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Explaining EIA performance in the water sector in Ghana

The role of capacities of the main actors

MASTER THESIS

Gabi Sonderegger
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Supervisors

Dr. Guus van Westen
Prof. Dr. Peter Driessen

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Master thesis

How is EIA performance in the water sector in Ghana influenced by capacities of the main actors involved and how are these capacities influenced by the context of the EIA system?

Gabi Sonderegger

Student #: 3621847

Email: G.sonderegger1@students.uu.nl

Utrecht University, Faculty of Geosciences

Sustainable Development Master Program

International Development track

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Supervisors: Dr. Guus van Westen

Prof. Dr. Peter Driessen

Second reader: Dr. Maggi Leung

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ABSTRACT

Through informed and participatory decision-making processes on large projects, Environmental Impact Assessment (EIA) has the potential to contribute to sustainable development. EIA performance is often found to be weak in developing countries. The question arises whether the ambitions for the EIA system in those countries fit with the capacities of the actors involved in EIA, as well as with the local context of the EIA system. Capacity development initiatives are common, but often they do not tackle the underlying constraints of EIA performance. Even though it is essential for developing effective interventions for increasing the EIA performance in those countries, a thorough comprehension of EIA performance and the elements influencing it often is limited. Ghana has a highly ambitious EIA legislation in place. It is thus an interesting country to study EIA performance. This research seeks to contribute to a better understanding of EIA performance in Ghana and the way this EIA performance is influenced by actor capacities and the context of the EIA system. A framework has been developed to assess EIA performance comprehensively with the help of case studies. The research was focused on the water sector as a public sector in Ghana. Two water projects were selected and their EIA process was studied in detail. Results revealed that the ambitious goals for EIA in Ghana are only partly achieved in practice for the water sector. The EIA follow-up was found to be particularly weak. Knowledge, resources and network capacities were found to be essential for determining the quality of the information that arises from the EIA process. Furthermore, the actors' commitment to EIA goals and the power-relations between the involved actors determine if this information is used in decision-making processes regarding the project and if they are implemented in practice. The context of the EIA system was found to be highly influential on these decision-making processes and needs to be increasingly considered for the development of effective strategies to enhance EIA performance.

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LIST OF ABBREVIATIONS

BPA	Bui Power Authority
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ERM	Environmental Resource Management
GWCL	Ghana Water Company Limited
NCEA	Netherlands Commission for Environmental Assessment
NGO	Non-Governmental Organization
SEA	Strategic Environmental Assessment

1 INTRODUCTION

1.1 Problem description

Environmental Impact Assessment (EIA) is a tool to evaluate significant effects on the environment that are likely to arise from development activities in the form of major projects (Wood 2003b). The main goals of EIA are to achieve informed and participatory decision-making processes in the short run and environmental protection in the long run (Kolhoff, Runhaar et al. 2009). The institutionalization of EIA has been increasingly perceived as an instrument for integrating environment and development at all levels and for achieving sustainable development (UNECA 2005). As a result, EIA systems have been legally established in most developing countries during the last 20 years. Best practice models based on the EIA system in western democratic countries were often used as a starting point for doing so (Kolhoff, Runhaar et al. forthcoming). However, despite the large investments of international donors, the performance of EIA system in developing countries remains generally weak in terms of goal achievement (Kolhoff, Runhaar et al. 2009; UNECA 2005; Kolhoff, Runhaar et al. forthcoming; Wood 2003a). Hence, it remains still questionable to what extent EIA approaches developed in western countries are suitable to be promptly and effectively transplanted to developing countries without considering their country-specific context. Thus, effective interventions to enhance the performance of EIA systems in developing countries are essential to increase their potential for contributing to sustainable development.

Kolhoff, Runhaar et al. (forthcoming) hypothesize that “the performance of the EIA system can partly be explained through the fit between on the one hand the context and capacities and on the other hand the EIA ambitions that have been set.” (p. 14). Following this argument, a possible explanation for the weak EIA performance in developing countries is the establishment of overly ambitious EIA legislations whose objectives cannot be achieved in the light of a constraining context and limited actor capacities.

According to Eisinger (2002), capacity is for this research defined as the set of attributes that helps an actor to achieve formal goals. Following these definitions, it can be assumed that limited capacities of actors involved in the EIA process can constrain the extent to which goals of EIA are achieved and thus limit the performance of an EIA system. Oppositely, capacity building can be essential for improving EIA system performance by improving the abilities of actors to achieve their objectives.

As capacity constraints are seen as most acute in the developing world and the EIA system performance in these countries appears generally low, capacity building efforts in developing countries are increasingly in the focus of international attention and activity. The pressing needs of developing countries for building capacity for impact assessment have specifically been emphasized by the Marrakech Declaration of the International Association for Impact Assessment (IAIA) (Sadler 2003). However, despite these efforts, little seems to be known on how capacities actually influence the performance of the system. Exploring the relation between capacities and organizational effectiveness, White et al. (2005) fail to find a significant overall relationship between capacity and effectiveness, although certain elements of capacities appear to be relatively more important than others in this respect. Similarly, Brown, LaFond et al. (2001) identify several knowledge gaps regarding this issue, such as the lack of understanding of the nature of this relationship, of the relative importance of individual capacity elements to performance and of the influence of contextual factors on capacities and performance. Therefore, in order to be able to develop effective interventions for increasing EIA performance in developing countries, a more detailed understanding of the influence of capacities on EIA performance is required.

Ghana is an example of a developing country with a highly ambitious EIA legislation in place (Kolhoff, Runhaar et al. forthcoming), taking into account environmental, social, cultural as well as economic impacts of planned projects. Yet, the country faces many environmental and social problems resulting from such economic activities. Having the fastest growing economy in Sub Saharan Africa in 2011 (World Bank 2012), Ghana has recently been upgraded to a low-middle income status. Its economic growth is mostly concentrated in natural-resource dependent sectors, such as mining or agriculture. The natural resources of the country however are diminishing at an alarming rate due to such economic activities. Their degradation in quality as well as quantity pressures the livelihoods of a major part of Ghana's population, which depends on these assets. Furthermore, it is a major threat to Ghana's future growth potential and thus the country's potential for poverty reduction (World Bank 2007; Van Roosbroeck, Amlalo 2006). Therefore, despite the presence of an ambitious EIA system, negative environmental and social impacts of economic activities remain major challenges to achieve sustainable development in this country. It is thus contestable if in Ghana the highly ambitious EIA objectives are achieved in practice.

Ghana is a country that is rich on water resources. The government of Ghana uses these resources to increase the wealth of the country and to improve the living conditions of the

people. In the past years, it developed large scale projects to increase the drinking water situation in urban areas. Moreover, hydro dams are seen as a major source of power to satisfy the increasing demand for electricity in this county. However, such projects often come along with major impacts on the environment and the people living in the affected areas. A well performing EIA system is thus important to minimize the negative impacts associated with these projects (World Bank 2007; Van Roosbroeck, Amlalo 2006).

As in other developing countries, capacity constraints of the actors involved in the EIA procedures are also in Ghana commonly seen as a major challenge to the effective application of EIA (UNECA 2005; World Bank 2007; Van Roosbroeck, Amlalo 2006). Van Roosbroek and Amlalo find that many environmental institutions in Ghana lack the capacities to fulfill their functions. This concerns institutions of various fields such as policy formulation, environmental management, monitoring and enforcement of environmental regulations. The main EIA authority in Ghana, the Environmental Protection Agency (EPA), appears to be one of those institutions as it was concluded in their Annual Report that “resources and logistical constraints continue to affect the operations of the Agency in carrying out its mandate and implanting programmes” (EPA 2010a, p. 6). The influence of capacities on the EIA follow-up performance (further explained in chapter 3) in Ghana seems of particular concern. One of Van Roosbroek and Amlalo’s main recommendations with respect to the institutional framework in Ghana is thus to “build capacity to monitor, enforce regulations and ensure compliance” (2006, p.14). The EPA further identifies a clear need for developing mechanisms to monitor the compliance the increasing number of undertakings which have been permitted, as otherwise the EPA’s regulatory mandate could be weakened (EPA 2010a).

Following these arguments, capacity building of the main actors involved in the EIA process seems to be key for increasing the performance of the EIA system in Ghana and thus for ensuring that the ambitious goals of the EIA legislation are achieved in practice. However, as very little is known about the relationship between capacities and performance yet, it is essential for the development of successful capacity building strategies to first gain a more detailed understanding of EIA performance in Ghana in general and of how it is influenced by different actor capacities and context factors.

1.2 Research objectives and research questions

This research thus intends to address the above mentioned knowledge gaps on EIA performance in Ghana. The water sector is chosen to be in the focus of this study (sector selection criteria are presented in section 4.3).

The main objectives of this Master thesis research is thus to contribute to a better understanding of the performance of EIA in the water sector in Ghana and the way it is influenced by the capacities of the main actors involved and the context of the EIA system.

Reflecting the main objectives of the research, the main question guiding this research reads as follows:

How is EIA performance in the water sector in Ghana influenced by capacities of the main actors involved and how are these capacities influenced by the context of the EIA system?

The main research question is of an explanatory nature. It implies that EIA performance is to be explained with respect to the capacities of the EIA system. In order for it to be answered, EIA performance firstly has to be assessed in detail. This implies that answering the main question also requires an evaluative component of the research. The sub-questions below specify the main research question and illustrate its evaluative and explanatory sides:

1. For the water sector in Ghana, how does the EIA system perform with respect to the different EIA process stages? (*evaluative*)
2. Which capacities of the main actors involved are of relevance for explaining EIA performance of the water sector in Ghana? (*explanatory*)
3. How do those capacities influence EIA performance of the water sector in Ghana? (*explanatory*)
4. Which context factors are of relevance for explaining EIA performance of the water sector in Ghana? (*explanatory*)
5. How do those context factors influence EIA performance of the water sector in Ghana via actor capacities? (*explanatory*)

The first sub-question refers to the evaluative part of the research where the EIA performance is thus assessed through highlighting strong and weak elements throughout the different EIA process stages identified in section 4. Thereafter the revealed EIA performance elements are explained through identifying capacities and context factors that influence EIA performance and by determining how they do so.

1.3 Context of the research

This Master thesis research took place in the context of a 6 month-internship at the international department of the Netherlands Commission for Environmental Assessment (NCEA), of which Ghana is one of the main focus countries. The NCEA works in close cooperation with the EPA in Ghana, providing advisory services and assistance in capacity development programs.

This research is conducted in close cooperation with fellow Bart van der Leest from the Master program track 'Environmental Governance'. The framework used for this research is a combined effort of both of us. It is important to notice that the EIA performance part of the framework has been developed by the author of this thesis, while the capacity section of the framework was the effort of Bart van der Leest. This thesis thus has an emphasis on EIA performance, especially with respect to its literature review.

1.4 Thesis outline

The set-up of this thesis starts with introducing the EIA system in Ghana in Chapter 2. Thereafter in Chapter 3, a literature review is provided on EIA performance evaluation and knowledge gaps regarding it. Building on this knowledge on EIA performance, the conceptual model is then introduced in Chapter 4 and further operationalized. Then the researcher addresses the methods and techniques used to conduct field work in Ghana and to analyze the collected data. In Chapter 5, the case study-specific results are presented. The chapter provides a detailed overview of the results found for each of the two cases. For each case, the project is introduced, as well as the main actors involved in the EIA process. The EIA performance is then assessed qualitatively through describing the EIA procedures as well as the influence of EIA on decision-making processes. Finally, it is assessed the way capacities and context factors influence specific findings on EIA performance. In Chapter 6, findings regarding EIA performance of the water sectors in general are presented. This chapter provides insights on how the water sector performs in general and which capacities and context factors are of relevance for its EIA performance. In chapter 7, the results of the previous chapters are

discussed with respect to their relevance for the literature on EIA performance. Further, some recommendations are provided to enhance EIA performance in the water sector in Ghana. Finally, Chapter 8 closes with the summary of the findings and the conclusion of the study.

2 EIA SYSTEM IN GHANA

In 1973, the Environmental Protection Council was established in Ghana. It was the first governing body on environmental management in Africa (Appiah-Opoku 2001). In 1994, Ghana enacted the Environmental Protection Agency (EPA) Act, through which EIA was legally established. The EPA then became the main EIA authority. The EPA published and formally launched the EIA procedures of Ghana in July 1995. Thereafter amendments were made through the Environmental Impact Assessment Regulations. They came into force on the 24th of June 1999. In 2002 an amendment was made to the regulations from 1999. As part of the Ghana Environmental Assessment Capacity Development Program, environmental assessment sector-specific guidelines have been under preparation for eight sectors, among them the energy sector. In the following section, the ambitions of the EIA system are mentioned shortly and the main EIA procedures are described.

2.1 Ambitions of the EIA system

Kolhoff, Runhaar et al. (forthcoming) distinguish three main dimensions of the ambitiousness of EIA legislations: object of study in EIA, quality of information for decision-making and accountability of decision-making. They found that the EIA legislation in Ghana to be ambitious with respect to all three dimensions. Despite its general ambitiousness, two elements stand out concerning which the EIA system in Ghana was found to be considerably ambitious. Firstly, referring the object of study in EIA, a broad range of aspects is covered by EIA in Ghana. The following main goal of EIA in Ghana illustrates this as it refers to sustainable development rather than the environment only: “key objective of the environmental assessment system in Ghana is to promote sustainable development” (EPA 2010a, p. 16). In Ghana, not only environmental, but also social and economic impacts are considered to be part of EIA. Secondly, Ghana’s EIA regulations were found to be highly ambitious with respect to public consultations and thus the accountability of decision-making. Kolhoff, Runhaar et al. found that public consultation is secured in in all steps of the EIA process (ibid.).

2.2 EIA procedures

In the following section, the different elements of the EIA process in Ghana are elaborated on. It includes the registration for the project at the EPA, the procedures resulting in a report that identifies environmental and social impacts of the project and proposes measures to reduce or mitigate them, the decision-making process on the issuing of the environmental permit and finally the follow-up on the permit. The information on the EIA procedure is derived from the Environmental Assessment Regulations (EPA 1999) and Interviews with the staff of the Environmental Assessment and Audit department of the EPA in Ghana. For each EIA procedure, the main actors involved and the procedural outputs are listed.

EIA Application procedure

The EIA process starts with the proponent's registration of a planned undertaking (i.e. any activity, project, structure, investment, plan, program etc.) of which the implementation or development may have a significant impact on the environment or local communities. As for these projects an environmental permit has to be obtained, the project developers have to submit an EIA application to the EPA.

<i>Involved actors:</i>	<i>Proponent, EPA Regional Offices</i>
<i>Procedural outputs:</i>	<i>EIA registration document</i>

Screening procedure

The EIA system in Ghana distinguishes three levels of assessment; initial assessment, a preliminary assessment and a full assessment. Within 25 days from when a registration is received, the regional offices of the EPA take a decision regarding the appropriate level of assessment; the screening decision.

A cross-sectoral technical committee assists the EPA in this screening decision. It is based on information provided by the proponent in a starting document. The following criteria are considered for the decision:

- The location, size and output of the proposed undertaking
- The technology to be used
- Concerns of the general public
- Land use considerations
- Any other factors relevant to the particular undertaking

The screening decision is issued by the EPA in a screening report. It may be one of the following:

- Environmental permit is issued without any further impact assessment requested
- Environmental permit is declined without any further impact assessment requested
- Preliminary Environmental Assessment is required
- Full EIA is required

If a Preliminary Environmental Assessment is required, the proponent has to provide the EPA with a Preliminary Environment Report with more detailed information regarding the possible impacts of the undertaking. After consideration of the Preliminary Environmental Report, the EPA can issue an environmental permit for the undertaking or, in case of the expectation of significant adverse impacts, the EPA directs the proponent to conduct a full EIA.

<i>Involved actors:</i>	<i>Proponent, EPA (regional offices), cross-sectoral technical committee (regional)</i>
<i>Procedural outputs:</i>	<i>Starting document, Screening report, possibly Preliminary Environmental Report</i>

Scoping procedure

For projects which require a full EIA, the proponent has to undertake a scoping exercise of the proposed (alternative) site(s). This process involves consultations with interested and affected parties such as government officials and members of the public. The proponent is directed to advertise the project in at least one national newspaper and a local newspaper to inform the public about it. Concerns of the public are generally forwarded to the proponent directly, but the EPA makes sure that they are addressed as the following statement of the director of the Environmental Assessment and Audit department highlights : “once we send it to [the proponent], we will be looking out for answers.” (EPA HQ4)¹. The concerns of the consulted parties will be addressed in the Terms of Reference for EIA. The scoping procedure results in a scoping report (which includes the Terms of Reference) that is reviewed by the EPA and a technical review committee (a cross-sectoral panel of experts). Once the EPA head quarter

¹ When referencing to personal communication, interview codes are used. They indicate the respondent group and a specific number referring to the individual interview. In the Appendix II, more specific data is given on the type of interview, the function of the respondent(s) and the date of the interview

approves it, the proponent is mandated to proceed with EIA. The scoping report is made available for the public.

<i>Involved actors:</i>	<i>Proponent, EPA (head quarter, Technical Review committee), affected people and interested parties</i>
<i>Procedural outputs:</i>	<i>Scoping report with Terms of Reference</i>

Assessment procedure

As a next step, the proponent has to conduct a detailed EIA, based on the content of the scoping report. There are no methodological requirements for it. Regarding the content, the EIA regulations require the assessment of potential environmental, social, cultural, and economic impacts as well as transboundary impacts in relation to the different phases of the project life-cycle. In the course of gathering data for the assessment, a public information program has to be initiated by the proponent aiming to fully inform the local residents about the potential impacts of the undertaking. As an output of the assessment procedure, the proponent is directed to submit a draft EIS to the Environmental Assessment and Audit department of the EPA.

The draft EIS is has to be published for 21 days so that the public can express their concerns. If strong public concerns over the undertaking are indicated and the impacts are far reaching and extensive, the EPA decides to hold a public hearing. For very sensitive issues the Environmental Assessment and Audit department of the EPA can decide that a public hearing should already be held in the scoping phase. The EIS is then reviewed by the regional office of the EPA and the technical review committee. Result of this reviewing process is a review document that contains recommendations regarding the strengths and weaknesses of the report, potential needs for further studies, required impact monitoring, and conditions that should apply if the approval of the project is granted. It is submitted to the Executive Director of the EPA or director of the Environmental Assessment and Audit department of the EPA for quality assurance and the final decision on the review comments that are sent to the proponent. The Environmental Assessment and Audit department of the EPA head quarter then decides whether an adaptation or revision of the EIS is required or whether an environmental permit can be issued.

<i>Involved actors:</i>	<i>Proponent, EPA (EPA regional office, Environmental Assessment and Audit department of EPA head quarter, technical review committee, affected and interested parties)</i>
<i>Procedural outputs:</i>	<i>EIS, Review report</i>

Environmental permit procedure

In Ghana, EIA is linked to the environmental permitting system, as project approval decisions should be based on preliminary or full EIA. In general, the Executive Director of the EPA is responsible for the decision on the environmental permit and its conditions. He can, however, give his mandate to the director of the Environmental Assessment and Audit department. It is not specified in the EIA regulations on which criteria the final decision on the environmental permit should be based and thus to what extent the EIS should influence the decision on the environmental permit. In general, no external experts are consulted for the environmental permit decision making process, merely internal experts of the EPA.

