system by which large scale mines are rated according to standardized criteria and the results are made public: “An important goals of the AKOBEN program is to create an incentive for environmental improvement through information”, working “outside the formal court system through reputational incentives and community and media pressure to motivate firms to comply with environmental regulations” (Sekyi, 2011).

Given the findings presented in the previous chapters with regard to EPA’s resources, the Akoben system appears to be the best possible solution to a difficult situation: not only does it provide an incentive for mining companies to comply to the Ghanaian EIA regulation and a supportive monitoring tool next to the resource-intensive verification visits, it also provides a structured process in which the EPA gives feedback to the mining companies and receives in-depth information on the mine’s functioning, and a basis for upgrading of the rating requirements in the future when strengthening of EIA mining regulations is desired.

Besides the Akoben rating system, EPA has also been active in strengthening the methodology used to determine the reclamation bond to be posted by the mining companies based on the assessment of impacts. EPA’s Annual Report 2009 makes not of a proposal to ‘rationalize and harmonize the cost structures of reclamation schemes in minerals and mining sector’ identifying “unit rates” that are used “in the determination of the final liability of the mine”; the proposal will “revise the Reclamation Security Agreement and explore possibilities for ensuring that requisite bonds cover total liability estimates” (EPA Annual Report 2009, p27).

8.3 Policy integration

One issue that seems to require further attention is the integration of national policies to streamline EPA’s responsibilities with those of other governmental agencies. First of all, the influence of the Minerals and Mining Act (Act 703) was seen by all EPA staff as having difficulties associated with it:

“I blame the laws in place for the difficulties, not the company: for instance, ARL is allowed to publish their buying of concession rights in a newspaper where no-one sees it, and after 21 days if there is no protest filed the concession is provided. With regard to the revenue, the government decided on this. I wish we got more, but the rates are fixed. The reason for the low rates of revenue I believe are in place because mining in Ghana went down, and the government wanted to attract investors. They should have made this a temporary measure, but there was no end date given so the same rates are still in place.”; “One worry we have is with regard to the royalties: they are between 3-6%, but everybody is taking the minimum. The legislation should be explicit on the percentage and not leave it up to the companies to decide what they want to pay. The royalties are also paid with the aim of enhancing development, but the government can use these royalties anywhere: there is no specification of how to use the royalties. Traditional mining communities don’t see any physical development.” “the Minerals and Mining Act leaves much to be desired especially in areas such as cooperate taxes, local content in the mining industry and the general benefits of the industry to the communities in which they operate.” (EPA staff)

Considering that Act 703, as was identified in paragraph 7.1, affects the relation between the communities and the company, which has spill-over effects to public participation in the EIA process, the

²⁵ Akoben stands for ‘trumpeting’ or ‘announcing’, cf www.epaghanaakoben.org

practical implementation of Act 703 negatively affects the focus of the PAPs on the EIA process: environmental concerns are eclipsed by socio-economic concerns raised during the negotiation of compensation and resettlement with the proponent.

Secondly, issues concerning forestry appear to require urgent attention. Van Roosbroeck and Amlalo report that forest cover in Ghana is “down from 36% originally to 23% in 1972, 13.3% in 1990, and 10.2% in 2000 (2006: p23). Large-scale surface mining not only negatively affects biodiversity, it also has a significant impact on deforestation and the availability of farm land (Schueler et al., 2011).

In Ghana, the Forestry Commission gives out permits for activities affecting forest reserves. As was noted in Chapter 5, no clear mitigation strategy for Bosumkese Forest Reserve was identified, even though it seems clear that the Ahafo South mine will have a negative impact on the Bosumkese forest and wildlife (cf paragraph 5.3.2.4). One of the EPA staff noted that “Newmont wanted to expand their operations into a forest reserve area. They received a permit from the forestry authority and got cabinet approval” (PPO Mining Department). This indicates that impacts on forestry are not addressed in the EIA process, and not sufficiently integrated into the EIA regulations to safeguard negative impacts from mining on Ghana’s forests.

Farmland loss is a major threat to livelihoods in Ghana where the majority of people are subsistence farmers. According to Schueler et al., in communities affected by large-scale mining, 75% of the population saw their income decrease (2011). As all interviewees from EPA and the resettled community of Salman noted, loss of farmland was a major concern: “the main effects of resettlement on the community are economic: before the resettlement the land of the farmers was taken by ARL. Now, food is scarce” (Member of Resettlement Negotiation Committee).

An associated problem is the land tenure system in Ghana, in which the ownership rights of the government regarding land overlap with the traditional land tenure system, in which the Chiefs are the custodians of community land, and the rights of the users of the land. Many affected farmers are not aware of the cadastral records of their lands, and one study found that 25% of the affected farmers do not know what legal status of their land is (Schueler et al., 2011). The lack of a specific oversight of land ownership rights complicates the allocation of compensation payments.

Lastly, the role and mandate of the EPA with regard to socio-economic impacts are not clear: as ARL’s BFM noted: “The EPA has a dual role, on the one hand providing technical advice and on the other hand addressing social issues. Social issues are not specifically addressed in the legislation.” This ambiguity in EPA’s mandate, along with the observation that socio-economic issues dominate the interactions of EPA with the communities, does not provide a delineation of where EPA’s responsibilities start and where they end. This results in an open-ended system with respect to how EPA deals with socio-economic issues, as illustrated by one of the EPA staff: “The EPA spends any amount of time on the relation between ARL and the communities EIA never ends really, complaints can keep coming to the EPA” (PPO regional office). This ambiguity and open-endedness of EPA’s dealings with community concerns puts a constraint on EPA’s already limited resources.

Summarizing the findings presented above, the mining sector in Ghana appears to have slowed down in its growth since 2006. Many of the existing mines are found to have invalid environmental permits. EPA's Akoben system appears to be a good additional tool for the EPA to monitor compliance of large scale gold mines, next to the resource-intensive field visits. Main issues concerning policy integration that need to be addressed are the effects of Act 703 on the practice of EIA in Ghana, the integration of forestry protection into the EIA system, and a clarification with regard to EPA's role in socio-economic impact mitigation to delimit the responsibilities of EPA in this regard. Though the difficulties with regard to the land tenure system in Ghana show negative impacts to the local communities as they may not have the evidence required to receive compensation for their livelihoods, these issues are not the focus of EIA but rather of the Minerals and Mining Act (Act 703), and thus fall outside the scope of policy integration issues that should be addressed within the EIA system.