The decision on the environmental permit is published. If positive, it results in a (preliminary) environmental permit which includes permit conditions. This environmental permit is valid for 18 months. In case of failure to commence operation of the undertaking within 18 months, the environmental permit will become invalid and a resubmission of the application to the EPA is required.

<i>Involved actors:</i>	<i>EPA (head quarter)</i>
<i>Procedural outputs:</i>	<i>Environmental permit</i>

Compliance monitoring procedure

The EIA regulations in Ghana require the monitoring of the project implementation. The monitoring regimes and parameters are, however, defined in permitting schedules on a case by case basis. Firstly self-compliance is expected from the proponent. In general, the proponent is required to submit a (provisional) Environmental Management Plan to the EPA within 18 months of the commencement of the activities and thereafter every three years. The Environmental Management Plan shall set out steps that are intended to manage any significant impacts that may result from the operation of the undertaking. Moreover, an Annual Environmental Report should be submitted to the EPA after 12 months and every 12 months thereafter. These deliverables have to be approved by the Environmental Assessment

and Audit department of the EPA head quarter (for water projects). Further EPA regional offices are mostly responsible for monitoring processes in the field.

<i>Involved actors:</i>	<i>Proponent, EPA (head quarter, regional offices)</i>
<i>Procedural outputs:</i>	<i>Environmental Management Plan's, Annual Environmental Report's</i>

Environmental certificate procedure

Within 24 months of the date of commencement of operations, the EPA will possibly regularize the (provisional) environmental permit by issuing an environmental certificate for the undertaking. The environmental certificate is issued only if the proponent has provided evidence or confirmation to the EPA of

- the actual commencement of the operations
- acquisition of other permits and approvals where applicable
- compliance with mitigation commitments indicated in the EIS or Preliminary Environmental Report

and if the proponent has submitted the first Annual Environmental Report.

<i>Involved actors:</i>	<i>Proponent, EPA (head quarter)</i>
<i>Procedural outputs:</i>	<i>Environmental certificate</i>

Compliance Assurance procedure

The compliance assurance procedure is an important component of the EIA process in Ghana. It concerns the enforcement of the regulations of all EIA procedures described above. It is, however, of importance during the EIA follow-up stage. The EPA may revoke an environmental permit / environmental certificate if the holder of the environmental permit / environmental certificate

- fails to obtain any other required authorization in relation to his undertaking before the commencement of operation;
- is in breach of any provision of any regulations relating to EIA;
- fails to make the required payments addressed in the EIA regulations on the due date;
- acts in breach of any conditions to which his environmental permit or environmental certificate is subject; or
- fails to comply with the mitigations commitments in his EIS or Environmental Management Plan

Further the EPA may suspend an environmental permit or environmental certificate if fundamental changes in the environment occur due to natural causes before or during the project implementation. Complaints of aggrieved people can further trigger the suspension of an environmental permit or environmental certificate.

<i>Involved actors:</i>	<i>EPA (Environmental Assessment and Audit department of EPA head quarter, EPA regional office)</i>
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<i>Procedural outputs:</i>	<i>-</i>
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3 EIA PERFORMANCE EVALUATION

3.1 *Performance and effectiveness of EIA*

More than four decades after the introduction of EIA in the US, the review of EIA practice is a major issue in EIA studies. Two main concepts are used when reviewing the success of EIA: performance and effectiveness. Sadler (2004) describes them as two interlocked concepts that are broad “indicators of the extent to which this process achieves its stated aims or meets internationally accepted principles.” (p. 249). Similarly, Kolhoff, Runhaar et al. (2009) define performance of an EIA system in terms of achievement of EIA objectives, which generally are defined as informed and participatory decision-making processes in the short run and environmental protection or sustainable development in the long run.

Sadler mentions that the notion of EIA performance emphasizes the outcomes of the EIA in terms of realizing environmental goals, while the notion of effectiveness in the context of EIA rather describes the manner of performance. Effectiveness of EIA thus refers to the extent and way the procedural requirements for EIA are met and to whether or not the EIA process has reached its substantive purpose. Focusing on the notion of EIA effectiveness, Sadler (1996) distinguished three types of environmental assessment effectiveness:

- *Procedural effectiveness*: Does the EIA process comply with the established provisions and principles?
- *Substantive effectiveness*: Does the EIA meet its purpose(s) and objectives; e.g support informed decision-making (short-term aim) and achieve environmental protection or sustainable development (long-term aim)?
- *Transactive effectiveness*: Does the EIA process deliver these outcomes efficiently (at lowest possible costs and with a minimum delay)?

It is important to notice that a distinction has to be made between the quality of the information delivered by the EIA (referring to procedural effectiveness) and its degree of influence on decision-making processes (referring to substantive effectiveness). While the quality of the information can be linked directly to the procedural effectiveness of the EIA system, the influence of EIA on decision-making is indirect, issue-specific and affected by the political culture surrounding it (Sadler 2004).

The definitions mentioned above lead up to the way EIA performance is defined for this research. The overall EIA performance is defined in terms of the achievement of EIA goals. The effectiveness of the EIA system is considered to be an indicator for the overall EIA performance in practice.

3.2 Types of EIA performance evaluation studies

A wealth of literature has emerged in which the effectiveness and performance of EIA systems is evaluated in developed as well as developing countries. In this literature, the issue is approached from different angles. Several ways for assessing EIA performance can thus be distinguished. This section introduces different types of EIA performance evaluation studies and identifies knowledge gaps within them.

Emmelin (1998) categorizes EIA performance assessment studies along two dimensions. Firstly, he makes a differentiation between studies that focus on the EIA system itself or on its implementation structures. Secondly, he makes a distinction between a theoretical or practical focus of the evaluation studies. The ones that evaluate the theoretical performance of the EIA system concentrate on the system's design to operate, while the ones that focus on its practical performance assess its actual way of operating. As shown in Figure 1, Emmelin identifies four categories of EIA evaluation studies.

Figure 1: Categories of EIA performance evaluation studies

FOCUS ON EIA SYSTEM	
<i>'theory'</i>	<i>'practice'</i>
1. Ideal types	2. EIS quality
4. Organizational and professional culture	3. Case studies
FOCUS ON IMPLEMENTATION STRUCTURES	

(Source: Emmelin, 1998)

The **first category** consists of approaches that evaluate the design of EIA systems from an administrative point of view. This is done by the establishment of evaluation criteria on theoretical 'ideal types' of EIA system. The international review work by Christopher Wood (Wood 1995; Wood, Coppell 1999; Ahmad, Wood 2002) provides illustrative examples of this category. The framework to measure the ambitious level of an EIA legislation developed by Kolhoff, Runhaar et al. (forthcoming) is a recent study that can be allocated to this category. Approaches representing the **second category** then evaluate EIA documentation against the ideal type criteria for 'good' practice. Studies of this category, which mostly are focusing on report quality, are numerous (e.g. Androulidakis, Karakassis 2006; Annandale 2001; Lee, Colley 1991). For these approaches, performance is primarily defined in terms of what Sadler (1996) denotes as procedural effectiveness. To be procedurally effective means that accepted principles and regulation are met; this thus refers to the extent to which the EIA legislation is applied in practice. The **third category** focuses on the evaluation of the practical implementation of EIA with the help of case studies such as done by Sadler (1996). Rather than looking at the quality of the EIA process, performance is then assessed with respect to its substantive effectiveness. To be substantively effective refers to the achievement of established objectives of the EIA system through the application of the EIA procedures. Finally, studies allocated to the **fourth category** attempt to understand the functioning of the system in the context of organizational and professional culture. Kolhoff, Runhaar et al. (2009) propose that this fourth category further comprises of studies focusing on capacities and/or the context of the system. Van Loon et al. (2010) use this approach for their study on EIA system capacities in Yemen.

It is important to notice that evaluation studies in EIA performance can be a combination of the four approaches as categorized by Emmelin (1998). The study of Barker and Wood (1999) illustrates this. Their evaluation on the performance of the EIA process in eight EU countries consists of a broad review of the EIA report quality as well as of a case study analysis regarding project modifications. They thus combine approaches of the second and third category.

The literature review on the different types of EIA performance evaluation studies indicates that some approaches are prevailing in the literature. Because those different types enhance the general understanding about different elements of EIA performance, the underrepresented approaches indicate knowledge gaps on this issue. In the following section, such gaps are highlighted.

As indicated above, Category 2 and Category 3 assess performance each with respect to a specific type of EIA effectiveness. Studies allocated to Category 2 focus on procedural effectiveness. Category 3 refers to substantive effectiveness of EIA. Cashmore et al. (2004) and Hilding-Rydevik (2006) find that, even though the theme of effectiveness had been central in evaluation studies ever since Sadler has introduced this term, research has focused overwhelmingly on procedural effectiveness. Thus, remarkably little empirical research is available regarding the substantive outcomes of EIA as well as SEA (Runhaar, Driessen 2007). The little data available indicates that EIA usually contributes merely moderately to decision-making processes. This accounts for design as well as consent decisions (Barker, Wood 1999; Cashmore, Gwilliam et al. 2004; Wood, Jones 1997). Thus, even though the commonly accepted short-term goal of EIA is to contribute to informed decision-making, the actual influence of EIA on decision-making has merely been revealed as moderate. Reflecting the findings of a broad literature on EIA performance, Hilding-Rydevik (2006) concludes that the “link between EIA and decision-making seems to be one of the main deficiencies in EIA performance in most national EIA systems” (p. 27). It is thus of importance to devote greater research attention to the substantive outcome of EIA.

Category 4 refers to studies of EIA performance that focus not only on the performance component of EIA but also on the factors that influence it. In chapter 1 a lack of such thorough studies on EIA performance has been identified, even though this knowledge is important for developing efficient capacity development efforts.

Finally, another criterion to categorize EIA performance studies is their scope, referring to the stages of the EIA process that are considered when assessing EIA performance. Sadler (2004) concludes that a comprehensive, “whole process” approach is required for assessing the performance of EIA, i.e. from the start of EIA until the project implementation. Such an approach seems especially important if substantive effectiveness of the EIA system is studied (Marshall, Arts et al. 2005). Thus there is a need for considering EIA follow-up when assessing EIA performance. EIA follow-up relates to components of the project life-cycle after the consent decision on the environmental permit has been taken (Arts, Caldwell et al. 2001). Morrison-Saunders and Arts (2004) define it as “The monitoring and evaluation of the impacts of a project or plan (that has been subject to EIA) for management of, and communication about, the environmental performance of that project and plan.” (p. 4). Arts, Caldwell et al. (2001) reveal that despite a prevailing recognition of the importance of EIA follow-up to achieve the objectives of EIA, in practice “such follow-up in the post-consent decision stages is

performed in only a minority of cases. This seems to be a weak point of EIA practice in most jurisdictions and it appears that EIA is not being used to its full potential.” (p.177). Hence, when assessing the substantive effectiveness of EIA, it is essential to consider the influence of EIA follow-up on decision-making processes regarding the actual project implementation. As most literature on EIA follow-up has emerged from developed countries, there is a knowledge gap regarding literature on EIA follow-up in developing countries. These countries are expected, however, to face particular challenges in this process (especially with respect to capacities of the actors involved) and thus it is of importance to further investigate in the EIA follow-up process in these countries (Kolhoff, Runhaar et al. 2009; Arts, Caldwell et al. 2001).

3.3 Knowledge gaps on EIA performance

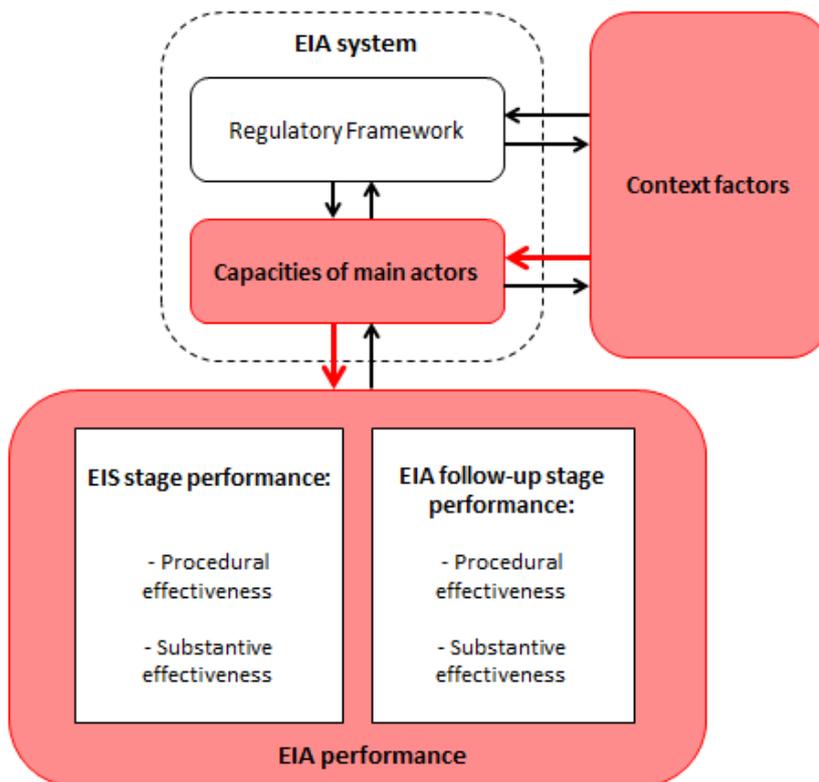
The previous section identified several knowledge gaps of existing literature on EIA performance. The review of EIA performance evaluation studies with regard to the categorization scheme provided by Emmelin (1998) indicates that performance studies focusing on implementation structures are generally underrepresented. With respect to practical performance, there is a clear lack of studies considering the substantive outcomes of EIA. Further, the influence of capacities on EIA performance is mostly neglected, even though its consideration is essential to gain a comprehensive understanding of EIA system performance. Finally, little literature is available regarding EIA follow-up in developing countries, even though a comprehensive approach, which takes into account various stages of the EIA process to study EIA performance, is essential. This research is intended to address these identified knowledge gaps on EIA performance. It thus combines several of the discussed approaches to study EIA performance comprehensively. Hence, EIA performance is studied thoroughly through the use of a practice-oriented case study approach. The influence of actor capacities and context factors on performance is the focus of this study. For assessing EIA performance, procedural as well as substantive effectiveness is taken into account. Further, a “whole process” approach is chosen that also considers EIA follow-up. These criteria to define the research scope and content are used as building blocks for the development of the conceptual model for the research presented in the following chapter.

4 METHODOLOGY

4.1 Conceptual model and research approach

The conceptual model presented below indicates how EIA performance is defined for this research, which factors are assumed to influence it and how they relate to each other. Its general design is based on the conceptual model of Kolhoff, Runhaar et al. (2009) on the factors that influence EIA performance in developing countries, while the EIA performance component is derived from the literature review. The individual components are defined and operationalized in the following sections. The research questions presented in section 1.2 imply that this research focuses on three components of the conceptual model; EIA performance, actor capacities and context, and the relations between them (they are marked in red).

Figure 2: Conceptual model of the research



For this research, **EIA system** is defined according to the definition of Kolhoff, Runhaar et al. (2009), which implies that an EIA system consists of the EIA regulatory framework and of the capacities of the actors involved. The EIA regulatory framework determines the objectives, ambitions and structure of the EIA system (ibid.). With respect to the actors considered as part of the EIA system, a rather narrow scope of the EIA system is applied. The following main actor groups were considered as main actors of the EIA system:

- *EIA authorities* (key government institutions responsible for the EIA-related procedures and consent decisions)
- *Proponent* (proponent of the project and the institutions directly working with him on the development or implementation project)
- *Affected people and communities* (people directly affected by the project including their direct traditional or local authorities)

Civil Society Organizations or knowledge institutions that support any of the main actors during the EIA process are considered to be external to the EIS system. Their potential influential role however is acknowledged and taken into account if applicable.

The capacities of the main actors of the EIA system are expected to influence the level of performance. As mentioned in chapter 1, **capacities** are defined for this research as the set of attributes that helps an actor to achieve formal goals. Chaskin (2001) as well as the UNDP (2009) distinguish three levels of agency where capacities can influence performance: the individual level, the organizational level, and the system or network level. The capacities at the individual level refer to the skills, experience and knowledge of each individual person involved in the process. The capacities at institutional and organizational level refer to the internal structure, policies and procedures that determine the effectiveness of an organization. And finally capacities occur at system level where regulations, policies, power relations and actor networks are present (UNDP 2009). All three levels are considered by the definition of capacity used for this research as the use of the term “actor” implies. The following table of Van der Leest (2012) provides an overview of the capacities that this research considers. Assessing EIA performance and explaining how it is influenced by capacities is the main goal of this thesis. It thus does not aim to determine an absolute level of capacities for each involved actor group. In order to understand the capacity-performance-relation it is however helpful to determine the relative level of capacities between the main actors of the EIA system. This is assessed with the help of practical examples from the case studies and with the indicator list developed by Van der Leest, presented in Appendix I (ibid.).

Table 1: Overview of capacities

Capacity	Definition
Power	The ability to achieve goals regardless of resistance, and regardless the source of this ability
Resources	The ability to mobilize monetizable assets to achieve goals (e.g. budget, man-hours, equipment)
Knowledge	The ability to use information relevant to goal attainment (e.g. whether knowledge is timely, available, of high or low quality, whether it is uniformly accepted or contested, and whether evaluation information and learning loops are available)
Leadership	The ability to actively focus on a group's agenda on goal achievement
Adaptability	The ability to achieve goals when (political) circumstances change incrementally
Ownership	The formal authority of actors as provided by their legal mandate, and the informal stakeholder motivation, volition and identity
Network	The ability to uphold relationships relevant for achieving goals (level of connectedness, the quality of connections, perceived legitimacy, accountability and visibility of the network)

(Source: Van der Leest 2012)

Kolhoff, Runhaar et al. (2009) find that **context factors** influence the EIA system in two ways: via the development of the regulatory framework and via the capacities of the main actors involved in the EIA system. As this research intends to investigate in the extent to which capacities influence to EIA performance, it is essential to also identify possible context factors that may have an effect on EIA performance via their influence on actor capacities. To identify the most important context factors that influence EIA performance for water projects was one of the sub-questions of the research. The context component of the research framework was not operationalized previously to the research. However, some context factors that were expected to be of importance for public projects in general, are mentioned in the following. Actor groups that are not directly involved in the EIA process but do influence the EIA performance indirectly, are considered as context factors. An example of such an actor group is the donor institution which funds the project. Projects funded by international donors are generally expected to have higher standards for EIA leading to a better performance of EIA. Furthermore, for public projects such as water projects it is expected that higher governmental institutions with an interest in the project can influence the EIA performance. Moreover, De Jong et al. hypothesize that the priority level of the project can influence its EIA performance (2012). Therefore media attention and the attitude of the public and the government are expected to influence the EIA performance as well. The final selection of context factors that

were found to be important for EIA performance in the water sector in Ghana, is presented in section 6.2.2.

The conceptual model indicates that for this research the **scope of the EIA process** is defined as rather broad, following the comprehensive “whole process” approach mentioned in chapter 2. Studying performance throughout the EIA process is favorable for this research, as it supports its overall goal which is to reveal the influence of capacities on performance. Different actors are present throughout the individual stages of the EIA process and their capacities thus influence different EIA performance elements. To make the scope explicit, different stages with respect to the project life-cycle are distinguished during which EIA is assumed to have an influence on decision-making processes. This research adapts the categorization of the EIA process as proposed by Morrison-Saunders and Arts (2004), which differentiate two stages within the EIA process based around the principal consent decision regarding the approval of a project: the pre-consent decision stage and the post-consent decision stage. The pre-consent decision stage relates to the components of the EIA process prior to the environmental permit decision and the project implementation. It thus comprises the EIA procedures up to the moment when the EIS is finalized. Secondly, the post-consent decision stage relates to components of the project life-cycle after the environmental permit decision has been taken (Morrison-Saunders, A. & Arts, J. 2004).

Within the present research, these stages are slightly adapted and named differently though. The pre-consent decision stage is hereby referred to as EIS stage and the post-consent decision stage is named EIA follow-up stage. As addition to Morrison-Saunders and Arts definition, the main consent decision-making processes during the EIA process in Ghana are considered to be part of two distinguished stages. This choice is made because the overview of EIA procedures in section 2.2 revealed that the same EIA authority that is involved in EIA procedures, also takes the consent decisions on the issuing of the environmental permit or the environmental certificate (Ghana-specific consent decision, see section 2.2). Hence it is expected that the consent decisions contribute to the EIA performance. Thus they are considered to be part of each of the preceding EIA process stage. The **EIS stage** thus includes all EIA procedures prior to the decision on the environmental permit, namely screening, scoping, assessment and review procedures as well as the consent decision on the environmental permit and its conditions. All main actor groups should be involved in the procedures leading to the EIS, while the EPA in Ghana is responsible for the issuing of the environmental permit. The **EIA follow up stage** refers to the EIA-related procedures that follow after the environmental permit has been

issued. It takes into account compliance-monitoring procedures as well as the enforcement of the environmental permit conditions. It includes decision-making processes regarding the issuing of the environmental certificate. All main actor groups ought to be involved in the monitoring procedures. The EPA is responsible for compliance enforcement and the decision on the environmental certificate.

As mentioned in section 1.1, **performance** of the EIA system is defined in terms of achievement of the main goals of EIA. The main objective of EIA relates to informed and participatory decision-making processes towards more sustainable projects. For assessing EIA performance, this research builds upon Sadler's (1996) notion of EIA effectiveness (see chapter 2). The performance of EIA is studied in terms of its procedural and substantive effectiveness. Considering the conceptual differences between the notions of performance and effectiveness of EIA mentioned in section 3.1, this study thus focuses on the manner of EIA performance. This approach is chosen because it takes into account performance elements throughout the whole EIA process. Procedural and substantive effectiveness can be operationalized and assessed for each of the two stages of the EIA process. **Procedural effectiveness** refers to the compliance level of the EIA practice with the procedural objectives set in the EIA legislation. **Substantive effectiveness** refers to the extent to which the EIA procedures contribute to the achievement of the general short-term objectives of EIA, namely informed decision-making that contributes to sustainable development in the long run. For this research, substantive effectiveness is only considered in terms of the achievement of the short-term objectives of EIA, not the long-term ones. Assessing the contribution of EIA to sustainable development is not feasible for this research. However, in order to assess the performance of an EIA system in terms of its contribution to informed decision-making towards more sustainable projects, it is important to identify the main decisions which the EIA procedures are intended to support and influence. During the EIA process, three main types of **decision-making processes** of the project proponent can be influenced by the EIA procedures:

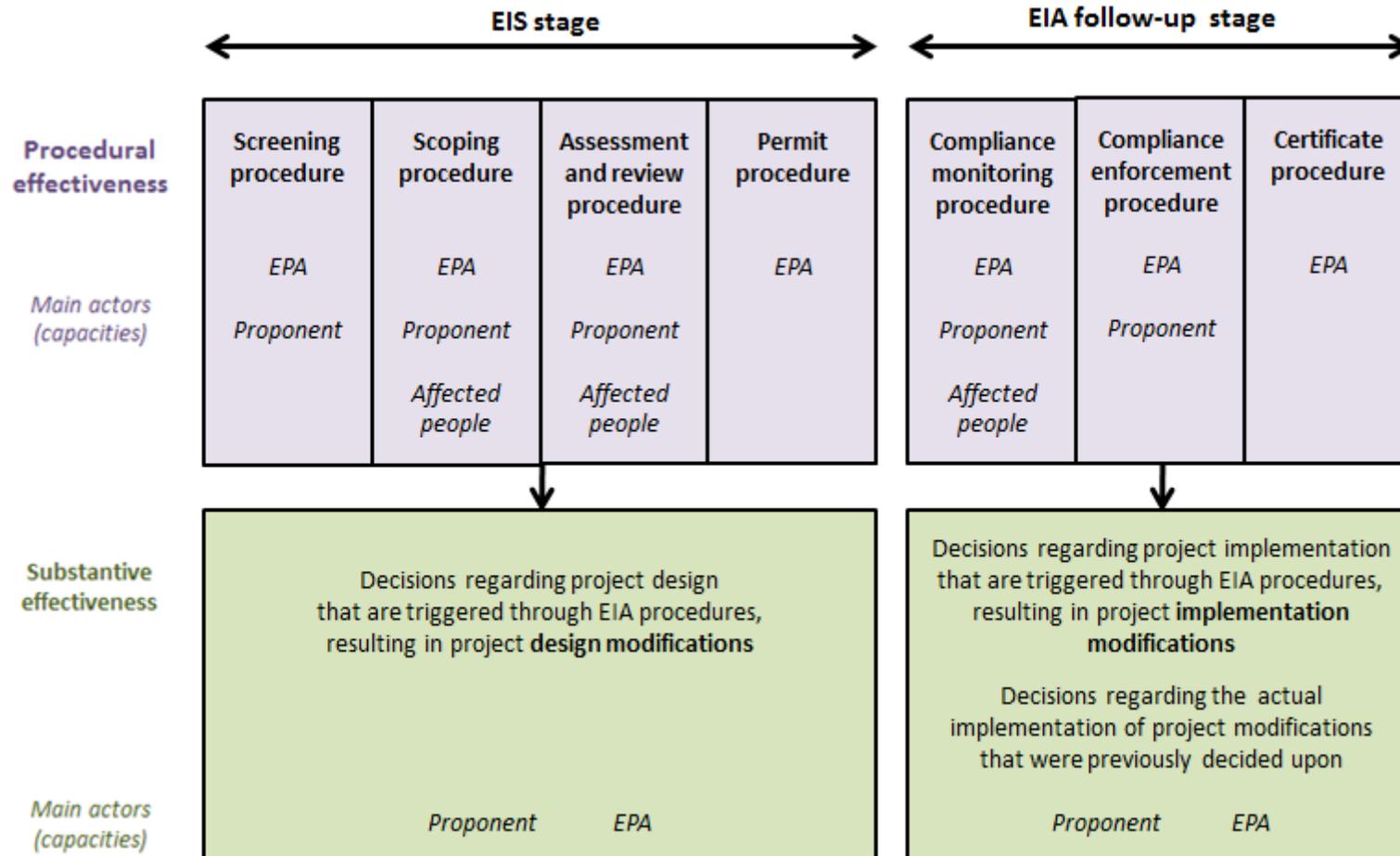
- 1) Decisions regarding the design of the project at issue that are triggered through EIA procedures, possibly resulting in project design modifications (during the EIS stage)
- 2) Decisions regarding the implementation of the project at issue triggered through EIA procedures, possibly resulting in project implementation modification (during the EIA follow-up stage)
- 3) Decisions regarding the practical implementation of project modifications that were previously decided upon (during the EIA follow-up stage)

Two main actor groups of the EIA system appear to be relevant for those decisions on project modifications: the project proponent and the EPA. The EPA can advise the proponent to change its project and the project proponent can decide to take this into consideration, or the EPA can force the proponent to change the project due to their legal mandate to issue the environmental permit and environmental certificate. These decision-making processes are crucial to define substantive performance of the EIA system. Thus indicators for substantive performance are derived from it. Furthermore, the following decision of the project proponent regarding the initial start of EIA is important to be studied when assessing the performance of EIA:

- 4) The initial decision regarding the registration for the EIA procedure and the timing of it during the project life cycle

Figure 3 illustrates the previous argumentations and presents the notion of EIA performance used for this research in more detail. It gives an overview of procedural and substantive effectiveness for each of the two EIA process stages. It displays which EIA procedures are relevant for each process stage, which actors are involved in it (whose capacities could thus influence EIA performance) and which decisions should be influenced by those EIA procedures.

Figure 3: Procedural and substantive effectiveness



Performance indicators

As argued above, EIA performance should thus be assessed separately for each EIA process stage. Furthermore, within each EIA process stage, procedural effectiveness as well as substantive effectiveness is considered in order to gain a comprehensive view on EIA performance. Thus indicators and sub-indicators were identified for both types of effectiveness. They are presented in Table 2. As this research uses a case-study approach, these indicators are project-specific.

These indicators are meant for a qualitative assessment of EIA performance rather than a quantitative one. The level of performance is not ought to be measured quantitatively, but to be determined by using on a descriptive approach based on qualitative data. Thus by describing performance for each of the indicators, EIA performance is assessed qualitatively. This approach is chosen since it is suitable to identify and determine the strengths and weaknesses of the EIA performance for detailed EIA procedures without losing sight of the bigger picture. The aggregation of results to a quantitative overall EIA performance level can bring along the potential risk of bias and losing sight of understanding the processes in detail.

Table 2: Project – specific EIA performance indicators

EIS stage:	EIA follow-up stage:
<p><i>Procedural effectiveness</i></p> <p><i>1. Execution and quality of EIA procedures during EIS stage:</i></p> <ul style="list-style-type: none"> - Execution and quality of screening procedure - Execution and quality of scoping procedure - Completeness and quality of EIS - Execution and quality of review procedure - Influence of EIS on environmental permit decision <p><i>2. Public participation during EIS stage:</i></p> <ul style="list-style-type: none"> - Execution and quality of public participation during the different procedures <p><i>3. Timing of EIA procedure</i></p> <ul style="list-style-type: none"> - Timely start of EIA procedure in the project decision-making cycle 	<p><i>Procedural effectiveness</i></p> <p><i>4. Execution and quality of EIA procedures during EIA follow-up stage:</i></p> <ul style="list-style-type: none"> - Execution and quality of compliance monitoring procedure - Execution and quality of compliance assurance procedure - Influence of monitoring outputs on environmental certificate decision <p><i>5. Public participation during EIA follow-up stage:</i></p> <ul style="list-style-type: none"> - Execution and quality of public participation during the different procedures
<p><i>Substantive effectiveness</i></p> <p><i>6. Project design modifications:</i></p> <ul style="list-style-type: none"> - Presence of environmentally and/or socially beneficial project design modifications due to EIA procedures <p><i>7. Necessity for project design modifications:</i></p> <ul style="list-style-type: none"> - Perceived necessity of environmentally and/or socially beneficial project design modifications - Presence of desired environmentally and/or socially beneficial project design modifications - Preventive effect of EIA procedures 	<p><i>Substantive effectiveness</i></p> <p><i>8. Project implementation modifications:</i></p> <ul style="list-style-type: none"> - Presence of environmentally and/or socially beneficial project implementation changes due to EIA follow-up procedures <p><i>9. Necessity for project implementation modifications:</i></p> <ul style="list-style-type: none"> - Perceived necessity of environmentally and/or socially beneficial project implementation changes - Presence of desired environmentally and/or socially beneficial project implementation modifications <p><i>10. Implementation of project modifications</i></p> <ul style="list-style-type: none"> - Implementation of project design modifications that were previously decided upon due to the EIA process

The indicators of procedural effectiveness comprise the executions and quality of the EIA procedures as well as the public participation procedures during the two stages of the EIA process. Further the timing of the EIA start is considered, referring to the third decision-making process above mentioned. The indicators on procedural effectiveness were mostly derived from the objectives for the different procedures as laid down in the EIA legislation of Ghana (EPA 1999). Further the selection and formulation of indicators was based on existing literature on the assessment of procedural effectiveness of EIA (e.g. the ambitions framework developed by Kolhoff, Runhaar et al. (forthcoming)). It should be noted that the procedures for taking consent decisions on the issuing of the environmental permit and environmental certificate are not specified in the EIA legislation. The EIA process, however, is assumed to be intended to influence these decisions. Procedural effectiveness is thus also determined by the extent that these decisions are influenced by the EIA process. These indicators are derived from the framework developed by Van Doren (2011).

Substantive effectiveness is thus seen as the main reference point for assessing EIA performance. In line with the main decision-making processes that the EIA system is ought to influence (as described above), the indicators for substantive effectiveness consider the presence of environmentally and/or socially beneficial project modifications that are triggered through the EIA process stages. However it is essential to assess the necessity of such modification at that process stage in order to determine EIA performance. Moreover, it is also vital to assess if the project design modifications that the EIA process has triggered actually are implemented later in the EIA process. Thus the indicators of substantive effectiveness cannot be considered as individual, as they are closely interrelated with each other. In order to gain an understanding of substantive EIA performance, they thus have to be interpreted as a whole set of indicators. The indicators on substantive effectiveness were derived from existing literature on this topic (Kolhoff, Runhaar et al. 2009; Wood, Jones 1997; Morrison-Saunders, A. & Arts, J. 2004; Van Doren 2011).

4.2 Methods

A desk research and a case study analysis are the chosen research strategies for this study. Four main research steps are necessary to answer the main research question; (1) the establishment of a framework to qualitatively assess substantive EIA performance in Ghana, (2) the application of the framework to two specific cases, (3) explaining EIA performance with respect to actor capacities for these cases, (4) determining sector-relevant conclusions.

(1) In the first stage of the research, a comprehensive literature study was conducted in order to develop a framework to assess EIA performance and to reveal how actor capacities and the context of the EIA system influence. The operationalization of the assessment on EIA performance was then the focus of this research. (2) The framework was applied at project level to two selected cases, and refined during the data collection period. The two case studies are intended to be illustrative for different types of projects. Their selection was non-randomized, thus no empirical generalizability of the results is expected. Firstly, a stakeholder analysis was done to identify the most important actors for the selected cases. By using the framework, the procedural and substantive effectiveness of the EIA process was then assessed while taking into consideration each of the two EIA process stages. This was done for both case studies. (3) Specific results on substantive effectiveness were then studied in more detail to assess the way actor capacities and context factors have influenced it since were found to reflect the most important context-capacity- EIA performance relations. (4) Following the case-specific analysis, the EIA performance, capacities and relevant context factors and the relations between them were assessed in terms of the water sector in general. Case study specific results were validated in terms of their relevance for the whole water sector and sector-specific data was collected.

4.3 Country, sector and case selection criteria

Ghana has been selected as the focus country because it represents an EIA system with high ambitions, but is also said to have one of the relatively best performing, functional and relatively robust EIA systems in Africa in place (UNECA 2005). It thus provides an interesting context to study EIA system performance in low income countries. Moreover, the close cooperation of the NCEA with the Ghana EIA authorities and thus the availability and accessibility to a large knowledge base, political support and networks is another reason for selecting Ghana's EIA system as the focus this study. The public ownership of the sector was the main criterion for the sector selection. In order to gain comprehensive knowledge on the research topic, it was decided that Bart van der Leest and I each focus on a sectors of different ownership; me on a public sector and Bart on a private one. Accordingly, the influence of capacities was studied for both of the two types of project ownership. The extent to which social impacts occur due to the sector activities is another main criterion to select the sector. Due to my specialization track in international development, I decided to focus on a sector where projects often have impacts on the local people. In consultation with the host

organization in Ghana, the water sector was selected to be the focus of this study as it fits these main criteria.

Similarly, the case study selection within the water sector was based on several criteria. Firstly, it was considered to study cases with differing levels of EIA performance in order to gain a comprehensive understanding of the possible constraining and furthering influences of capacities on EIA performance. An assessment performance level is part of the research question though and thus couldn't be used as a criterion as such. Therefore, the main case study selection criterion is based on a context factor that is expected to considerably influence the EIA performance; the priority level of the project. De Jong et al. (2012) found that EIA performance strongly differs between high and low priority cases. Thus a varying degree of national priority of the project was chosen as a main criterion to select the case studies. Further it is hypothesized that there are different performance levels of cases with international and national donor involvement. This criterion was not considered suitable for this research since large-scale water projects in Ghana for which the full EIA process is required are in general internationally funded. Thus the degree of national priority of the project served as a main criterion for the case study selection, as presumed to be indicating different levels of EIA performance. Beside this main criterion, several more practical criteria for the selection of the cases are considered:

- Size of environmental/social impact of project: The predicted impacts of the project had to require a full EIA process
- State of project in EIA process: Projects for which the environmental permit has been issued at least 2 years ago and thus a decision on the environmental certificate is made / should have been made
- Data availability
- Geographical project location

An initial assessment of water projects revealed that the water sector generally merely comprises of water supply projects. These projects appear to be all of a similar nature and to have similar priority to the public or government. Considering the importance of a difference in priority levels for the case study selection, it was decided to also consider hydro dam projects as possible cases, though they can also be allocated to the energy sector. The final case study selection thus included a water supply project of moderate national priority (Koforidua project) and a hydro dam project of high national priority (Bui project). As indicated above, the study is

intended to provide a broad, comprehensive view on the research subjects. Therefore, the selected case studies are meant to be illustrative for different EIA performance and national priority levels rather than to be representative for a certain type of water project.

4.4 Data collection

For the 9 weeks of field work in Ghana (May – July 2012), two main data collection phases can be distinguished. Firstly an intensive document study of case study files and other policy documents provided by the Environmental Assessment and Audit department of the EPA in Ghana was conducted for about 5 weeks. Even though several important case study documents could not be accessed, a rather extensive understanding could be gained regarding the EIA processes of the two cases. Building upon this knowledge, further data was then collected by formal and informal interviews. 34 formal interviews have been conducted with representatives of different actor groups involved in the EIA process of either of the cases as well as a sector-specific one. 8 of the formal interviews were group interviews. Table 3 provides an overview of the number of interviews conducted with the main actor groups for each case study. The data collection included five visits to Koforidua and project-affected communities between the 1st of June 2012 and the 2nd of July 2012 as well as a 4-day stay at the site of the Bui hydro dam from the 5th of July 2012 to the 8th of July 2012. For referencing to the individual interviews, a coding system is used in this thesis. The code referring to the individual interviews indicate the type of actor that was interviewed. In Appendix II, more information is provided regarding the coded interviews, for instance on the type of information, the type of communication and the function of the respondents.