Chapter 9 Conclusions and Recommendations

This final chapter provides the answer to the central research question for the research:

To what extent do actor capacities influence EIA system performance in Ghana?

First, the conclusions with regard to the extent to which actor capacities influence EIA system performance in Ghana are provided in paragraph 9.1, focusing on the outcome and usefulness of the capacity assessment methodology developed for this research in explaining the relation of actor capacities and context factors to EIA performance. Next, paragraph 9.2 provides the recommendations to the Ghanaian EPA and the NCEA, and the recommendations for future research, based on the findings of this study.

9.1 Conclusions

One of the key explaining factors for EIA system performance that emerges from the analysis in this research is the capacity of ownership. With respect to the proponent, specifically the incentive structure that the proponent has is deemed influential with regard to EIA system performance: if the proponent's goals are aligned with EIA goals, then performance is high; if the goals of the proponent are not in line with EIA process goals, EIA performance is low. Also the ownership of the EPA has a significant effect on EIA performance, specifically EPA's mandate and the limited enforcement options that EPA has in practice, which lead to a limited incentive to initiate enforcement actions outside of written correspondences. Furthermore, with regard to the PAPs, their ownership of the EIA process, specifically the incentives that the PAPs experience, influence EIA process outcomes: the PAPs focus on socio-economic impact mitigation and take the opportunity of public participation in the EIA process to bring forward issues of concern to the proponent and EPA. This, however, leads the focus of public participation away from delivering input on the proposed activity that is useful for decision-making on other aspects than socio-economic issues, and thus limits the effectiveness of public participation in ensuring well-informed decisions that address both environmental and socio-economic concerns, as is the intention of the Ghanaian EIA process. The capacity of ownership thus shows a marked effect on EIA system performance.

However, focusing on the operationalization of ownership as maintained for this research, this finding brings us back to the issue of separating the influence of capacities and context factors, because whereas ownership is considered an actor capacity, incentives, which are key factors of influence on EIA system performance, are considered to be a context factor (cf paragraph 2.3). The conceptualization of ownership as a bridging capacity between the context factors and actor capacities appears valid, and allows for a further identification of which aspect (e.g. the task structure, the mandate of the actor, the limiting or facilitating effect of initial power, and the incentives) is specifically involved in determining an actor's orientation towards the EIA process and its goals. However, to fully unravel the distinction between the influence of context factors and capacities with respect to ownership requires further study, if in fact such a distinction can be clearly identified at all: capacities are emergent properties that

are triggered by situational requirements: can we then expect to truly be able to separate the influence of capacities from context factors, when these notions appear to be so intertwined?

Before moving on to the other capacities identified for this research and how they affect EIA process outcomes, a revision, or rather addition is required to the operationalization of ownership: it needs to be clearly determined before starting the capacity assessment what precisely constitute the 'EIA requirements' for each actor involved, so that it can be clearly determined whether the actor(s) showed minimum compliance, or below-minimum or above-minimum compliance with these EIA requirements.

So, what can the other capacities and their associated hypotheses tell us about the distinction between capacities and context factors? It is clear that the hypothesized effect of limited knowledge, resources and network capacity indeed seem to hamper EIA performance. It should be noted though that also here, as was indicated with respect to the capacity of ownership, whether an actor experiences low levels of these capacities may be due to contextual influences: low levels of resources and limited knowledge and network capacity were observed with regard to the PAPs. This however seems to be an effect of the socio-political and administrative system in Ghana, which is considered to be part of the institutional design. Furthermore, EPA's annual budget is provided by the Government of Ghana, which is also identified as a context factor in the institutional design.

With respect to the capacity of leadership, it is observed from the data analysis presented in this study that explicit conflict hampers the progress of the EIA process, and it is observed that a collaborative interaction style is associated with high EIA performance. However, the leadership hypotheses as formulated for this research require revision, because the results on H8 and H9 for both cases do not identify key drivers of EIA performance. Concerning leadership H8, explicit conflict or intense resistance may block the EIA process, but this does not constitute low EIA performance by itself. Thus, this hypothesis requires revision in order to be informative with respect to its effect on EIA performance. Concerning H9, a collaborative leadership style by itself is not a strong determinant for high EIA performance (though in all examples of high substantive performance the actors involved exhibited a collaborative interaction style at the moment that the issues were resolved), and neither is a larger number of actors exhibiting a collaborative interaction style a guarantee for goal achievement. A suggestion for follow-up research would be to focus on Fiedler's (1971) (leadership contingency model, because task structure is a strong determinant as can be seen from the strong effect of ownership on EIA performance, and the leadership contingency model focuses on an assessment method that incorporates task structure in determining leadership effectiveness.

With respect to adaptability the hypothesized mechanisms appear to be adequately captured in the hypotheses formulated for this research. When resistance was shown, adaptability became necessary: in the Ahafo South case EPA faced resistance from Newmont regarding enforcement directions. However, no observed change in the use of knowledge, resources and network by EPA was observed, except for when the Executive Director took over correspondence with Newmont, constituting a policy level shift within EPA's organization. In light of the absence of adaptive actions by EPA, non-compliance continued. In the Nzema case, when ARL faced resistance from the communities, ARL on two occasions showed a change from the use of knowledge to the use of network and/or resources, which consistently

shortly preceded a resolution to the conflict observed. Furthermore, when Nkroful could not resist the request from their traditional authority, they changed their goals and stopped opposing ARL, switching from a competing to a collaborative interaction style. Thus, the effect of adaptability on EIA performance, as captured in the hypotheses proposed for this capacity in this research, appears to show a clear mechanism by which EIA outcomes are leveraged.