Table 3: Interviewed actor groups for each case study project

	Koforidua project	Bui project
<i>EPA (head quarter & regional office)</i>	2	4
<i>Proponent</i>	6	3
<i>Affected/Benefiting people</i>	11	5
<i>NGOs/Research institutes</i>	n/a	1
<i>Other Government institutions</i>	0	2
<i>Total</i>	<i>19</i>	<i>15</i>

Furthermore, participatory research was conducted. The author joined EPA regional office of the Brong Ahafo Region on a quarterly monitoring visit to the Bui hydropower project. Moreover, a meeting of an NGO with the inhabitants of one of the resettlement communities was attended by the author. In addition case-specific data, also sector relevant data was collected through document studies and key informant interviews. Finally, two validation workshops were held to verify the preliminary results of the field work, one at an involved regional office of the EPA and one at the Environmental Assessment and Audit department of the headquarter of the EPA in Accra, with water specialists of the other EPA departments joining.

4.5 Data analysis

The data analysis focused on the triangulation of different types of data, aiming to increase the credibility and validity of the results. Data retrieved from reviewing EIA policy and project-specific documents (e.g. communication between the involved institutions or the EIS reports) was complemented and verified with data from qualitative interviews, as well as on-site observations of the implemented EIA projects. Finally, an extended review of other relevant water supply projects was conducted and key informant interviews as well as focus group discussions were held. These data was used to validate the preliminary results derived from the case study analyses, to reveal which findings are sector-relevant and to obtain sector-specific data.

The data thus was qualitative in general. For its analysis, the method of Qualitative Content Analysis was used (Mayring 2000). This method helps to systematically organize data and simplify its interpretation by the use of a category system of thematic blocks, which was essential for the descriptive approach to determine EIA performance with qualitative data.

4.6 Limitations of the study

Although this research has reached its aims, some unavoidable limitations to it have to be recognized. To a large extent, the case study analysis focused on EIA processes that had already occurred in the past. This retrospective approach comes with a risk that certain elements and potential findings have been overlooked or that the respondent's answers were biased. In order to address these risks, the author's intention for this research was to conduct in-depth case studies. It involved an intense study of available case documents and the interviewing of a broad range of involved actors. Only then EIA performance and the factors influencing it could be understood thoroughly. This approach, however, is highly time-

intensive. Due to limited time and resources available, this study had thus to be restricted to two case studies of the water sector. The non-randomized selection of these case studies implies that they are not representative for the whole water sector. They are selected in a way that they are illustrative for two very different water projects. Limitations in time also led to the decision that for this research the emphasis is put on EIA performance. Thus, the interrelations between the different capacities were not in the focus of the study, even though they were considered to a certain extent.

Further, the way context, capacities and EIA performance interact with each other was found to be highly complex. This research, however, demonstrates with specific examples of such interactions how these elements influence each other. A selection of such examples had to be made, which can potentially be biased. The author of this thesis was, however, determined to select examples that illustrate most important factor-relations as revealed by the collected data.

Finally, it is important to mention that the data available on the case studies and the water sector in general was limited. Some important documents and reports were lacking in the case study files provided by the EPA and could not be located. Furthermore, not much sector-specific data was available, especially no quantitative data.

5 CASE STUDY-SPECIFIC RESULTS

In this chapter, the results regarding the two selected case studies are presented. As mentioned above, two very different projects (e.g. in scale or priority) were selected in order to illustrate the influence of capacities on EIA performance for very different types of projects. Following this approach, the results are presented separately for each case. For both projects, the same structure is used to present the findings. At first, the project content is described shortly. Then, the actors that are directly and indirectly involved in the EIA process are introduced. It is important to notice that this section only covers a selection of the most important actors involved in the EIA process due to the large variety of stakeholders involved in the project (especially for the Bui project). Thereafter, the way EIA procedures were/are applied in practice is described for each case. Subsequently, EIA performance is assessed in terms of substantive effectiveness. These sections on EIA performance are structured along the qualitative indicators presented in section 4.1, using a descriptive, qualitative approach. Finally, it is explained how EIA performance is influenced by actors capacities and context factors, possibly via EIA procedures. This is done by focusing on specific, previously presented findings on substantive effectiveness. It is shown how EIA performance was influenced by capacities and/or context factors in those specific cases. An illustrative approach is thus chosen in order to highlight the complexity and diversity of such context-capacity-EIA procedures-EIA performance relations. The presentation of the results is structured along the two main EIA process stages: the EIS stage and the EIA follow-up stage.

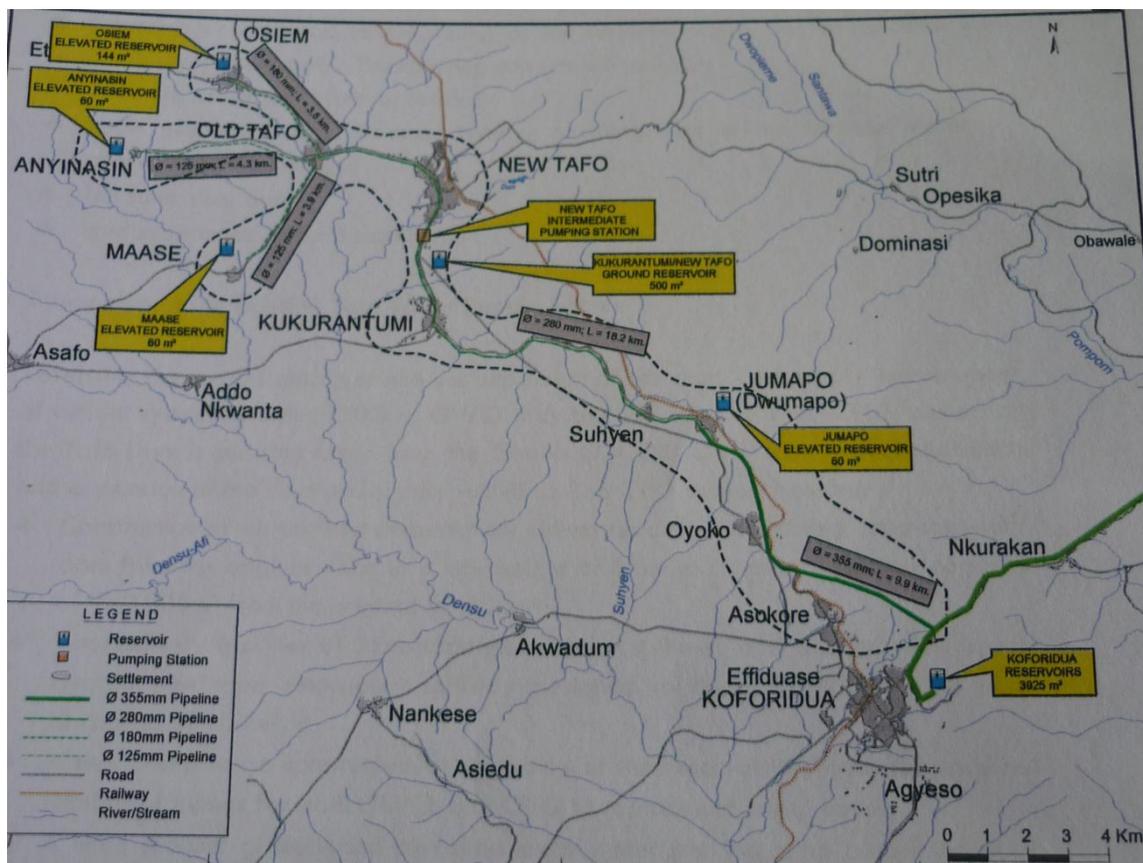
5.1 Koforidua water supply project

5.1.1 Project content

As a first case study, a project aiming to improve the drinking water supply in and around the area of Koforidua in the Eastern Region was selected. As for all large-scale water supply projects in Ghana, the proponent of this project is the Ghana Water Company Limited (GWCL). The costs of the Koforidua project were 38.3 million euros. It was financed by the Belgian Foreign Aid department (FINEXPO) and the KBC Bank of Brussels in Belgium (38.6 % as a grant and 61.4 % as a loan) (GWCL 2012). The water supply project was initiated due to severe water problems in the region (EPA HQ2; Contractor). It is a project of regional importance. Raw water is abstracted from the Volta lake, treated and then distributed to Koforidua and nearby communities. The project comprises of several infrastructural elements. A water intake point

had to be constructed on the Volta Lake. From there, a raw water pipeline was laid to Bukunor, where a water treatment plant including a water reservoir and high lift pumping stations were built. Further a new, 22.1 km long transmission pipeline was laid and water reservoir booster stations built. Moreover, the water distribution network in Koforidua and neighboring villages has been improved and extended as part of the project, as illustrated by Figure 4. Finally, the pipeline network was extended towards the North-West of Koforidua. About 30 communities are benefitting from the project through improved access to potable water. The project has been finalized in July 2011 and is thus already in operation. (GWCL 2012)

Figure 4: Extension of water supply system towards the North-West of Koforidua



(Source: EPA 2008)

5.1.2 Main actors and their role in EIA

In this section, the main actors involved in the EIA process of the Koforidua project are introduced. Thereafter, an overview of the main relations between them is provided. Finally, important indirectly involved actors which are considered as part of the project context are listed.

Project proponent

The **GWCL** as the project proponent officially applies for the environmental permit. It is an agency under the Ministry of Water Resources, Works and Housing in Ghana. The GWCL has administrative units on several levels; the national level, the regional level and the district level. The GWCL headquarter is in charge of planning and operating the water supply system throughout the country. It is supported by the offices of 12 administrative regions represent the operators of the system. The GWCL regional offices further are supported by the district offices, which are in charge of day-to-day operations. Even though the environmental permit is issued on the name of the GWCL, their role in the EIA process is rather indirect. The responsibility for the EIS, for obtaining an environmental permit for the project and for complying with its conditions is shifted to the contracting company of the project. GWCL head quarter is in so far involved in the EIA process as they take major decisions on the project design and its implementation. The GWCL regional offices have no direct role in the EIA process, as the process of writing the EIS happens before they get involved with the project. According to interviewees representing the GWCL regional office, the EIS would be read in case of problems with a project only and “other than that [they] have nothing to do with EIA” (GWCL RO). As the GWCL’s involvement with EIA is rather limited, the following section will further look into other institutions collaborating with the project proponent to fully understand the ongoing dynamics. (GWCL HQ1; GWCL HQ2; GWCL RO; Contractor)

As mentioned above, it is the **contracting company** who has to take responsibility for the EIA process. For the Koforidua project, the contractor is Messrs Denys NV. It is a Belgian multi-specialized construction company. A large part their foreign activities are complex drinking water supply and water treatment projects, such as the Koforidua one. Their work is highly international, about 10% of their projects are located in North Africa. One focus country is Ghana, where they have an own office. They have already done five water supply projects with the GWCL (Denys 2012). Messrs Denys’ role in the Koforidua project was multifaceted as they were involved in it from the very start of the project. In Ghana, it is often the contracting company who initiates the water supply project. They assess the need for enhanced water

supply, make a project proposition and apply with it for international funding. If a fund is granted, the GWCL hires a contractor to implement the project, possibly the same as the one who has initiated it. This was the case for the Koforidua project. The type of contract between the GWCL and Messrs Denys NV was design built, meaning that the contractor made the initial design of the project. It is then reviewed by the GWCL. As the Messrs Denys NV designed the project, the EIA process falls under their responsibility. (GWCL HQ2; Contractor)

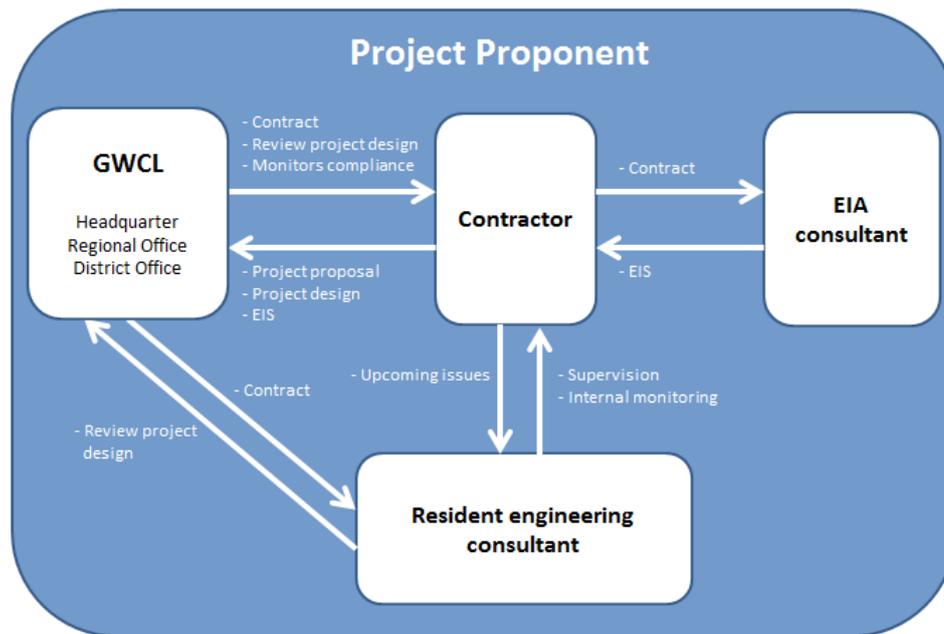
As the contractor is in charge of getting approval of the EPA, it was Messrs Denys NV who selected and hired the **EIA consultancy firm** whose duty is to write the EIS. They hired Envirorich Consult Limited, a consultancy with which they have a long history of cooperation. The consultancy is specialized in EIA, the writing of Environmental Management Plans, and conducting environmental monitoring assignments (e.g. monitoring water, air, soil quality). The following statement of a project developer underlines that, during the EIS stage, a large part of the responsibility regarding EIA was handed over to the EIA consultant: “I just give the contract to somebody [...] from Envirorich and I tell them: Take it all the way to the permit stage.” (Contractor). Hence, it is also the EIA consultancy firm that was in direct contact with the EPA during the EIS stage. As soon as the environmental permit is obtained, the EIA consultant was not further involved in the project as the “mandate did not extend to post EIA assignments” (EIA consult.). (GWCL HQ; Engin. consult.; Contractor; EIA consult.)

Even though the contractor is responsible for the EIA process, the EPA will contact the GWCL as the holder of the environmental permit in case of any problems. Therefore the GWCL wants to be informed about the activities of the contractor. They hired an **engineering consultancy** (Royal consult) who served as an intermediary between the GWCL and the contractor. At first, the engineering consultant reviewed the project design of the contractor (mostly with respect to technical aspects rather than on environmental or social issues). After construction start, the engineering consultant then supervised the contractor’s work in the field. It was then when environmental and social issues became important for his work. The contractor sensitized the affected communities regarding the project and negotiated with the contractor on any environmental challenges that occurred after project start. During the first year of project operation, the engineering consultant was responsible to monitor the system on a weekly basis. These internal monitoring activities include the conditions and performance of the water supply system, e.g. the water quality. Even though these activities address similar issues as the EIA process, they were not related to it in any way. Thus, the consultations of the affected people, the monitoring of the project activities as well as the identification of environmental issues and possible solutions were not part of the EIA process. The interviewed consultant has

not read the EIS or the environmental permit and its conditions. He also doesn't know about the stakeholder consultations that were done as part of the EIA process, previously to his involvement. The environmental permit has been obtained through the EIA consultant before the engineering consultant got involved. Moreover, there is no contact between him and the EPA even though he sees the environment as an essential element of his work: "Everything that has to do with environment, that's part of our mandate. So we just carry it out." (Engin. consult.). About his involvement in the EIA process he adds the following: "I was not directly involved in the EIA process. But I will say that I implemented it." (ibid.). (GWCL HQ2; Contractor; Engin. consult.)

Figure 5 gives an overview of the most important institutions that represent the proponent of the Koforidua project and of the main relations between them.

Figure 5: Project proponent of the Koforidua project



EIA authority

As the responsible EIA authority in Ghana, the EPA played a major role during all EIA process stages of the Koforidua project. The EPA is the "leading public body for protecting and improving the environment in Ghana" (EPA 2012). Among other things, the EPA is responsible for EIA processes as the following statutory function of the EPA, as it is mentioned in the Environmental Protection Agency Act 490 i of 1994, underlines: "To ensure compliance with any laid down environmental impact assessment procedures in the planning and execution of development projects, including compliance in respect of existing projects" (EPA 1994).

The EPA head quarter in Accra consists of several divisions, which are further sub-divided into departments. The Environmental Assessment and Audit department of the Environmental Compliance and Enforcement division is mainly responsible for those EIA –related functions. For many sectors, the Environmental Assessment and Audit department discharges its functions by liaising with other divisions within the EPA. However, no other department of the EPA is responsible for the EIA process of large-scale water supply projects. Ideally, the Natural Resources department should deal with the EIA of those projects, but this department lacks the capacity to do so. Consequently, the Environmental Assessment and Audit department is in charge of the whole EIA process of all water supply projects. The EPA head quarter was responsible for reviewing processes, decisions on the environmental permit and environmental certificate, monitoring the environmental permit compliance and enforcement of the environmental permit. Water experts of other departments were consulted and involved as member of the Technical Review Committee. (EPA HQ1)

The Environmental Assessment and Audit department also collaborates with the ten EPA regional offices which serve as field operators of the Agency. Those support the EPA head quarter mostly with respect to the EIA registration, the screening decisions, regional reviewing procedures, monitoring and enforcement activities. For the Koforidua project, the regional office of the Eastern Region was involved.

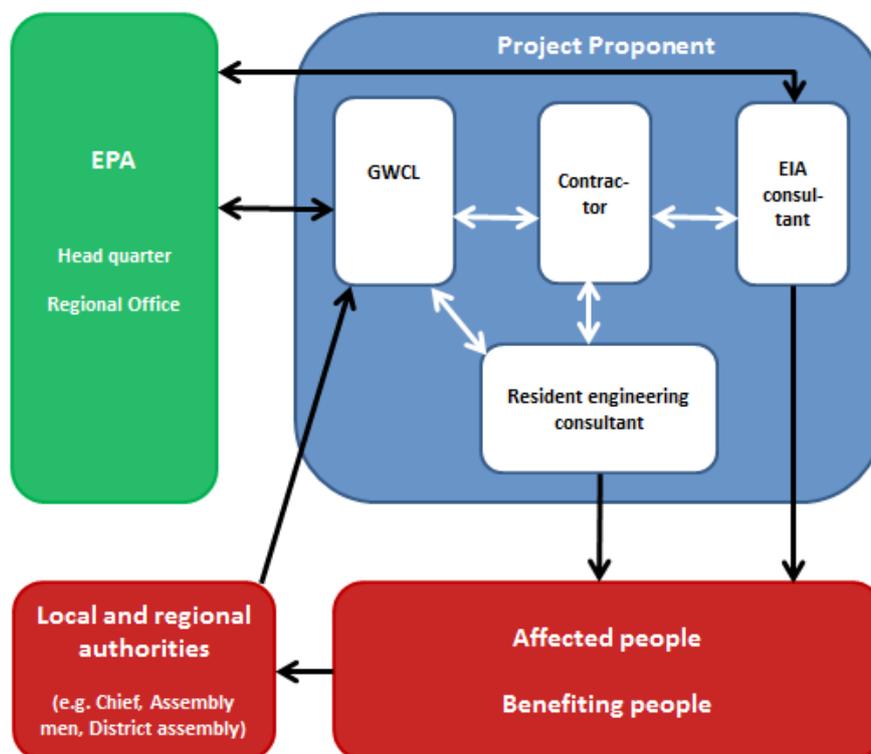
Affected people

As the Koforidua project's purpose is to enhance the drinking water situation of the communities in and around Koforidua, many of the people were positively affected by the project. However, through the construction of the necessary infrastructure, crops got destroyed and land was acquired by the government. The affected land and crop owners thus have a stake in the EIA process, as well as the local and regional authorities which represent them (community chiefs, community elders, opinion leaders, municipal assemblymen, district assemblymen etc.). No exact amount of affected people is known, but from the lists sent to the EPA the crop of about 630 people was destroyed from construction activities until 2009. The people affected by the extension of the supply system towards the North-West of Koforidua have not been compensated yet and are not included by this number.

EIA system relations

After having introduced the main actors of the EIA system, Figure 6 illustrates the most important relations between them. It reveals that the EPA mostly is in contact with the project proponent, but rarely with the affected people. Further, the dynamics between the institutions representing the project proponent are complex. Many institutions are involved and not all of them are in direct contact with each other (importantly also the two institutions that are in direct contact with the affected communities, did not have any contact to each other). Finally, the affected people mostly communicate their concerns to their local and regional authorities.

Figure 6: EIA system relations for Koforidua project



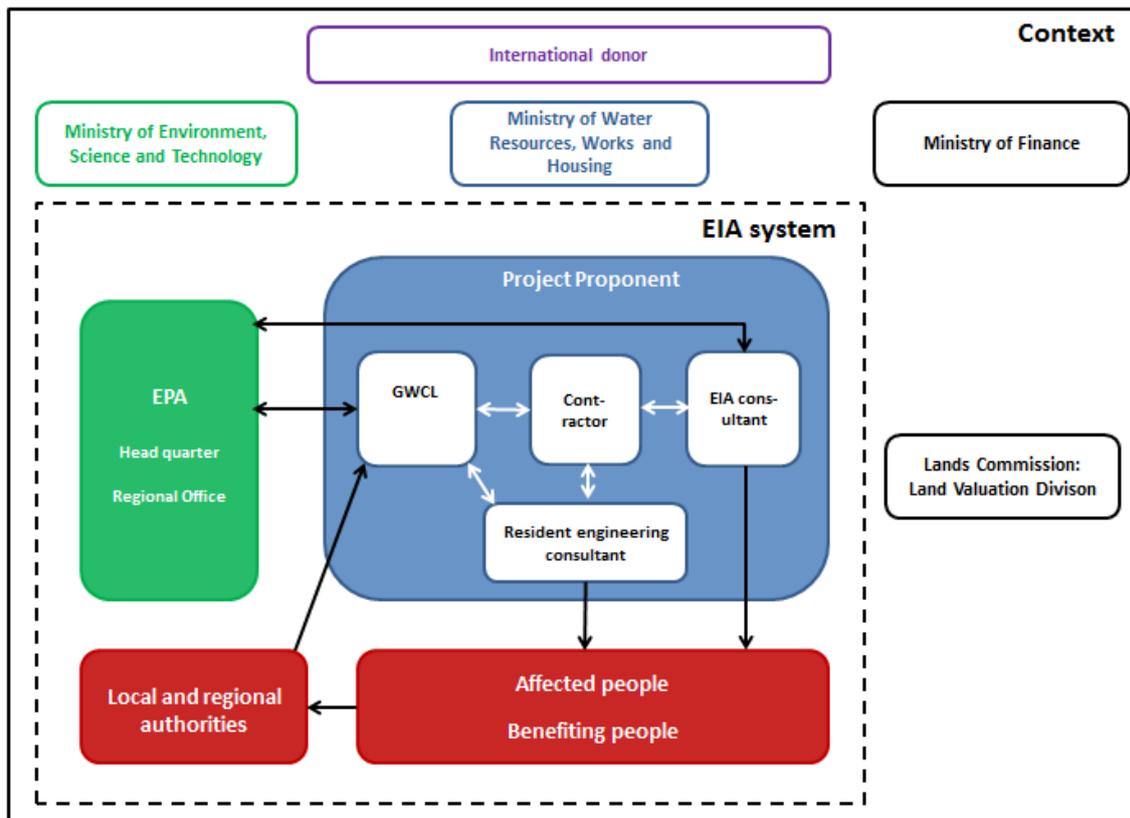
Influential actors in the context of the EIA system

The **international donor** institution of the project is a first actor that can indirectly influence the EIA performance of the project. Further, the **Ministry** of Environment, Science and Technology and the Ministry of Water Resources, Works and Housing as the superior governmental institutions to the EPA and the project proponent are considered to be important actors in the context of the EIA system. Moreover, the Ministry of Finance and the Lands Commission with its **Land Valuation division** play an important role in the compensation

processes as further elaborated in following sections. NGO's and research institutes showed very limited to no interest in the EIA process of the Koforidua project (EPA HQ2; EIA consult.).

Figure 7 summarizes this section by presenting the main EIA actors and the important contextual actors.

Figure 7: Main EIA actors and influential contextual actors - Koforidua project



5.1.3 EIA procedures – Procedural effectiveness

Preliminary activities

A first conceptualization of the Koforidua water supply project has already occurred in 2006 (GWCL RO). At that time, additional sources to the existing Densu River supply system were found to be necessary. The Water Resource Commission thus did a study on the possibility to supply water from the Volta Lake instead. In the following, Messrs Denys had done a Preliminary Environmental Report study on the project. The EPA however demanded a full EIA study. During these preliminary project-related activities, land was already acquired for the project and destroyed crops have been compensated (during the years 2006 – 2008). Due to

the previous studies, the EIS though could be less extensive, focusing on impacts mostly (EIA consult.).

Procedural effectiveness during EIS stage

<i>Indicator 1: Execution and quality of EIA procedures during EIS stage</i>
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In June 2009, the full EIA process was started. Shortly after the scoping notice was published in the Ghanaian Times and the **scoping report** submitted to the EPA. The review comments of the EPA on the scoping report were sparse, mainly asking for more detailed information on some issues (EPA 2009, letter to GWCL, September 2). The project has many positive social impacts through the enhanced access to drinking water in the region. However, the scoping study identified several negative impacts of the project during its preliminary and construction phase activities, but also during its operation and maintenance phase activities. From those, the impacts from waste water and sludge disposal are generally considered as the most severe ones with regard to the environment (GWCL HQ2; Contractor; Engin. consult.; EPA HQ1). With respect to social impacts, the land acquisition and destruction of crops/properties are most important. They demanded the most attention throughout the EIA procedure (EIA consult.; EPA HQ2).

The **draft EIS** report was submitted in October 2009 and reviewed by the EPA in the following. The review comments on the Draft EIS were sent to the EIA consultant of the proponent. As for the scoping review process, only of few comments were made that mostly were asking for further specifications. Finally, the final EIS send to the EPA head quarter in January 2010.

On the 30st of April 2010, the EPA head quarter issued the **environmental permit** on the Koforidua water supply project. For the Koforidua case, a strong congruence between the findings of the EIS and the conditions for the environmental permit was revealed. In the conditions of the permit, a direct reference is made to the EIS, stating that the proponent needs to “comply with all project specifications, monitoring and environmental management measures as they are described in the Environmental Impact Assessment report.” (EPA 2010b). Also other conditions of the permit are strongly related to the mitigation measures that were proposed in the EIS. Especially conditions regarding the compensation of crops and land were further specified in the permit. Finally it is interesting to notice that none of the water project permits did include conditions regarding the suspension of the permit, as this was the case for a studied permit of a mining project.

Indicator 2: Public participation during EIS stage

As public participation is an important goal of the EIA process in Ghana, its practical application during the EIS stage of the Koforidua project is described shortly. According to the GWCL, stakeholder consultations regarding the preliminary project design are found to be important. One representative of the GWCL regional office even considers the interaction between the communities and the project team throughout the EIA process as the main positive effect of EIA (GWCL RO). The EIA consultant further sees the “transparency that the EIA process brings to bear on the project through publication of Scoping notice and the fact that project-affected-people have the confidence that someone is recording their grievances with the hope of them being addressed” as the most important benefits of EIA (EIA consult.).

Different forms of stakeholder consultations were conducted for the Kofordua project. The first consultations were done by the EIA consultants as part of the scoping procedure. They mostly involved representatives of the larger municipalities. According to the EIA consultant, the major concerns of the communities pertained compensation issues. No public hearing has been held for the Koforidua project and also not (yet) for any water supply project. This is because there generally never is a large resistance against water projects. The local people generally are content about the project (EPA HQ1). At a later stage of the project (starting just before the construction start), another form of community consultation took place. The engineering consultant then informed the affected people through a public forum. This activity was not part of the EIA process. The attendees were informed about the project and they had the possibility to comment on the project design. In the following, communities that were affected by land issues were contacted by the Land Valuation Board. (GWCL HQ2; GWCL RO; EIA consult.)

The interviews with the authorities of affected communities highlighted that the consultation processes were rather informative than participative. 3 out of 4 interviewed village authorities indicated that they didn't have any opportunities to influence the design of the project in any way. By the time they were consulted, the project was already far developed. They were thus not involved in decision-making processes regarding the project design, also not regarding project elements that directly concerned their community. (AP4; AP5; AP9; AP10; AP11)

Interviews further revealed that individual land owners were insufficiently informed about the project, despite the different consultation processes. The majority of the interviewed land owners living along the main pipelines stated that they did not know about the project until one day the excavators arrived to start the construction works on their land. They claimed to

not have been informed about the project-related activities on their land, their timing, duration or impacts (AP5; AP6; AP7; AP8) This is confirmed by the contractor, saying that he is sure it happens it happens that the people don't know about the project when the workers arrive on site to do construction works because "these consultants don't always go to the extent as they are supposed to" (Contractor). He also mentions that the construction work had been stopped in the past due to this. Some affected land and crop owners were then told that their crops will be compensated, but no further details on this issue were given to them.

Therefore even though stakeholder involvement is seen as a main benefit of the EIA procedure and even though it takes place in different forms, the consultations do not reach all affected people. Furthermore, the quality of the provided information is insufficient and the stakeholder involvement is rather informative than participative.

<i>Indicator 3: Timing of the EIA procedure</i>

The timing of the initial start of the EIA procedure within the project's life-cycle is an important indicator for EIA performance. The earlier the outcomes of the EIA process are incorporated into the project design, the more influence they are expected to have on it. Different statements were made by representatives of the project proponent regarding the timing of the EIA procedure. According to the person in charge for the project at the GWCL, the EIS report is written during the design phase of the project. By doing so, the information provided by the EIS can then be taken into consideration when the project comes to its final design stage (GWCL HQ2). Other interviewees, however, indicated that the project design was already quite far developed when the EIA process was started. As the initial project design is part of the funding process for the project, the EIA process had only started afterwards. Thus, the EIA consultancy team was not involved in the initial design of the project (EIA consult; contractor). Further, the document study revealed that compensation payments were made already before the actual start of the EIA procedure. This could be another indicator for a rather late start of the EIA process during the project's life-cycle.

Procedural effectiveness in the EIA follow-up stage

<i>Indicator 4: Execution and quality of EIA procedures during EIA follow-up stage</i>
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Until the moment data collection, the EPA had not done any **monitoring** activities for Koforidua project. This seems to be a general trend for water supply projects. The contractor of the project confirms this finding in his statement: "In my experience, I have been here now for

two years, I have never had a visit from EPA on my site to see if I comply with what I have written down.” (Contractor). He also did not seem to be aware of the possibility that the EPA may undertake such follow-up activities on the environmental permit.

According to the EPA, the responsibility for monitoring fully lies with the proponent (EPA HQ1). As illustrated in section 5.1.2, several institutions representing the project proponent could possibly be involved in the monitoring. The GWCL is determined to make sure that the contractor complies with the mitigation measures as described in the EIS (GWCL HQ2). The engineering consultant hired by the GWCL for internal monitoring of the contractor’s construction and operation activities, however, did not have the necessary EIA documents to do such compliance monitoring. Hence, this monitoring process happened entirely separate from the EIA procedure, even though it partly concerned environmental and social issues (see section 5.1.2). This confirmed by a statement of a project manager of the contracting firm: “I can’t really say that we have own people monitoring the remarks from EIA or the effects” (Contractor). Finally, the communities are also not in any way involved in monitoring activities. It is a condition of the environmental permit that the project proponent has to submit monitoring outputs to the EPA. Accordingly, two Annual Environmental Reports should have been submitted by the 30st of April 2011 and the 30st of April 2012, as well as an Environmental Management Plan. These documents, however, have never been submitted. Further, the environmental permit conditions state that an **environmental certificate** should be issued within 24 months from the issuing of the permit (i.e. before the 30st of April 2012). This had not been done by the time of investigation (May 2012). Also, the permit does not seem to have been renewed instead. Interviews showed that the environmental certificate is not a familiar term for most involved actors from the project proponent’s side. Even though the submission of the Annual Environmental Reports and obtaining an environmental certificate are essential conditions of the environmental permit, the EPA had not made any attempts to pursue this lack of compliance up to the moment of data collection. This indicates a weak performance of the EPA with respect to **compliance assurance**.

Therefore, it can be concluded that the EPA shifts the responsibilities regarding compliance monitoring of the environmental permit conditions to the proponent. The project proponent, however, does not seem to have such compliance monitoring procedures in place. The EPA’s lack of enforcement enables this.

Indicator 5: Public participation during EIA follow-up stage

There was generally no involvement of the public or affected people during the EIA follow-up stage. Since the project had been completed, there is very limited contact between the GWCL and the affected communities.

5.1.4 EIA performance – Substantive effectiveness

The substantive effectiveness of the EIA process is determined for each of the two EIA process stages. This is done with the help of the indicators and sub-indicators identified for substantive performance, which are presented in section 4.1.

Substantive effectiveness during EIS stage

Indicator 6: Project design modifications

For the Koforidua project, the collected data indicates that the process of writing the EIS report has not caused any major project changes that would lead to a more environmentally friendly project design. (GWCL HQ2; GWCL RO; contractor).

With respect to the prevention or reduction of social impacts, the EIA procedure appears to have influenced the project design to a certain extent. Re-routing of the pipelines was done in order to avoid impacting major dwellings through the transition pipeline route (EIA consult.). This is a direct result of the EIA process as the EIS mentions the re-routing of affecting properties as a minimization measure to eliminate severe impacts through components of the project (Amoako, Acqua et al. 2012, p.95). Further, even though no major project changes directly arose from the EIA stakeholder consultations, decisions on the compensation measures seem to have been influenced through the EIA process (EIA consult.)

Indicator 7: Necessity for project design modifications

However, interviews with various involved stakeholders revealed that there is a low perceived necessity for environmentally beneficial project design changes. Thus the EIA has a low potential to trigger positive change with respect to the environment. Several factors underlie this perceived low necessity. On the one hand, the negative environmental impacts of the project are found to be limited (GWCL HQ2; Engin. consult.; EPAHQ1). On the other hand, the initial project design appears to be environmentally friendly already. This can be explained by learning effects of previous EIA studies on water supply projects and a preventive effect of the EIA process (due to the awareness of project developers that an environmental permit will

have to be obtained, the project is initially already designed environmental friendly). (GWCL HQ2, Contractor)

The social impacts of the project are found to be more critical, especially the ones caused by crop destruction and land acquisition. The proposed measures on these impacts are not satisfactory to many affected people. Section 5.1.5 will further illustrate this. Moreover, interviews with affected communities have revealed several minor desired project design changes which had not been assessed or considered by the project proponent (e.g. different location of water taps).

Substantive effectiveness during EIA follow-up stage

Indicator 8: Project implementation modifications

No environmental or socially beneficial project implementation changes could have been triggered through EIA as no EIA monitoring activities took place.

Indicator 9: Necessity for project implementation modifications

Due to that lack of EIA monitoring activities, the necessity for such implementation changes is also not assessed.

Indicator 10: Implementation of project modification

The scope of this research does not allow a thorough assessment of environmental permit compliance. Nevertheless, the field work revealed limitations with respect to environmental permit compliance. The description of indicator 6 on the project design changes indicates that mainly decision-making processes concerning the social impacts of the project were influenced by the EIA process. The focus of the EIA process was thus on the compensation of affected people whose crops got destroyed through the project or whose land acquired by the government. Interviews with affected communities, however, indicated that the measures to compensate for these negative social impacts as determined in the environmental permit are not complied with (yet). This is the case even though the project is already in operation. In December 2011 and thus with a large delay, the people living along the main transmission line to Koforidua have been compensated for their destroyed crops. The compensation payments for destroyed crops of the following project phase (the extension of the network towards the North-West of Koforidua) are still out-standing.

Table 4 summarizes the main results regarding substantive EIA performance of the Koforidua project. In the following section 5.1.5, the results that are underlined will be further studied with respect to the influence that actor capacities and context factors had on them.

Table 4: Overview results of substantive EIA performance - Koforidua Project

<p>Indicator 6: <i>Project design modifications</i></p>	<ul style="list-style-type: none"> - <u>No major environmentally beneficial project design modifications were triggered through EIA procedures.</u> - The project design was influenced with respect to social impacts to a certain extent
<p>Indicator 7: <i>Necessity for project design modifications</i></p>	<ul style="list-style-type: none"> - <u>Low perceived necessity for environmentally beneficial project design changes</u> - Relatively higher necessity for socially beneficial project design changes - <u>Presence minor desired socially beneficial project design modifications that were not considered in project design</u> - Preventive effect present
<p>Indicator 8: <i>Project implementation modifications</i></p>	<ul style="list-style-type: none"> - <u>No major environmentally and/or socially beneficial project implementation changes triggered through EIA monitoring procedures.</u>
<p>Indicator 9: <i>Necessity for project implementation modifications</i></p>	<ul style="list-style-type: none"> - Not assessable due to lack of EIA monitoring procedures
<p>Indicator 10: <i>Implementation of project modifications</i></p>	<ul style="list-style-type: none"> - <u>Partly non-compliance with environmental permit conditions that refer to project design modifications, especially with respect to compensation measures.</u>

5.1.5 Explaining EIA performance with respect to actors' capacities

This section further looks into some of the above presented findings on substantive effectiveness, providing an exemplary illustration of how the main actor capacities and context factors did influence EIA performance in practice. It thus identifies possible context - capacities - EIA performance relations and thus directly refers to the main research questions. An illustrative approach is thus used to answer it. The section is structured along to the two EIA process stages.

Explaining substantive effectiveness during EIS stage

Result Indicator 6:	<u>No major environmentally beneficial project design changes triggered through EIA procedures</u>
Result Indicator 7:	<u>Low perceived necessity for project changes</u>

As described above, no major project changes were made during the EIS stage to address potential environmental impacts. At the same time, the necessity for such changes is considered as low due to an environmental friendly project design already at the start of the EIA process. In the following, the underlying reasons for this finding are explored. Thereafter, how the actual EIA process is influenced by actor capacities is analyzed.