In sum, the extent to which actor capacities influence EIA system performance in Ghana is that ownership appears to be the main determinant in achieving EIA system process outcomes; that the limiting effect of low knowledge, resource and network capacity are associated with low actor goal achievement and thus, when these actor's goals are aligned with EIA process goals, are associated with low EIA system performance; that the role of leadership appears to be that a collaborative interaction style is associated with high EIA performance, but that the operationalization of leadership as maintained for this research requires further revision in order to establish an explanatory effect of leadership on EIA outcomes; and that adaptability is a key determinant in leveraging outcomes, whereby an actor that has the capacity to adapt in the face of resistance exhibits high goal achievement, and an actor that cannot adapt its use of knowledge, resources and network when faced with resistance exhibits low goal achievement and thus, if an actor's goals are aligned with EIA goals its capacity to adapt is of direct effect on EIA performance.

Moving now to an explanation of actor capacity influencing EIA performance at system level, reflecting back on the hypothesis that the ambitions of the EIA system in Ghana lead to low EIA system performance (Kolhoff et al., 2009), it seems that the ambitions to incorporate sustainable development issues into the EIA regulations indeed affect EIA system performance in Ghana: by involving socio-economic concerns into EIA, the EPA is confronted with community concerns, which are named by all EPA staff to be the main focus of attention for EPA. Community concerns that are brought into the EIA system during public participation appear to stem from the interactions between the PAPs and the proponent under the Minerals and Mining Act (Act 703), and tend to not focus on issues of relevance with respect to the environmental aspect of the project design, but only on socio-economic impacts. The open-endedness of the incorporation of socio-economic concerns due to the ambiguity in EPA's mandate to act on these matters overstretches EPA's ability, already restrained by limited resources and a non-methodical administrative system, to keep their focus on addressing environmental concerns and safeguarding environmental protection in Ghana's mining sector.

Before moving to the recommendations, a last remark on the explanation of the influence of actor capacities on EIA performance is required. As was noted in paragraph 3.6, providing an explanation for the influence of actor capacity on EIA system performance implies determining a causal relation: conclusions are based on time-precedence, co-variation, and non-spuriousness. The explanations provided here are not causal explanations, because non-spuriousness is not decisively proven when estimating and inferring actor motivation as is required for assessing the goals of the actors involved. Nevertheless, based on a triangulation of methods, the explanations here do adhere to the first two requirements of establishing an explanation and provide arguments for the most probable explanation, given the data collected.

9.2 Recommendations

The recommendations to the Ghanaian EPA are:

- To build on the Akoben program and incrementally provide more strict requirements for a positive rating
- To use the findings from the Akboen rating system to review the adequacy of the reclamation bond sum requested from the proponent
- To establish, if these are not in place, a clear and methodical assessment grid for the reviewers in the TRC
- To continue with current efforts to digitize the administrative system
- To establish clear guidelines with regard to EPA's involvement in socio-economic concerns voiced by the communities, so as to delineate clearly what EPA's tasks and responsibilities in this regard are
- To focus on a further integration of the EIA regulations with other policies that are of influence on the Ghanaian EIA process

The recommendations to the NCEA are:

- To provide assistance to the Ghanaian EPA with regard to improving the method for environmental assessment reviews by EPA
- To provide assistance with delineating EPA's responsibilities with regard to incorporating socio-economic concerns into the Ghanaian EIA process
- To provide assistance in strengthening the institutional design in Ghana to facilitate further policy integration

Recommendations for further study are:

- To improve on the conceptual distinction between the effects of capacities and context factors
- To expand the conceptual model of actor capacities in relation to EIA system performance with regard to the capacity of ownership, adding as a requirement for the adequate assessment of ownership a clear insight into the EIA process requirements specifically for EPA, as these are not apparent from documentation but rather constitute the informal practices applied by the EPA
- To improve on the operationalization of the leadership capacity to link leadership effects directly to EIA process outcomes; it is suggested here that the leadership contingency model by Fiedler (1971) can prove of use in this respect

References:

Ahafo South ESIA (2005), retrieved from EPA library, Accra; also available via:

<http://www.ifc.org/ifcext/spiwebsite1.nsf/ProjectDisplay/EIA23338>

Akabzaa, T. and Darimani, A. (2001), 'Impact of Mining Sector Investment in Ghana: A Study of the Tarkwa Mining Region', (a draft report) for SAPRI, January 20, 2001

Akcil, A. and Koldas, S. (2006), 'Acid Mine Drainage (AMD): causes, treatment and case studies', *Journal of Cleaner Production*, 14(2006), 1139-1145

Alvesson, M. (1996), *Communication, Power and Organization*, Walter de Gruyter, Berlin

Ansell, C. and Gash, A. (2008), 'Collaborative Governance in Theory and Practice', *Journal of Public Administration Research and Theory* 18, 543-571

Avelino, F. and Rotmans, J. (2009), 'Power in Transition: An Interdisciplinary Framework to Study Power in Relation to Structural Change', *European Journal of Social Theory*, 12(4): 543-569

Ayman, R., Chemers, M.M., and Fiedler, F. (1995), 'The contingency model of leadership effectiveness: its levels of analysis', *Leadership Quarterly*, 6 (2), 147-167

Babut, M., Sekyi, R., Ramband, A., Potin-Gautier, M., Tellier, S., Bannerman, W., and Beinhoff, C. (2003), 'Improving the environmental management of small-scale gold mining in Ghana: a case study of Dumasí', *Journal of Cleaner Production* 11 (2003), 215-221

Balint, P.J. (2006), 'Improving Community-Based Conservation near Protected Areas: The Importance of Development Variables', *Environmental Management*, Vol. 38, No. 1, 137-148

CIDA (1996): Morgan, P. and Taschereau, S.: 'Capacity and Institutional Assessment: Frameworks, Methods and Tools for Analysis, June 1996

CM43_2: EPA Ahafo South case file 2, EPA headquarters, Mining Department, Accra

CM43_4: EPA Ahafo South case file 4, EPA headquarters, Mining Department, Accra

CM43_5: EPA Ahafo South case file 5, EPA headquarters, Mining Department, Accra

CM1046_4: EPA Nzema case file 4, EPA headquarters, Mining Department, Accra

CSP2 (2005), 'Technical Review – Ahafo South Project (Ghana) Environmental and Social Impact Assessment', prepared by Chambers, D. And Levit, S.M., Dec 9th 2005, retrieved from <http://www.csp2.org/reports.htm> on July 12th 2012

CSP2 Factsheet: Trace Elements in Mining Waste, retrieved from http://www.csp2.org/reports/Fact_Sheets--Trace_Elements_in_Mining_Waste.pdf on July 12th 2012

Crosby, B.L. (1992), 'Management and the Environment for Implementation of Policy Change: Part Two. Policy Environment Mapping Techniques', USAID Implementing Policy Change Project, Technical Notes No. 5, April 1992

De Dreu, C.K.W. and Carnevale, P.J. (2003), 'Motivational bases of information processing and strategy in conflict and negotiation', *Advances in Experimental Social Psychology*, Vol. 35, 235-291

De Jong, A.A., Runhaar, H.A.C., Runhaar, P.R., Kolhoff, A.J., Driessen, P.P.J. (2012), 'Promoting system-level learning from project-level lessons. An analysis of donor-driven 'indirect' learning about EIA systems in Ghana and the Maldives', *Environmental Impact Assessment Review* 33 (1), pp. 23-31

ECDPM (2007): Engel, P., Keijzer, N., and Land, T. (2009), 'A balanced approach to monitoring and evaluating capacity and performance – a proposal for a framework', ECDPM Discussion paper No 58E, December 2007

ECDPM (2009): Land, T., Hauck, V. and Baser, H. (2009), 'Capacity Change and Performance. Capacity development: between planned interventions and emergent processes – implications for development cooperation', ECDPM Policy Management Brief, No 2, March 2009

Eisinger, P. (2002), 'Organizational Capacity and Organizational Effectiveness among Street-Level Food Assistance Programs', *Nonprofit and Voluntary Sector Quarterly*, Vol. 31, No. 1, 115-130

Emmelin, L. (1998), 'Evaluating environmental impact assessment systems part 1: Theoretical and methodological considerations', *Scandinavian Housing and Planning Research*, 15(1), pp. 129-148.

Fian International (2005), 'Newmont's Ahafo South gold mining project in Ghana: documentation of violations of the human rights to food and water', Ahafo Briefing, Nov 17th 2005

Fiedler, F.E. (1967), *A theory of leadership effectiveness*, McGraw-Hill, New York

Fiedler, F.E. (1971), 'Validation and extension of the contingency model of leadership effectiveness: a review of empirical findings', *Psychological Bulletin*, 1971, Vol. 76, No 2, 128-148

Garvin, T., McGee, T.K., Smoyer-Tomic, K.E., Aubynn, E.A. (2009), 'Community-company relations in gold mining in Ghana', *Journal of Environmental Management* 90 (2009) 571-586

Giddens, A., (1984) *The Constitution of Society*, University of California Press, Berkeley and Los Angeles

Haugaard, M., ed, (2002) *Power: A Reader*, Manchester University Press, Manchester.

Hodgkinson, G.P., (2003), 'The interface of cognitive and industrial, work and organizational psychology', *Journal of Occupational and Organizational Psychology*, 76, 1-25

Independent External social compliance monitoring reports NGGL Ahafo South Project, prepared by Giovannetti, F. and Salam, T.: Oct 2005; Dec 2005; May 2006; Jan 2007; Aug 2008; April 2009

Khadka, R.B., Shrestha, U.S. (2011), 'Process and Procedures of Environmental Impact Assessment Application in Some Countries of South Asia: A Review Study', *Journal of Environmental Science and Technology*, Vol. 4, No. 3, 215-233

- Kiesler, D.J. (1983), 'The 1982 Interpersonal Circle: A Taxonomy for Complementarity in Human Transactions', *Psychological Review*, Vol. 90, No. 3, July 1983
- Kiesler, D.J. and Auerbach, S.M. (2003), 'Integrating measurement of control and affiliation in studies of physician-patient interaction: the interpersonal circumplex', *Social Science & Medicine* 57 (2003) 1707-1722
- Kjeldsen, P. (1999), 'Behaviour of Cyanides in Soil and Groundwater: a review', *Water, Air and Soil Pollution*, 115 (1999), 279-307
- Kolhoff, A.J, Runhaar, H,A,C,, Driessen, P.P.J (2009), 'The contribution of capacities and context to EIA system performance and effectiveness in developing countries: Towards a better understanding', *Impact Assessment and Project Appraisal* 27 (4) , pp. 271-282
- Kolhoff, A. and Ruessink, H. (in press), ' Environmental Impact Assessment and Environmental Compliance and Enforcement: an agenda for a common approach', Policy concept note
- Marshall, R., Arts, J., and Morrison-Saunders, A., ' International principles for best practice EIA follow-up', *Impact Assessment and Project Appraisal*, 23(3), September 2005, 175-181
- Meadowcroft, J. (2007), ' Who is in charge here? Governance for Sustainable Development in a Complex World', *Journal of Environmental Policy and Planning* 9(3-4), 299-314
- Morra Imas, L.G. & Rist, R.C. (2009), *The Road to Results: Designing and Conducting Effective Development Evaluations*, The International Bank for Reconstruction and Development / The World Bank, Washington DC, USA
- Mudd, G.M. (2007), 'Global trends in gold mining: Towards quantifying environmental and resource sustainability?', *Resources Policy* 32 (2007), 42-56
- Nzema project ESIA (2008), retrieved from EPA library, Accra
- Rossi, P.H., Lipsey, M.W., Freeman, H.E. (2004), *Evaluation: A Systematic Approach* (7th Edition), Sage Publications, Inc., California
- Rowe, W.E., Jacobs, N.F., Grant, H. (1999), 'Facilitating development of organizational productive capacity: A role for empowerment evaluation', *The Canadian Journal of Program Evaluation*, Special Issue, 69-92
- Runhaar, H. (2009), 'Putting SEA in context: A discourse perspective on how SEA contributes to decision-making', *Environmental Impact Assessment Review* 29, 200-209
- Runhaar, H. and Driessen, P.P.J. (2007), ' What makes strategic environmental assessment successful environmental assessment? The role of context in the contribution of SEA to decision-making', *Impact Assessment and Project Appraisal*, 25(1), March 2007, 2-14

Runhaar, H., Van Laerhoven, F., Driessen, P.P.J., and Arts, J. (2012: in press), 'Environmental assessment in The Netherlands: Effectively governing environmental protection? A discourse analysis', *Environmental Impact Assessment Review* (2012), doi.10.1016/j.eiar.2012.05.003

Sadler, B. (1996), 'International study on effectiveness of environmental assessment: Final report – environmental assessment in a changing world: Evaluating practice to improve performance', Ottawa: International Association for Impact Assessment.