Environmentally friendly initial project design

The initial project design of the Koforidua project used as starting point for the EIA process was found to already be rather environmentally friendly. Hence, the necessity for the EIA process to trigger project design changes was low for this project. Two capacities of the proponent were found to be essential for explaining this low necessity for project design changes: 'knowledge' and 'ownership'. Denys Messrs NV, who did the initial project design, had already developed water supply projects in Ghana before the Koforidua one. As they generally use similar designs for all water supply projects, **knowledge** and experience gained through these previous projects could be used for the design of the project. Further, as water supply project generally have similar negative environmental impacts, knowledge gained through previous EIA processes was used for more recent projects such as the Koforidua one. (GWCL HQ2, Contractor). The following statement of a Senior Planning & Research Engineer of the GWCL head quarter highlights this: "All the projects that we do, the comments that [the EPA] give, we try to [...] incorporate them in future projects." (GWCL HQ2)

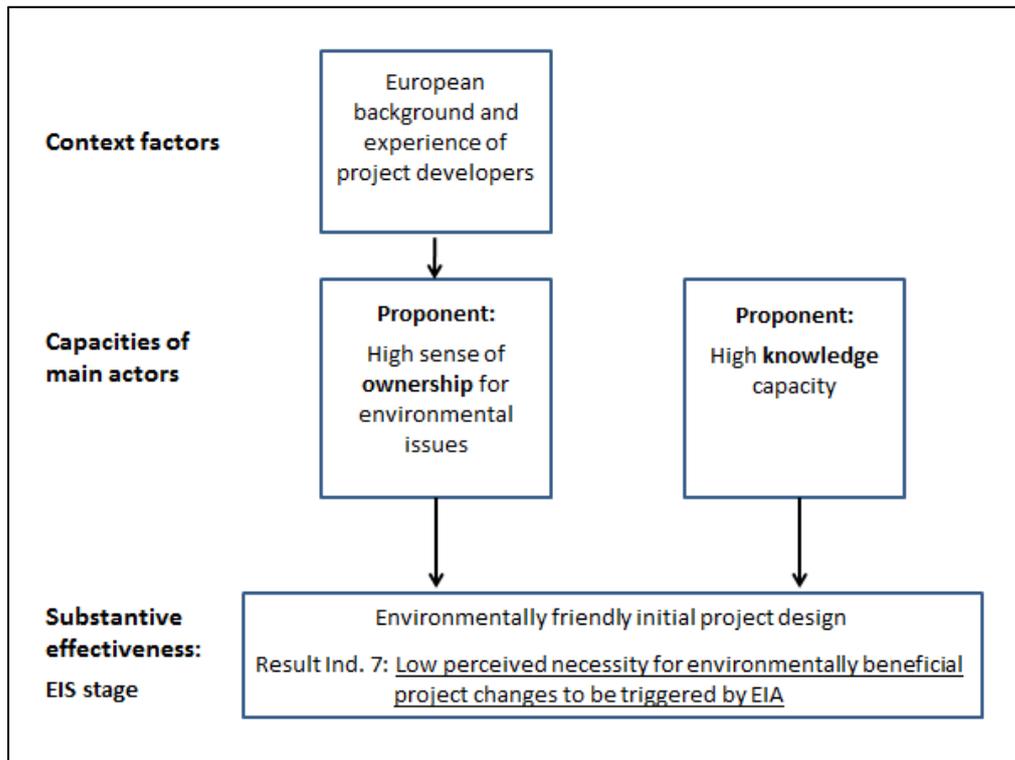
The handling of the sludge of the treatment plant is a good example to illustrate this learning effect from previous projects. It is generally agreed that the sludge as a waste product from the water treatment plant is the main possible negative impact of water supply systems. It is known that for several water supply projects in Ghana, the sludge is brought back into the water body, causing sedimentation processes (Engin. consult; contractor). The EPA had pointed out these environmental problems during the EIA processes of other, previous water supply projects that were designed by Denys Messrs. Consequently, the concept of sludge drying beds had been developed to prevent these problems. The sludge is forwarded to drying beds, where

dries up and later it is used as fertilizer. This approach is highly appreciated by several actors of the EIA process (Engin. consult; GWCL HQ2; EPA RO). Later, when the Koforidua project was developed, this approach of sludge drying beds was adopted and incorporated in the initial project design. These mitigation measures were thus not a result of the EIA done for the Koforidua project, but of earlier EIA processes. Further, the approach was included in the standards of the GWCL for treatment plants, making it compulsory. (GWCL HQ2; Engin. consult.; Contractor)

Another factor influencing the environmentally friendly initial project design is the proponent's commitment to the environment and thus his **ownership** for EIA goals. The consultant supervising the initial project design of Messrs Denys found that there was no need for project changes when it comes to the environment as "[the project developers] are very much concerned when it comes to the environment" (Engin. consult.). A representative of Messrs Denys sees their European background as the reason for their high level of commitment to the environment. According to him, "environmentally friendly is high on the line anyway", independently from the EIA process (Contractor). Finally, the proponent shows enthusiasm to learn through the EIA process. The planning engineer of the GWCL head quarter who was responsible for the Koforidua project describes the writing process of the EIS as an eye opening process for him as an engineer, as he may otherwise not consider environmental issues as much. He further highlights that taking into account the environment, however, is "vital because at the end of the day, the environment should be healthy for our continuous existence." (GWCL HQ2). Furthermore, the EIA procedure was found have had a preventive effect for the Koforidua project. As the project developers knew that they will have to obtain an environmental permit from the EPA, they had an additional incentive to incorporate their knowledge gained from previous EIA processes on water supply projects into the initial project design for the Koforidua one.

The combination of high knowledge and ownership capacities from the proponent's side were thus found to be the main factors leading to an initial project design with few expected negative impacts. Figure 8 illustrates these findings.

Figure 8: Factors triggering initial environmentally friendly project design – Koforidua project



Quality of EIA procedures

The analysis revealed that the EIA process had not triggered any environmental beneficial project changes. However, the necessity for such changes was also found to be low due the environmental friendliness of the initial project design. Nevertheless, it is important to also study the quality of the EIA procedures in order to assess their potential to identify all potential necessary project design changes.

The EIA procedures of the EIS stage are highly standardized for water supply projects. The consultancy firm that was hired for writing the EIS of the Koforidua project is specialized in EIA of water supply projects. According to the director of the consultancy firm, the process of writing an EIS for water supply projects is a rather standardized procedure as most of the projects are similar with comparable impacts. For the Koforidua project they could thus build upon knowledge gained from previous work (EIA consult.). Thus, high **knowledge** capacities of the EIA consultant led to enhanced EIS report quality. This is confirmed by the EPA headquarter who found the EIS report for the Koforidua project to be of good quality. (EPA HQ2). Further, the review comments of the Technical Review Committee on the draft EIS of the Koforidua project were minor, indicating that they judge it to be an almost complete and valid assessment of the environmental and socio-economic impacts of the project (EPA 2009, letter

to GWCL,30 December; contractor). Consequently, the review procedures did not trigger any major changes in project design or draw attention to previously unconsidered negative impacts (EIA consult.).

However, a person involved in the development of the project design indicated that the review comments sent by the EPA generally are not very strict and may be incomplete. The same accounts for the comments regarding the Koforidua project. The environmental friendly initial project design may be one reason for the few comments on the project from the side of the EPA. However, the respondent further indicated that “in Belgium, the rules are a lot stricter and the impression I have here is that EIA, they really don’t go as deep as somebody in Europe” (Contractor). He illustrates this with an example on the type of chemicals used in the concrete to make it water proof concerning which he “never got any remarks on how do you use, what chemicals do you use, how many do you use [...] [B]ut that’s the kind of questions that from my experience in Europe you get during these investigations and here they don’t ask those things.” (ibid.). The project designer thus doesn’t see the EIA process as a tool to improve the project design, it is more of a licensing tool for him: “It’s more a formality because we need to go through it, but we don’t get much remarks from [the EPA]” (ibid.). Thus, even though they may not negatively affect the project design quality of the Koforidua project due to its initial environmentally friendly design, inaccuracies and shortcoming of the review and permitting procedures for water supply projects were revealed. They may indicate a lack of **knowledge** of the EPA and the Technical Review Committee on technical details on water supply projects. This can negatively influence the EIA performance during that stage.

The illustrations above underline the conflicting role of the capacity ‘knowledge’ for the EIA performance during the EIS stage. On the one hand, high knowledge capacities of the proponent influence the EIA performance positively. On the other hand, there are indications that the knowledge capacity of the EPA with respect to the review process is limited. That could influence the EIA performance negatively. The project developers, however, seem to be committed to the environment anyway, due to their European background. The combination of the proponents’ ownership towards EIA goals and his high knowledge capacity leads to an initial environmental friendly design and an EIS of high quality, regardless of the quality of the review procedures. All these factors lead to the fact that no environmentally beneficial project changes were identified for the Koforidua project. The following statement of the contractor regarding the benefits of the EIA process illustrate these conclusions on the interrelations between context factors, capacities and EIA performance:

“For us it doesn’t really add a lot. We do it because we have to do it, that’s one thing. We do it because from our European background we are used to do it and we always try to work in an environmentally and people friendly way, so I think on that philosophy we are in the same line, so we will never have big conflicts with [the EPA] on the permit either. But to say that it adds significant improvements to our project in an environmental way, I haven’t experienced it.”
(Contractor)

Result indicator 7:	<u>Presence of minor desired socially beneficial project changes that were considered in project design</u>
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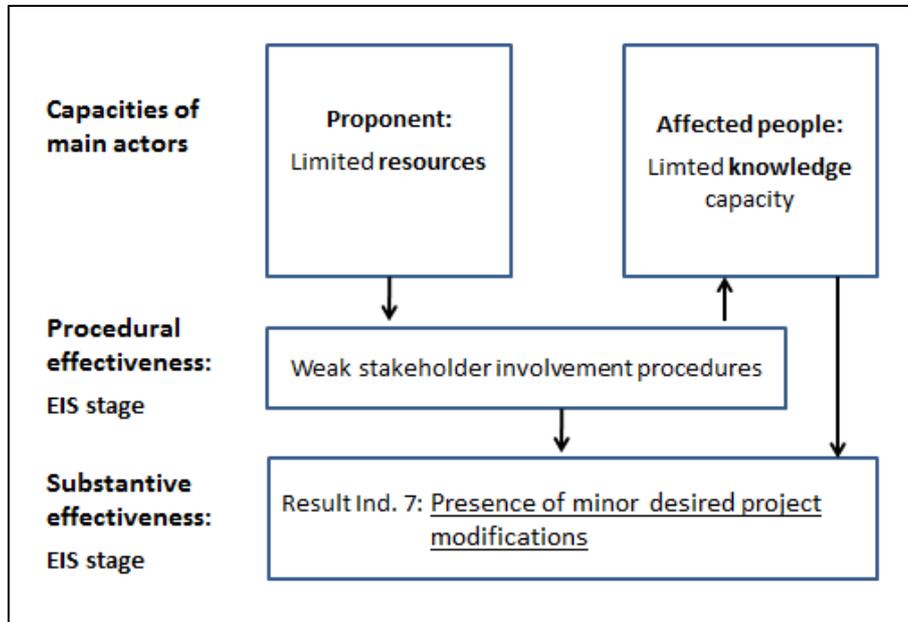
Interviews with project - affected communities around Koforidua revealed that there would have been some minor project design changes desired by them, which were not considered by the project developers. This results in a limitation of the positive impacts of the project for the local people or causes even negative impacts for them. Such project design changes desired by the communities were for example a different amount or location of water taps. Also desired different pipeline routes within the communities were mentioned. The validity of these concerns is difficult to assess for the author. However, the low procedural effectiveness with respect to public participation as mentioned in section 5.1.3 indicates that the people often did not have the possibility to at least communicate their desires. As described earlier, most interviewed community authorities claimed to rather have been informed about definite decisions than having the possibility to participate in decision-making processes on the project design.

The project proponent indicated that often not each individual affected person or community can be informed before the project start. This is due to large distances between the communities and limited resources available for this process. Therefore, the limited **resource** capacity of the proponent may be a source of the shortcomings of the stakeholder involvement procedure. Further, it was discovered that different actors are involved in stakeholder consultations and that nevertheless, there is not a lot of interaction between those actors. There were indications that the responsibilities of those actors regarding public consultation are not clearly defined. This additionally hampers effective consultation procedures. (GWCL RO; Engin. consult.).

Insufficient community information procedures then lead to a limited **knowledge** of the affected communities regarding the project details. The communities thus had a very limited potential to influence the project in a way. Consequently, desired project changes of the

communities remained unconsidered by project developers. These relations are illustrated in the following Figure.

Figure 9: Influence of capacities on necessity of project design changes



Explaining substantive effectiveness during EIA follow-up stage

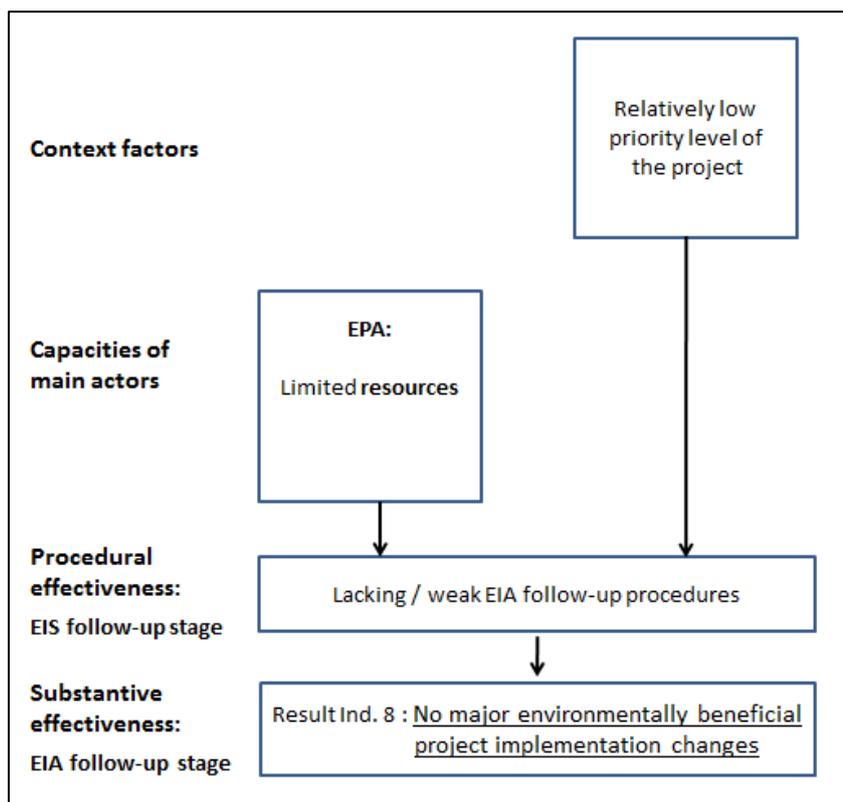
Result indicator 8: No major environmentally and/or socially beneficial project implementation changes were triggered through EIA monitoring procedures

As indicated in section 5.1.4, no major project implementation changes have been triggered through the EIA-related monitoring or enforcement procedures. This can primarily be explained through the lack of compliance monitoring activities by the EPA as well as by the project proponent (see section 5.1.3). Compliance monitoring of the environmental permit conditions also is a precondition for any enforcement activities of the EPA. Finally, no environmental certificate as a potential leverage of the EPA to enforce the environmental permit conditions has been provided to any water supply project yet. The EIA procedures in the EIA follow-up stage were thus discovered to be weak with respect to compliance monitoring and compliance enforcement.

Limited **resource** capacity of the EPA is the most important driving force behind the weak follow-up procedures. According to the EPA, the Environmental Assessment and Audit department is short on staff and monetary resources to fulfill all the tasks of their mandate.

They are responsible for a large number of projects and simply cannot carry all the tasks related to it out with the resources available. Thus, especially when it comes to the time and resource-consuming follow-up procedures, the Environmental Assessment and Audit department has to focus their attention on fewer projects. They will thus focus on projects with large negative environmental and social impacts as well as on high-priority and media-present projects. Water supply project like the Koforidua are have relatively few negative environmental impacts. Moreover, the general public has an interest to get the project through as is beneficial for most people. Due to these characteristics of water projects, the EPA’s **ownership** towards the Koforidua project is relatively low and less attention is paid to it. These elaborations explains the very weak monitoring and enforcement procedures which may give the respondent and incentive to not strictly comply with the environmental permit conditions in order to save resources from his side (EPA HQ1)

Figure 10: Influence of context and capacities on project implementation change –Koforidua



Result indicator 10: Partly non-compliance with environmental permit conditions, especially with respect to compensation measures.

Compensation issues demanded the most attention throughout the EIA process. It is thus expected that the EIA process has influenced the proponent's decisions on compensation measures positively (EIA consult.; EPA HQ2). The environmental permit conditions determine that "a detailed survey of all project-affected-persons and properties should be compiled and valued and the appropriate compensation paid for their loss prior to start of construction activities." (EPA 2010b). However, at the time of field work and thus after project had been completed, compensation issues were still the main concern of many project-affected-people. On the one hand, the environmental permit conditions addressing compensation issues are partly not complied with. On the other hand, the affected people generally are not satisfied with the compensation measures decided upon as part of the EIA process. This indicates that the substantive effectiveness of the EIA process is limited with respect to compensation measures.

In order to understand the influence of EIA capacities on EIA performance concerning this issue, different types of compensation need to be distinguished; Crop and structure compensation as well as land compensation.

Crop and structure compensation

The EIS specifies that crops and structures that get destroyed or damaged through the project activities have to be compensated. Standing crops have to be reimbursed in cash. The amount paid for destroyed crops is based on the rates of the Land Valuation Board. (Amoako, Acqua et al. 2012)

Through the construction process of the transmission line to Koforidua, crops were destroyed. The Land Valuation Board of Ghana valued these destroyed crops around December 2009. During this process, the crop owners were informed that they will be compensated for the destroyed crops. However, it remained unclear what the monetary value of the destroyed crops is and when exactly the payment will be done. The compensation payment of affected people along the transmission line finally only took place in November / December 2011. The farmers were thus compensated with a large delay and after the project had already been completed (contrary to what the environmental permit conditions states). The crop owners along the extension line towards North-West of Koforidua were still waiting to get compensated at the time of research. This was approximately one year after the project had been completed in that area.

The crop owners generally were dissatisfied with the compensation payment process and the amount of compensation paid to them. According to the farmers, they had no opportunity to negotiate about the compensation amount in any way. When the compensation finally was provided, the farmers had to sign to confirm that they have received the payment before the amount of compensation was even known to them. Moreover, a respondent from the proponent's side indicated that corruption may sometimes be involved in the compensation payment process. He stated that "what happens is, and that has been something that I have been so mad at, the people who come to value the crops and the land, they don't give the land owners the right value." (Engin. Consult.). Hence, the affected people are given a lower amount of money than the compensation guidelines of the Land Valuation Board prescribe. The rest of the compensation amount reserved for the farmers then remains with the governmental institution that is responsible for the payment. These government institution involved in the compensation process thus keeps knowledge from the affected people. This leaves them with fewer their possibilities to influence the process and making them even vulnerable to fraud. The statement of the engineering consultant mentioned above further indicates that the proponent sees the valuation and compensation process as a separate issue and not as a direct responsibility of the proponent.

These findings clearly indicate non-compliance with the environmental permit conditions. Due to the weak follow-up system mentioned above, these issues are insufficiently assessed and addressed by the EPA. Therefore, the substantive EIA performance is limited with respect to social issues.