Sadler, B. 2004, 'On evaluating the success of EIA and SEA', in: *Assessing Impact. Handbook of EIA and SEA Follow-up*, ed. Morrison-Saunders, A. & Arts, J., Earthscan, London, pp. 248-285.

Sampong, E. (1998), 'Ghana: Public hearing within the environmental impact assessment process', in: M. McCabe (ed.), *Environmental Impact Assessment. Case Studies from Developing Countries* (pp. 56-62). Fargo: International Association for Impact Assessment.

Schueler, V., Kuemmerle, T., Schroder, H., 'Impacts of Surface Gold Mining on Land Use Systems in Western Ghana', *AMBIO* (2011) 40: 528-539

SDAP (2010), 'Sustainable Development Action Plan: national programme on sustainable consumption and production (SCP) for Ghana (2011-2016), Volume 1, EPA/UNDP, Nov 2010

Sekyi, R. (2011), 'Akoben: Ghana's New Initiative for environmental performance rating and disclosure in the mining sector', *Proceedings Tailings and Mine Waste*, Vancouver, BC, November 6 to 9, 2011

UNDP (2007), 'Capacity Assessment Methodology – User's Guide', Capacity Development Group, Bureau for Development Policy, May 2007

UNEP (2006), 'Ways to Increase the Effectiveness of Capacity Building for Sustainable Development', discussion paper presented at the Concurrent Session 18.1 The Marrakech Action Plan and Follow-up, 2006 IAIA Annual Conference, Stavanger, Norway

USAID Centre for Development Information and Evaluation (2000), 'Measuring Institutional Capacity', *Recent Practices In Monitoring and Evaluation* 2000, Number 15

Van Doren, D. (2011), 'The Effectiveness of SEA in the Netherlands: an analysis of three cases', UU Master thesis.

Van Knippenberg, D. (2003), 'Social identity and leadership processes in groups', *Advances in Experimental Social Psychology*, Vol. 35

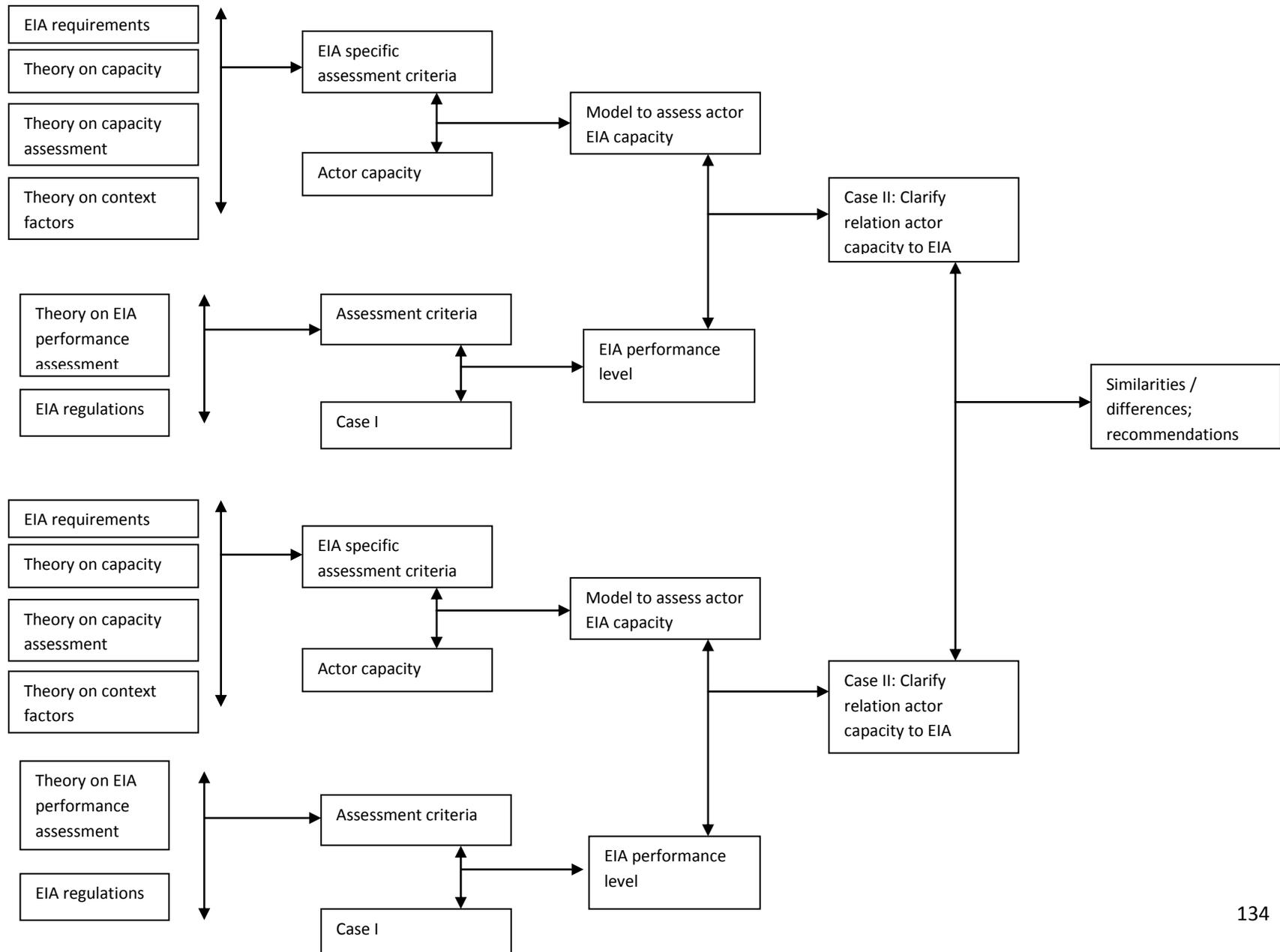
Van Loon, L., Driessen, P.P.J., Kolhoff, A., Runhaar, H.A.C. (2010), 'An analytical framework for capacity development in EIA - The case of Yemen', *Environmental Impact Assessment Review* 30 (2), pp. 100-107

Van Roosbroeck, P. & Amlalo, D.S. (2006), 'Country Environmental Profile of Ghana: Draft Final Report', Framework Contract EuropeAid/119860/C/SV/Multi – Lot No 6: Environment, Request for Services No 2006/123200

- Verschuren, P. and Doorewaard, H. (1999), *Designing a Research Project*, Lemma, The Hague
- Walker, C., and Wernheimer, M. (1998), *Community Development in the 1990s*, Washington DC: Urban Institute
- Waybrant, K.R., Ptacek, C.J., and Blowes, D.W. (2002), 'Treatment of Mine Drainage Using Permeable Reactive Barriers: Column Experiments', *Environmental Science and Technology*, 2002, 36, 1349-1356
- White, M.D., Fisher, C., Hadfield, K., Saunders, J., and Williams, L. (2005), 'Measuring Organizational Capacity among Agencies Serving the Poor: Implications for Achieving Organizational Effectiveness', *Justice Policy Journal*, Vol. 2, No. 2
- Williams, B. (2009), 'Thinking systemically', www.capacity.org Issue 37, 4-6
- Wood, C. (2003), *Environmental Impact Assessment: a comparative review*, (2nd Edition), Pearson Education Limited, London

ANNEX I

Research framework



ANNEX II

Environmental Certificate

SCHEDULE TO THE ENVIRONMENTAL CERTIFICATE

1. CONTACT : Mr. Gordon Nixon
(The Chief Executive)
2. COMPANY : Newmont Ghana Gold Limited
825/26 Lagos Street, East Legon
PMB, Airport, Accra
3. FILE NO. : CM: 43/03
4. CERTIFICATE NO. : EPA/EMP/73
5. ENVIRONMENTAL CERTIFICATE FOR NEWMONT GHANA GOLD
LIMITED, AHAFO PROJECT SOUTH, BRONG AHAFO REGION

In pursuance of the Environmental Protection Agency Act 490 of 1994 (Section 2 (i) and 12(1), and the Environmental Assessment Regulations, LI 1652 of 1999 and on the basis of the published Environmental Management Plan (December 2007) an Environmental Certificate is issued authorizing **Newmont Ghana Gold Limited** to continue the Mining Project within the Ahafo, Project South Concessions, in the Asutifi District of the Brong Ahafo Region for the next three-year period (19th February 2008 to 18th February 2011)

6. Conditions of Certificate

- 6.1 Compliance with all the mitigation and other environmental measures outlined in the EMP.
- 6.2 Notify EPA of any major changes in the mining operation contrary to the information provided in the EMP.
- 6.3 Posting of reclamation bond within three months from the date of issuance of this certificate.
- 6.4 Submission of Annual Environmental Reports on the mining operation.
- 6.5 Submission of Monthly Environmental Monitoring Reports.

ANNEX III

Example Environmental Permit

Tel: (021) 664697 / 664698
662465 / 667524
Fax: 233 (021) 662690
Email: support@epaghana.org



Environmental Protection Agency
P.O. Box M 328
Ministries Post Office
Accra, Ghana

SCHEDULE TO THE ENVIRONMENTAL PERMIT

1.0 CONTACT : THE HEAD OF ENVIRONMENT

2.0 COMPANY : NEWMONT GHANA GOLD LIMITED
PRIVATE MAIL BAG
AIRPORT POST OFFICE
ACCRA

3.0 REGISTRATION NO. : CI 922/01/04

4.0 PERMIT NO. : CI 009220104

5.0 EIA ON PROPOSED OF REALIGNMENT OF KENYASI-NTOTOROSO ROAD AND CONSTRUCTION OF SUBIKA BYPASS ROAD

In pursuance of the Environmental Protection Agency Act 490 of 1994, {Sections 2(i) and 12(1)} and the Environmental Assessment Regulations, LI 1652 of 1999 and on the basis of the published project Environmental Impact Statement Addendum (June 2006), this Environmental Permit is issued authorizing the Newmont Ghana Gold Limited to commence the proposed of realignment of Kenyasi-Ntotoroso Road and Construction of Subika Bypass Road in the Asutifi District of the Brong Ahafo Region.

6.0 CONDITIONS OF PERMIT

6.1 **Commitment to project specifications**
Comply with all project specifications monitoring, mitigation and environmental management measures as indicated in the project Environmental Impact Statement (EIS). The project involves the realignment of Kenyasi-Ntotoroso Road and Construction of Subika By-pass Road. The project will entail the following activities:

- Construction of the Subika By-pass Road (5.2km)
- Upgrading of the of the Kenyasi-Ntotoroso Road (5.7km)
- Upgrading three existing roads/tracks to proper roads

6.2 **Location**

- The project is in the Asutifi District of the Brong Ahafo Region.

6.3 **Compensation**

- Provide agreed and adequate compensation to all legally affected property owners.