Land compensation

An environmental permit condition concerning land compensation states that "buildings and land should be duly compensated for in accordance with the provisions of the law at the appropriate values in line with Government of Ghana Law and World Bank policy guidelines for affected people" (EPA 2010b). Further, it is specified in the conditional EIS that land generally is acquired for the construction of infrastructures, but not the construction of the pipelines. The compensation is to be paid in cash and the amount for land compensation results from negotiations with the GWCL (Amoako, Acqua et al. 2012).

The land compensation is a highly controversial issue and one of the main concerns of affected communities. In Ghana, the principle of Right of Way is applied. It implies that besides each road land is belongs to the government for infrastructure like water supply pipelines. Thus the pipeline has to be located along the main roads in order to avoid land issues. According to the

project proponent “where ever we do a route, then the government buys the reservation as well, always. [...] So most of the time when we go, we don’t have an issue of compensation of land, we have an issue of compensation of crops.” (GWCL RO). However, it can nevertheless happen that the route of the pipelines has to deviate and that the land used for the pipelines belongs to people. The construction of the pipeline implies that no structure can be built above the pipeline. This makes the land less valuable. Also, many people think that they are not allowed to plant any crops above it. This is however denied by the GWCL. Due to these negative consequences, many people insist that the government should buy their land in return. In general this is not done as following statement of the regional distribution manager of the GWCL explains: “We pay for the crops, but not the land, because you can come back and farm at the same place and it will not affect us.” (GWCL RO). In a few cases, the land is bought by the GWCL. This is only done if the land is owned by the people and if structures were planned to be put up on the respective land before the project was started. According to the project proponent, there is a risk that land owners pretend to have such plans in order to receive more compensation. Consequently, the GWCL asks for official papers and proof that these plans existed before hand. The traditional land heritage system, which implies that the people generally don’t have official ownership documents for land, complicates this process. Moreover, the land owners don’t seem to be clearly informed about this condition for land compensation. The land acquisition for the project already happened before the official start, it was part of preliminary studies. According to the project proponent, all land owners had been compensated for their land about 2 years ago. Interviews with affected land owners, however, revealed that various people are still waiting for their compensation. Some of them even have official documents from the land surveyor that map their land. According to the interviewed people, they had been promised to be compensated for their land. They are thus waiting for it ever since. The project proponent acknowledges that it can happen that the people are given false promises. “I also admit that sometimes you have to say things like that to convince them to release land [...] because it affects the progress of the project. [...] You know very well that you are just coming to evaluate what is there and then pay them what is due them, but for them to agree with you so that the project can go on, somebody can easily say that GWCL can rebuild your [...] house [...] or take the land and give you another land.” (GWCL RO). According to the representatives of the GWCL, such promises are given by the construction workers in the field.

If the people do not want to cooperate and cede their land to the proponent, the proponent as a government institution has possibilities to force them to do so. In that case “the client or the

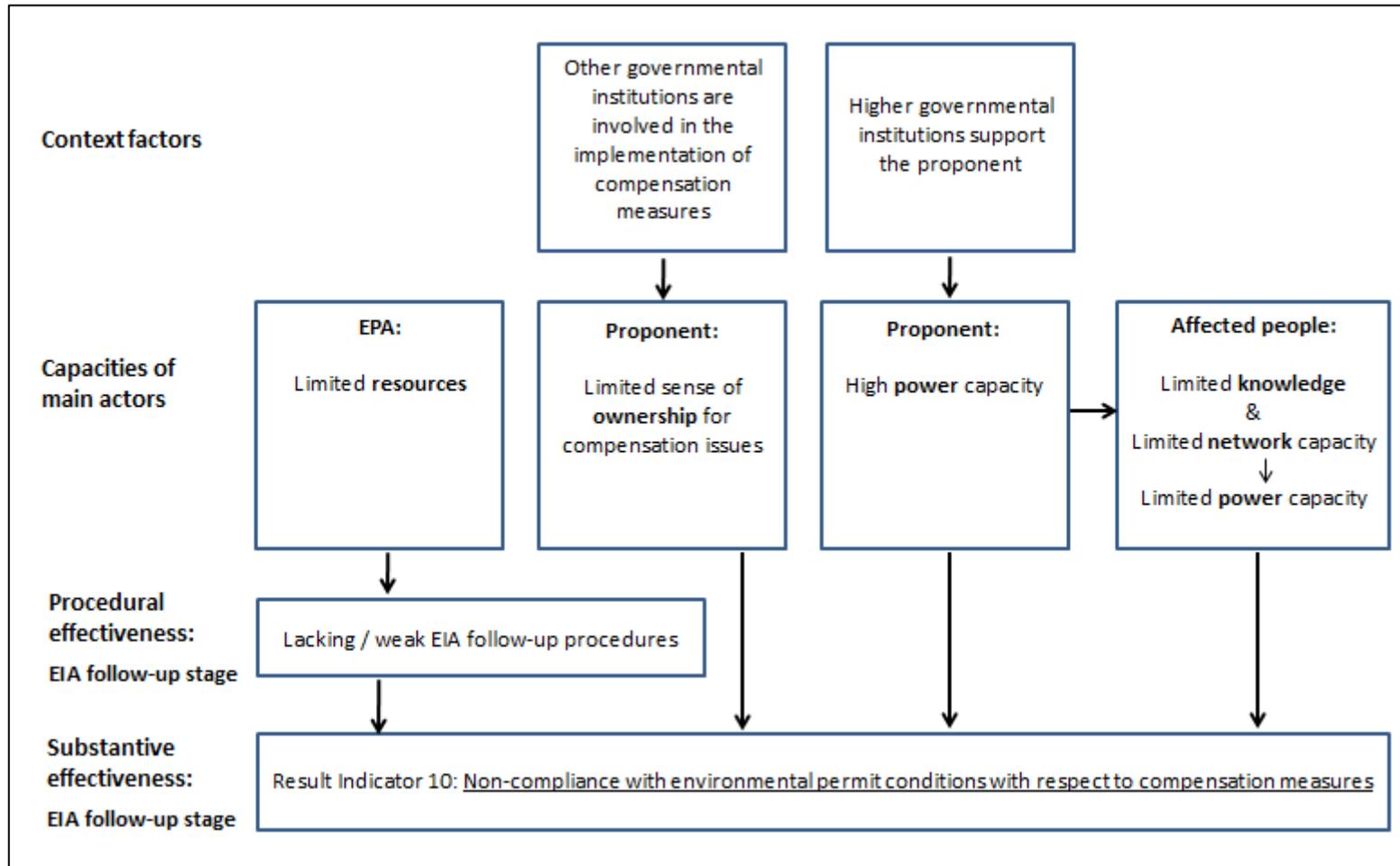
promoter of the project will quickly go to the parliament for a legislative instrument that will be passed. And then the people will be told: look there is a legislative instrument that has been passed, so this land is no longer yours, it is for the Ghana government.” (Engin. consult.). If the local people nevertheless are not willing to give up the land “[the project proponent] will go back to the parliament again and then pass another one that is compulsory acquisition [...] So we just say well, whether you like it or not we are taking it” (Engin. consult). This example clearly illustrates the **powerful** position of the project proponent over the affected people due to its support by higher governmental institutions.

The institutional setting also triggers a lacking **ownership** of the proponent for complying with the environmental permit conditions on compensation payments. It implies that the responsibility for the compensation payment generally lies with other governmental institutions than the project proponent. It is the central government that acquires land for the project and it is the Ministry of Finance that reserves the budget for it. Further the Land Valuation Board as a neutral and professional body is in charge of the valuation process. The compensation payment is thus not a direct duty of the project proponent. It is not included in the project budget. Consequently, the proponent has a limited sense of ownership for the implementation of crops and land compensation measures. The following statement of the project engineering consultant underlines this: “I should believe that the government should have paid them compensation because wherever a road is going to be done, they locate the reservation corridor. And all those people who fall into the corridor they are compensated” (Engin. consult.). It is known that compensation payment by the central government often are delayed and sometimes performed unsatisfactorily. An interviewee working for the GWCL confirms that some people have been waiting for years and he admits that this puts those people in a difficult situation: “when a man needs money, he needs it today and not tomorrow” (GWCL HQ2). Generally it is accepted that “everything that involves government takes a very long time” (Engin. consultant) and that the government has its own pace. (GWCL HQ2; GWCL RO; Engin. consult.) The project proponent thus feels limited responsibility for the implementation of compensation measures. However, the environmental permit conditions do hold the GWCL as the project proponent responsible for the compensation of crops and land. Thus, even though the institutional setting implies that other governmental institutions are accountable for compensation payments, the EIA procedure implies that the GWCL is responsible for it. This complicates the enforcement process on the respective environmental permit conditions.

The case of Koforidua shows that the affected people have very limited **power** to prevail their requests against the project proponent, especially because it is a government project. The affected people perceive taking action against their government as a large challenge and a potential risk. The following statement of a land owner illustrates this: “Who are we to go against our own government?” (AP2). The affected people’s low power position is partly caused by a lack of other capacities. As described in section 5.1.3, many of the land owners have not been informed about the project up to the day when the excavator came to start the construction on their land. These circumstances made it difficult for the people to negotiate with the proponent. Several affected land owners indicated that they are in a less powerful position now that the land has already been used for construction. According to them, whenever the government has received what they needed from them, it will more difficult to push them to fulfill their promises (AP2; AP8). Thus, limited access to **knowledge** about the project start, but also about the compensation payment procedures as explained above, is one factor decreasing the local people’s power capacity. A limited **network** capacity of the land and crop owners is another constraining factor. The local people generally do not seem to know who to contact regarding their grievances. Traditionally, complaints are reported to the traditional leaders or possibly also their assembly man. These authorities are then responsible to take action and to forward the complaints to the district assembly. From there it should be taken further, up to the Ministry of Finance who allocates the budget for compensation. This indirect channeling of grievances is problematic as it makes the process susceptible to corruption. Further, it has to be expected that some involved authorities may have limited **ownership** for the issue. Thus some may not undertake the necessary efforts to achieve the desired outcomes. Periodically, it happens that land owners then take their own initiative and contact the GWCL themselves. Then they are generally told to wait for the central government to pay them, which the majority of the people then see as their only possibility. This leaves the people with perplexity of what to undertake next, as the following statement of an affected person indicates: “I can complain, but who am I complaining to?” (AP2). The people do not consider the EPA as an institution to communicate their grievances to. They often don’t seem to be aware of the EPA’s involvement. Another factor is that the affected people and communities are not unified; they mostly undertake individual actions instead of following a common strategy to put the government under pressure. Thus, the affected people generally lack **network** capacity, leaving them with a weak leadership position and resulting in low power position in their struggle for compensation payment.

The above results on compensation issues showed that the way how context factors and actors' capacities influence EIA performance is highly complex. Figure 11 illustrates this further. The findings revealed that the institutional design in Ghana as a context factor negatively influences EIA performance. It provides the project proponent to have a lot of power through a backup of higher governmental institutions. It also leads to reduced ownership of the proponent on these issues. It allows a shift of responsibilities from the proponent to other governmental institutions. This, however, is contradictory to the environmental permit conditions which hold the proponent responsible for it. However, as the EPA focuses their monitoring and enforcement procedures on other projects with higher priority (as explained in section 5.1.3), non-compliance with the environmental permit conditions isn't expected to have large consequences on its validity. As the regulations on the environmental certificate are currently also not implemented for water supply projects, the EPA's capacity to enforce compliance on compensation measures is further limited. The local people are in a weak power position through limited access to knowledge and a low network capacity. They thus are unable to influence this process. These factors make it possible that the environmental permit conditions regarding compensation are not complied with, even though they are considered as one of the main achievements of the EIA process.

Figure 11: Influences of context and capacities on non-compliance with the environmental permit conditions – Koforidua project



5.2 Bui hydro dam project

5.2.1 Project content

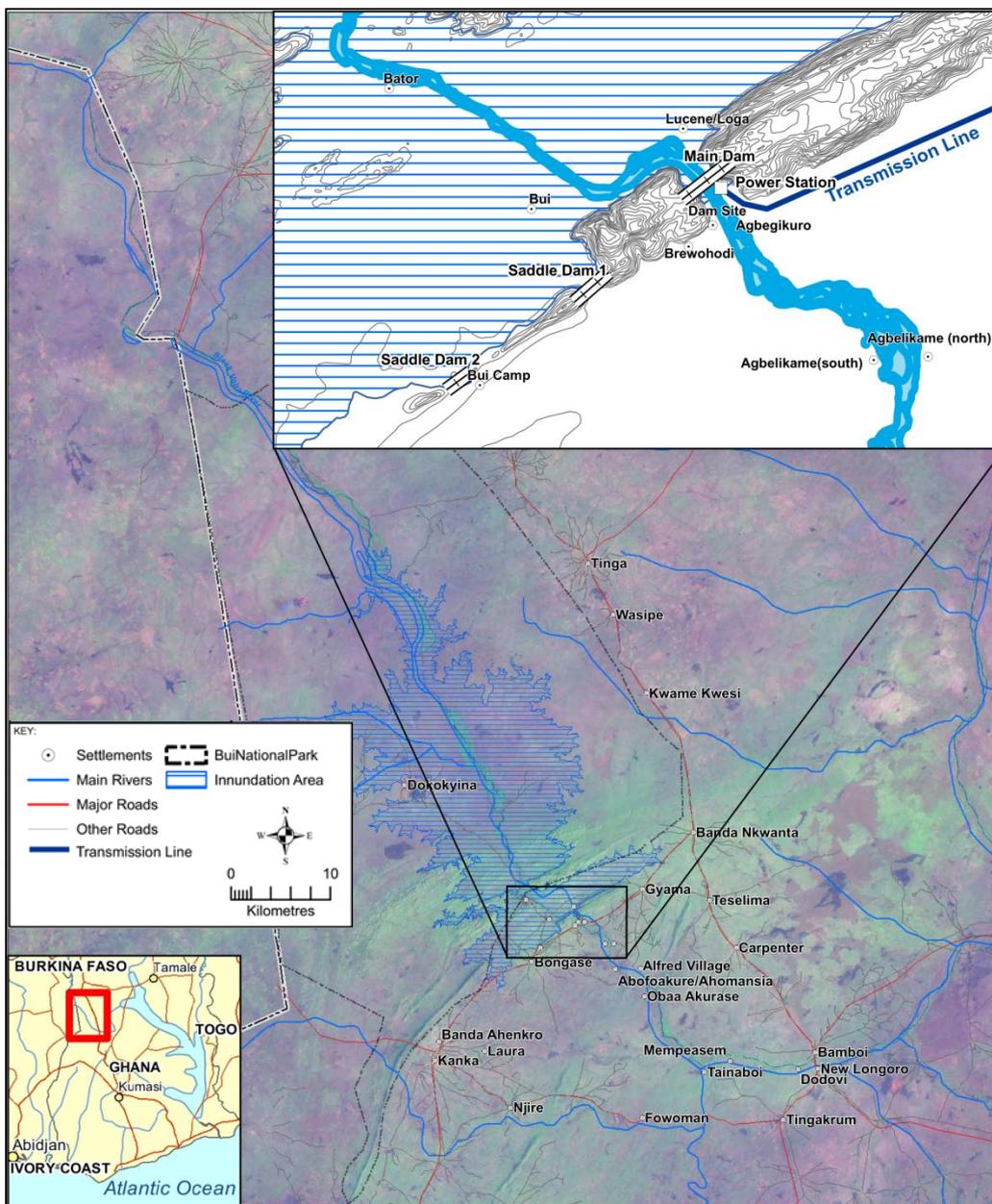
Bui project is a hydroelectric power project that had been on the agenda of the Ghanaian government for a long time already. The Bui gorge in North-Western Ghana has been identified as a potential hydropower site in the 1920s. In the 1970s, the Bui hydroelectric project has firstly been proposed by the Ghanaian government. The 400 MW hydro power scheme has been revived and shelved again on several occasions in the following 30 years, mostly due to shifts in the leading government of Ghana. In 2005, the Ministry of Energy has, on behalf of the Ghanaian government, signed a Memorandum of Understanding with the Chinese company Sinohydro to build the Bui dam. The project initially was expected to cost about US \$ 622 million, of which the Government of Ghana provided US \$ 60 million. The rest was financed by a US \$ 562 million loan of the Eximbank of China. In the meantime, additional funding was found to be necessary. (Raschid, Korantent et al. 2008; Barrett 2007a)

The Bui hydro dam is a project of national priority. It aims to improve the power supply in Ghana, particularly in the Northern part of the country. Its implementation is seen as critical to meet Ghana's future energy demands. It is a project of large scale and it includes several side projects. This case study however merely focuses on the main hydro dam project. The respective EIA study considers the environmental and social impacts of the construction of the main dam (108m high), the two saddle dams and the filling of the reservoir, which will extend approximately 40 kilometers upstream. For several other project components such as the power transmission lines, the quarry, the Bui city and the Bui irrigation project, separate EIA studies were required.

The Bui hydroelectric power project is located at the Black Volta River about 150 kilometers upstream of the Lake Volta. It borders two administrative regions of Ghana, the Northern Region and the Brong-Ahafo Region. It partly lies within the boundaries of the Bui National Park, which has been established in 1971. The national park was set up by the first president of Ghana in order to (p)reserve the area as a future site for hydro power production. Thus, the national park was set up in order to protect the country's resources rather than for protecting its environment as such. As a consequence, a rather small population was affected by the project compared to other hydro dams (EPA HQ4; Energy Commission; BPA1; Wildlife division). Nevertheless, this large-scale project is expected to have major environmental, social, health and economic impacts. About 444km² of land are estimated to be inundated through the filling

of the reservoir to its full supply level, including parts of the nature reserve. Further seven communities with a total population of 1,216 people had to be resettled due to the project. Figure 12 shows the location of the Bui project, the expected inundation area as well as the location of project components and the affected villages. The official commencement of works was at the 27th of August 2007. At the time of research, the project was still in its construction phase. The main dam was to 97% complete and the filling process of the reservoir was ongoing since about one year (see Figure 13). The completion and commissioning of the project is expected to be done in the second quarter of the year 2013. (Barrett 2007a; EPA 2008)

Figure 12: Location of the Bui project and project details



(Source: Barret 2007, p.10)

Figure 13: Bui hydroelectric dam construction



(Source: Author 2012)

5.2.2 Main actors and their role in EIA

Throughout its long history, a large amount and variety of stakeholders were involved in the Bui project. Also, institutions and the people contributing to the EIA process have been changing and with them their values and priorities. The following section introduces the main actor groups and their relations, focusing on the period from when the final EIA procedure was started (in 2006). Thereafter, a selection of influential actors that are considered to be part of the context of the EIA process is presented.

Project Proponent

Several institutions had the role of the project proponent throughout the decades when the Bui project was in planning. Until 2001, the **Volta River Authority** was solely responsible for hydroelectric generation in Ghana and thus was in charge of the Bui project. Then, the **Bui Development Committee** and the **Bui Development Secretariat** as its executive arm were constituted to develop the Bui project on behalf of the Ministry of Energy. In 2007, after the

finalization of the EIS and just before the start of construction, those two institutions were collapsed into the **Bui Power Authority (BPA)**. The BPA was established by the BPA Act 740, 2007 which was enacted by the Parliament of Ghana and assented by the President. It gives the BPA the mandate to plan, execute and manage the Bui hydroelectric project. The BPA is representing the Ministry of Energy for issues concerning the Bui project. In the BPA's main office in Accra main decisions are taken and administrative issues are taken care of. Their site officers at the Bui site implement these decisions. Among others, an environmental officer and a community relation officer is present at the site.