6.4 **Dust Management**

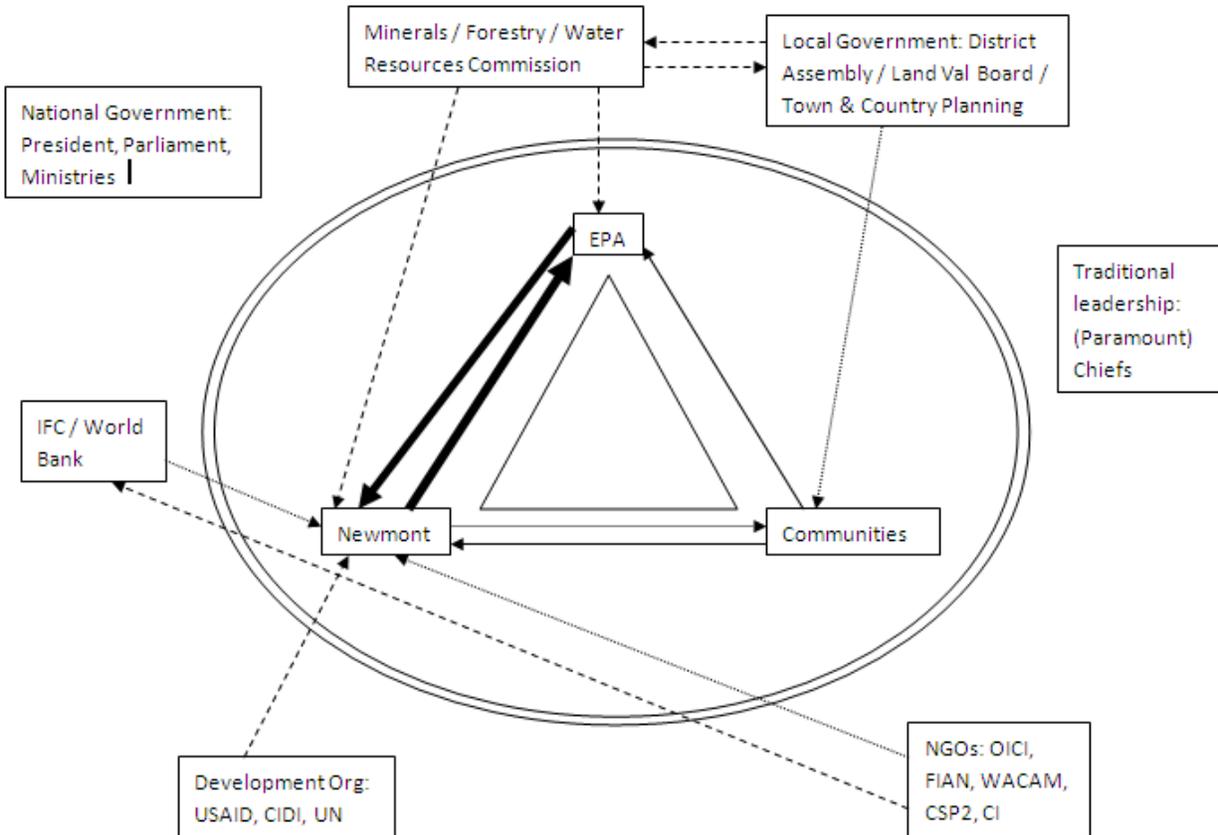
- Dust from construction activities and movement of vehicles should be minimized by frequent (possibly twice a day) watering of road surfaces and construction areas.
- Haulage trucks transporting sand and other friable material to and from construction sites must be appropriately covered and protected from dust emission.

6.5 **Hydrology/Water Quality**

- Protect all exposed surfaces to avoid erosion and siltation of water bodies.

ANNEX IV

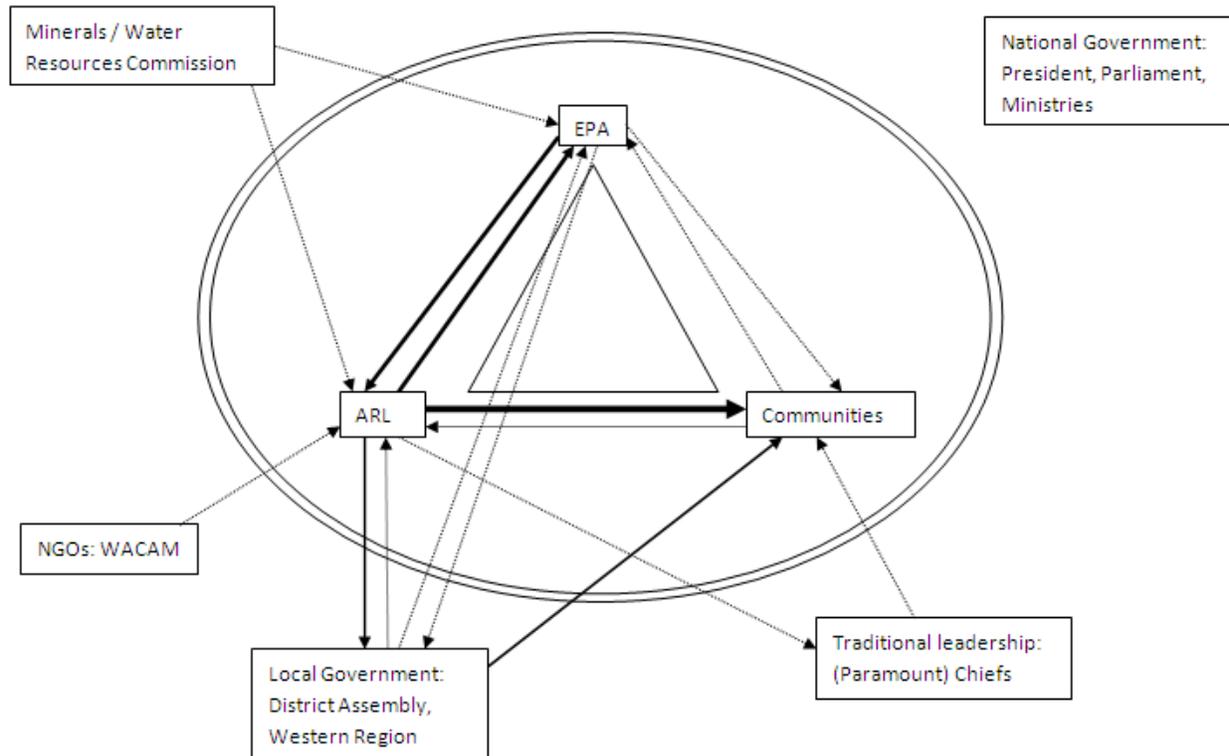
Network data for Newmont Ahafo South project



DCE to Min Com	26-3-2003 (total: 1) No objections raised to mining lease after 21 day publication, permit recommended
MinCom to NGGL/EPA/WRC/DCE	17-6-2008, 21-4-2009 (total:2) 1: Kenyase Ahafo mining area (1374 ha) approved
FIAN & CSP2 to IFC/Newmont	Late 2005 (total: 1)
NGGL to EPA	May 2006, 17-10-2006, 17-3-2007, 4-4-2007, 14-4-2007, 1-5-2007, 4-5-2007, 11-5-2007, 14-5-2007, 21-5-2007, 23-5-2007, 24-5-2007, 28-5-2007, 20-7-2007, 23-7-2007, 4-12-2007, 12-12-2007, 18-12-2007, 8-5-2008, 18-6-2008, july 2008, 6-8-2008, 22-8-2008, 20-10-2008, dec 2008, 23-2-2009, feb 2009, 13-3-2009, 17-4-2009, 15-5-2009, 29-5-2009 (total:31)
EPA to NGGL	11-9-2006, 8-1-2007, 2-4-2007, 14-4-2007, 2-5-2007, 9-5-2007, 24-5-2007, 26-6-2007 (2), 10-7-2007, 7-8-2007, 12-9-2007, 3-12-2007, 17-12-2007, 20-12-2007, 21-1-2008, 19-2-2008, 4-3-2008, 4-11-2008, 19-11-2008, 17 until 20-3-2009, 31-3-2009, 17-5-2009, 4-6-2009 (2) (total:25)
PAPs/NGOs to NGGL	24-4-2007, 26-2-2008, 18-6-2008, aug/sept 2008, 20-10-2008, 5-5-2009 (total: 6)
NGGL to PAPs	no explicit dates/reports of public hearings, indications in reports (Ind Ext Soc; RAP;EPA field visit memo's)
NGGL to NGOs	Dec 2008, 31-1-2009 (total:2)
IFC to NGGL and vice versa	No explicit dates, but since loan was granted it is inferred contact takes place

ANNEX V

ARL network data



EPA to ARL (Total: 11)	31-5-2007 (review comments on EIS), 12-12-2008 (EP issued), 21-10-2008 (Notification: bypass requires EIS), 29 until 31-3-2010 (EPA field visit), 26-5-2010 & 9-6-2010 (2 public hearings), 17-6-2010 (EP water use granted), 5-7-2010 (review comments EPA), 8-10-10 (EP water use issued), 17-11-2010 (confirmation of receipt RAP), 20-12-2010 (EP bypass issued)
ARL to EPA (Total: 11)	4-10-2006 (scoping report + ToR), 23-10-2009 (permit application), Jan 2010 (suppl EIS bypass), 8-4-2010 (reclamation plan), 11-5-2010 (AER), 1-7-2010 (reclamation security agreement), 20-8-2010 (EMP), Sept 2010 (resettlement update), 15-10-2010 (construction water abstraction started), 19-10-2010 (commencement mining), 2-11-2010 (resettlement update)
EPA to PAPs (Total: 3)	29 until 31-3-2010 (field visit), 26-5-2010 & 9-6-2010 (public hearings)
ARL to PAPs (Total: 17)	T-Bokazo: 20-10-2009 (meeting equipment transportation), 2-11-2009 (letter power access survey), 9-11-2009 (meeting hosted at & by DA in response to community meeting), 11/12-11-2009 (MoU signed), 2-7-2010 (meeting resettlement) (Total: 5) Nkroful: 20-10-2009 (meeting equipment transportation), 23-10-2009 (meeting equipment transportation) (Total: 2) Dominase: 7-10-2009 (water pipelines and pumping station) (Total: 1) Bokro: 8-10-2009 (water pipelines) (Total: 1) Kikam: 9-11-2009 (powerline & bypass) (Total: 1) Salman: Oct 2006 (scoping consultation), 22-5-2010 (resettlement agreement signed), 25-8-2010 (intervention Western Region Minister; MoU drafted), 8-9-2010 (inauguration resettlement negotiation committee), 27-9-2010 & 29-9-2010 (concerns on MoU), 28-10-2010 (MoU signed) (Total: 7)
PAPs to EPA (Total: 1)	19-5-2010 (Nkroful asks to meet with EPA after public hearing)
PAPs to ARL (Total: 2)	4-11-2009 (T-Bokazo asks second letter on power line for consideration), 22-7-2010 (Salman

	community stops construction due to concerns of section of community)
DA to PAPs (Total: 6)	24-9-2009 (invitation T-Bokazo and Nkroful to meeting on equipment transport), 28-9-2009 (meeting is postponed), 20-10-2009 (DA hosts meeting T-Bokazo, Nkroful and ARL), 25-8-2010 (Western Region Minister intervenes between ARL & Salman), 27-9-2010 & 29-9-2010 (DA hosts meeting ARL Salman)
DA to EPA (Total: 1)	20-4-2010 (letter water tapping notification published, consultative meeting stakeholders should be held prior to commencement of operation)
DA to ARL (Total: 1)	24-9-2009 (invitation meeting equipment transport)
ARL to DA (Total: 5)	26-10-2009 (bypass design still being deliberated), 2-11-2009 (letter power access survey), 9-11-2009 (meeting at DA with T-Bokazo on letter/community meeting), 13-11-2009 (Consultative Committee Meeting), 25-8-2010 (Western Region Minister intervenes between ARL Salman; invited by ARL?)
EPA to DA (Total: 1)	10-5-2010 (invitation to public hearing)
Paramount Chiefs to chief of Nkroful (Total: 1)	14-11-2009 (Paramount Chiefs offered service to ARL at Consultative Committee Meeting to talk to chief of Nkroful to convince him to accept ARL's proposal)