Therefore, the main project proponent has changed two times throughout the history of the project. These institutional changes came along with changes of the majority of the staff members that were responsible for the development of the Bui project. The change from the Bui Development Secretariat to the BPA was gradual however, leaving possibility to transit the knowledge to the new staff members.

In 2005, the Bui project was revived when the Sinohydro Corporation of China submitted an unsolicited bid for the dam together with funding from the Chinese Exim Bank. The Sinohydro Company, China's largest hydropower engineering firm, thus became the project **contractor**. Their involvement with the EIA process appears to be rather limited, as in general the BPA is contacted for any environmental or social issues.

The **EIA consultant** responsible for the writing of the EIS initially was BKS Acres International. They were in charge of the writing and revision of Scoping Reports from 2001 until 2004. After another resumption of the project in 2006 and the formation of the BPA, Environmental Resource Management (ERM) as one of the world's largest consultancy groups was selected as the new consultancy firm responsible for the EIA. The ERM has done the environmental assessment for several large projects in Ghana already. For the Bui project, they wrote the EIS report, the Resettlement Planning Framework and the Environmental and Social Management Plan. Their communication with the EPA was mostly indirect through the BPA. After the EPA had sent review comments on the draft EIS to ERM, ERM stated that according to their contract their involvement in the EIA process was terminated with the submission on the draft report. They thus didn't want to be involved in a revision of the report or further public hearing that were yet to be held.

EIA authority

As for the Koforidua project, the Environmental Assessment and Audit department of the EPA head quarter is responsible for all EIA procedures and decisions that are to be taken. Thus, no other department of the EPA head quarter is directly involved in the EIA process. This is because all large-scale and high priority projects (such as the Bui project) ought to be handled by the Environmental Assessment and Audit department. Most functions of the EPA described in section 5.1.2 thus remain the same. However, due the importance of the project, the board of the EPA has been involved in important decision-making processes regarding it. Because of the geographical location of the project, two regional offices of the EPA ought to be involved in the EIA process; the office of the Brong Ahafo Region and the Northern Region. The two offices each organized a public hearing in their region. Interviews revealed that the EPA Northern region has had a very limited role in the EIA process after those public hearings were held (EPA HQ3, EPA RO2). Thus the EPA Brong Ahafo region mostly supports the EPA head quarter with the Bui project, for instance with monitoring activities.

Affected people

Four main categories of directly affected communities can be distinguished: the resettled communities, the host communities, other communities affected through land loss and downstream communities.

Seven villages had to be resettled through the construction of the dam they are/will be inundated (Agbegikuro, Bator, Brewohodi, Bui, Dam Site, Dokoyina, and Lucene). These resettlement communities comprise of a large variety ethnic groups and religions. The main livelihoods of the people there are fishing and farming. The villages were decided to be moved to two main resettlement sites, one in the Northern Region and the one in the Brong Ahafo region. Agbegikuro, Lucene, Brewohodi and Dam site got integrated in the Jama community in the Northern Region. Further Bator, Bui and Dokoyina were relocated to a site near Bongasi, where together they form the Bui resettlement township. The Resettlement Planning Framework entitles those villages the full package of resettlement and rehabilitation measures (further explained in section 5.2.5).

The two host communities of the resettlement sites are provided with some rehabilitation measures (e.g. renovation of a school and clinic in Jama). The land used for the resettlement is yet to be compensated (AP15). Furthermore, about 93 households of four villages lost a large portion of their land through the project. This land has to be compensated in monetary terms.

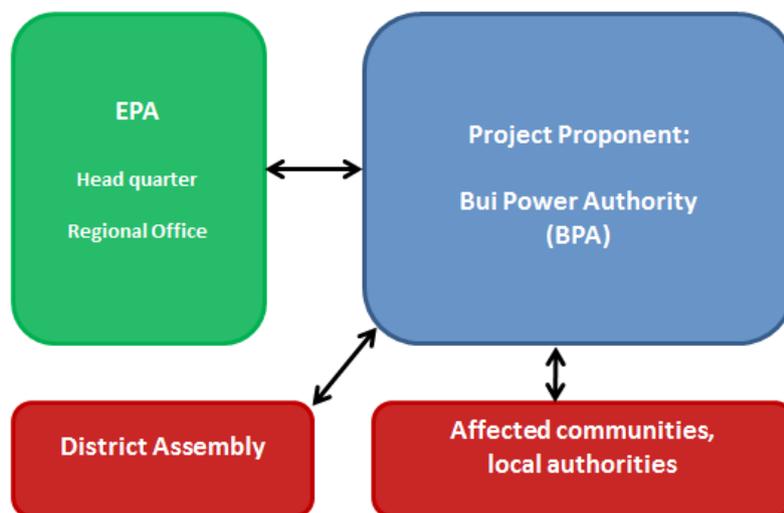
The downstream communities are affected through changing river levels. They were not promised any compensation measures. (Barrett 2007b)

Representing those communities at a higher institutional level, the Assemblies of affected districts ought to be involved in the EIA process. During the field work in Ghana, decentralization processes took place. A new District has been formed in the resettlement area, changing the context in which the resettlement issues take place.

EIA network

Figure 14 shows that for all main actors involved in the EIA process of the Bui project, the BPA is the main contact. The EPA generally negotiates directly with the BPA on any issues regarding the environment and the affected people. The affected people and their community authorities communicate their concerns to the community relation officer of the BPA or to NGOs supporting them. The communities generally don't seek support from the EPA, as they expect them to know their concerns already (AP12). The collaboration between the BPA and the District Assemblies has recently been intensified, as the BPA has handed them over the responsibility for one of the resettled communities. The relations between the main actors of the EIA system are illustrated below.

Figure 14: EIA system relations for the Bui project



Influential actors in the context of the EIA system

For the Bui project, many actors which are considered as part of the context of the EIA system are influencing the EIA process. The **international donor** has influenced the EIA process of the Bui project through requiring the final EIS before granting the loan for the project. Further the **Ministries** superior to the EPA (Ministry of Environment, Science and Technology) and the Proponent (Ministry of Energy) are mostly indirectly involved in the process through backing up their institutions. However, sometimes they also directly add to discussions on EIA. Throughout the time, the institutional set up of the Ministry of Environment has changed. Their influence has increased in the past years. Nevertheless, the EPA remains to be the main regulatory authority over the proponent (EPA HQ4).

For the Bui project, several other governmental institutions are involved in the EIA process. The **Energy Commission** is subordinate to the Ministry of Energy. It serves as an advisory body for the Ministry of Energy on all energy policy matters. Furthermore, it has a regulatory function; it is regulating the electricity sector. The Energy Commission grants the construction and operation license for the hydropower plant. This permit will not be issued unless the proponent has obtained the environmental permit already. The policy of the Energy sector implies that the all energy production activities should be done sustainably. The Energy Commission has an own Environmental and Social Impact Assessment division to ensure that energy project comply with the environmental regulations. This division thus follows similar goals as the EPA. They work very closely together with the Environmental Assessment and Audit department of the EPA. According to the head of the Environmental and Social Impact Assessment division of the Energy Commission, they support the EPA in doing their job and regularly exchange knowledge with them. The Energy Commission was involved in the EIA process of the Bui project from the beginning. They assisted the EPA in their review procedures and are actively involved in EIA monitoring procedures. In fact, they have initiated annual monitoring activities that are done in cooperation with the EPA. (Energy Commission)

Further, the **Forestry Commission** and especially its Wildlife division play an important role in the EIA process. The Wildlife division has the mandate to manage the Bui National Park as a protected area. As the Bui National Park was created to reserve the area for future dam development, the Wildlife division has always known about the eventual start of the project. However, over time, values concerning nature conservation have changed. This changed their perception on their activities, as the following statement of one of the Wildlife division officers illustrates: "We knew that it was going come but we didn't know when. And just as we were getting very interested in doing conservation work, it's a reality [...] We have protected the

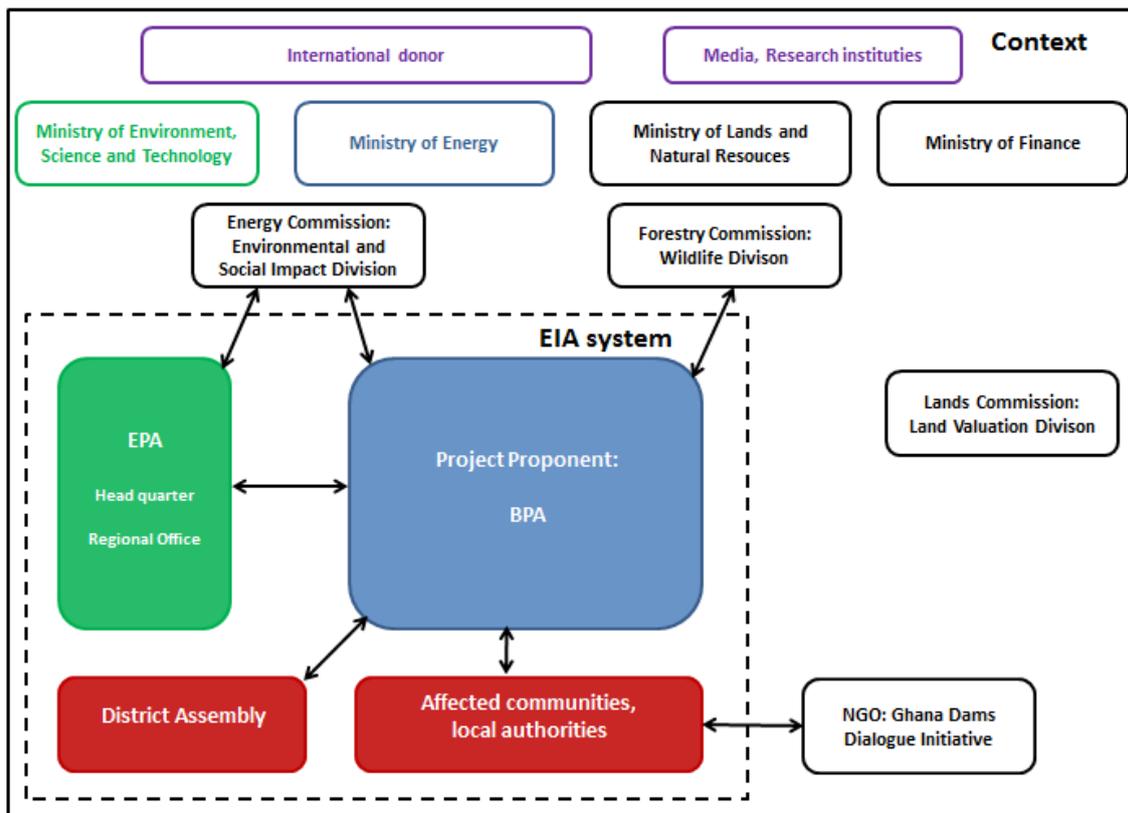
area for a long time, so we can't allow [the BPA] to do certain things. We need to sit down together because it is of global interest" (Wildlife division). For the areas of the national park which are going to be inundated, two sometimes contradictory legislative instruments apply (the one instituted for the Bui hydro dam project and the one for the national park). Thus, the BPA and the Wildlife division have to cooperate to find solutions for these areas. The Wildlife division has a strong interest to protect the national park and thus the environment. The Wildlife division is responsible for implementing some of the mitigation measures that are an outcome of the EIA process. Their direct involvement in the EIA process, however, is limited despite their interest in protecting the environment. Any environmental concerns they generally communicate to the BPA directly, rather than informing the EPA. The interviewed park manager mentioned that he would expect the EPA to be more present in the field: "if you want to assess, if you want to know, you have to at least be on the ground to see what is happening" (ibid.).

As for the Koforidua project, the Ministry of Finance and the Lands Commission, specifically its **Land Valuation division**, were involved in compensation procedures.

Finally, various **Non-Governmental Organizations** (NGOs), **researchers** and **media** representatives were indirectly involved in the EIA process, for example through taking part of the stakeholder consultation forum, sending review comments to the EPA, or undertaking efforts to critically assess the situation on their own. An example of such an actor is the Ghana Dams Dialogue Forum, an initiative that critically assessed the quality of the EIS for the Bui project. They also undertook efforts to bring together different stakeholders involved in dam projects in Ghana. Further, they spent a lot of efforts on capacity building of the affected communities. Their work however did not directly involve the EPA or any EIA specific subject. (GDD1; GDD2; AP12; AP14)

The following Figure 15 presents an overview of actors that are relevant for the EIA process of the Bui project; the ones directly part of the EIA system as well as a selection of influential actors that are part of the context of the EIA system. It also indicates some important relations between them.

Figure 15: Main EIA actors and influential contextual actors - Bui project



5.2.3 EIA procedures – Procedural effectiveness

Preliminary activities

Along with the many occasions when the Bui project was started and shelved again, the EIA study had been commenced several times before its definite project start in 2005. In 1995, an update of the feasibility study for the Bui project from 1976 had been conducted by the engineering consultant Coyne Et Bellier. After an EIA registration in 1999, a Scoping report for the project was then submitted to the EPA in 2001. In the same year, the government of Ghana prohibited a British researcher to conduct further research on the Black Hippopotamus population in the Bui National park. It was argued that the Bui hydro power issue is a sensitive political issue and that the presence of the research no longer is of national interest. The researcher had previously criticized the Bui hydropower project for its potential negative effects on the hippos as a protected species. This affair revealed strong media critics indicating that the Government of Ghana is preventing a neutral researcher to uncover the real impacts which the EIS written by a consultancy firm that is hired by the proponent may neglect. When this questioning of the consultant's neutrality was mentioned to the director of the

Environmental Assessment and Audit department, he responded that the consultant is legally required to provide neutral information and that the review process additionally makes sure this is the case (EPA HQ4).

Later in 2001, the new Government shelved the project again, as the hydro dam was not considered anymore to be the best option to meet Ghana's energy needs. In the following years, an international call for tender was issued, but due to a lack of bids it was cancelled again. In 2004, the Bui Development Secretariat asked the EPA complete the previously started EIA process in order to make the project attractive to developers (Bui Development Secretariat 2004, letter to EPA, 14 October). Responding to this, EPA asked for a revised Scoping report which was never submitted as the project was stopped again afterwards (EPA 2004, letter to Bui Development Secretariat, 27 October).

Throughout those years before the definite project start in 2005, the Bui project had been a "hot issue" (EPA HQ4). It was heavily criticized by involved researchers and the media. International donors such as the World Bank and the European Investment Bank had decided to not finance the project, also due to the expected negative environmental and social impacts of the project (Wildlife division). Further, the public had a rather negative perception of the project. This changed when the plans for the Bui city were presented; an ambitious plan to build the most livable city in Africa in Bui (AP12).

This section on the preliminary EIA activities illustrates the power and influence that the leading governmental of Ghana has over the Bui project. It further indicates that the media and international donors as key players in the context of the EIA system can put the proponent under pressure concerning negative environmental impacts, up to the point that the project cannot go through.

Procedural effectiveness in the EIS stage

<i>Indicator 1: Execution and quality of EIA procedures during EIS stage</i>
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In January 2006, the EPA got informed by the Bui Development Secretariat the government has commenced preparations to restart the Bui project and that the government wants the EIA study to be completed as soon as possible (Bui Development Secretariat 2006, letter to EPA, 19 January). By 2006, the Bui project was not so much of a controversial issue anymore, as in the meantime the people "have gotten used to the idea that Bui was coming on" (EPA HQ4).

A revised **Scoping report** was submitted in April 2006. The review comments of the Scoping report were elaborate and thorough. The report was judged by the EPA to be detailed and

complete in general. However, it was found to have “failed to provide evidence of consultations with relevant stakeholders and relied extensively on previous studies without generating enough current information” (EPA 2006, letter to Bui Development Secretariat, 14 July). The quality of the review process was limited due to a lack of inputs of public hearings. This will be further elaborated on in the section of indicator 2. On the 14th of July 2004, the draft EIS report was submitted to the EPA. This thus was done on the same day as when the EPA’s review comments on the scoping report were sent to the Bui Development Secretariat. Even though there are indications that some review comments had been communicated to the Bui Development Secretariat on forehand, it has to be assumed that the comments of the EPA on the Scoping report were not considered for the EIS draft to a large extent. This indicates lacking procedural effectiveness.

The **draft EIS** report was published and distributed to various relevant stakeholder institutions. In the following, review procedures had to be postponed due to the delayed payment of processing fees by the BPA. The EPA’s review decision on the draft EIS was the following: The draft EIS should be revised to incorporate the comments made and 3 public hearing shall be held as part of the review process (EPA 2006, letter to Bui Development Secretariat, 4 December). A lack of current data was criticized strongly. Hence, those review comments on the Scoping report had not been incorporated in the draft EIS. The EPA had decided that the quality of the draft EIS was insufficient. They demanded more stakeholder consultations. As a reaction to these requests, the Bui Development Secretariat informed the EPA that the final EIS will have to be submitted to the Eximbank in China prior to the conclusion of ongoing loan negotiations, expectedly in two weeks from then. They mentioned that they thus would be grateful if the EPA could conclude the review process, so that the EIS could be finalized and submitted (Bui Development Secretariat 2007, letter to EPA, 24 January). On the 30st of January 2007 a meeting was held between the EPA, members of the Technical Review Committee, the Bui Development Secretariat and the EIA consultant to discuss the issue. It was decided that the EIS shall be officially accepted immediately for the loan agreement. Thereafter, further studies will still need to be carried out to finalize the EIS. Therefore, due to shortness in time and pressure from higher government institutions, the EIS review procedure was shortened and the requested public hearings were not held as part of its process. The formal acceptance of the EIS before the finalization of the review process reduces the procedural effectiveness of the EIS stage. The final EIS, Resettlement Planning Framework and Environmental and Social Management Plan were finalized the 31st of January 2007 and formally accepted shortly after. The quality of the EIS was judged differently by the actors

involved in the project. The BPA came into existence after the EIS had been finalized. The newly responsible staff thus had to take it over from the Bui Development Secretariat. According to the environmental officer of the BPA, “the EIS was comprehensively carried out and it has guided us very well to implement most of the impact mitigating measures” (BPA1). In the line of the study ‘Research, development and capacity building for the sustainability of dam development in Ghana’ by the Ghana Dams Dialogue Initiative, the EIS of the Bui project had been critically reviewed by several water specialists (Raschid, Korantent et al. 2008). A number of weaknesses of the EIS were identified. For instance, the quality of hydraulic analyses was discredited, possible impacts found to be neglected or underestimated. Nevertheless, the general quality of the EIS was found to be sufficient (WDD1). A chief of one of the affected communities who found the EIS on the internet further indicated that there were inadequacies and inconsistencies in some of the statements regarding historical and cultural issues (AP12).

In the following, the loan agreement was approved. Also, payment of the processing fees that the EPA had requested for more than a year already (causing the delay of the public hearings) were finally made. The commencement of works was then celebrated with the sod-cutting ceremony at the 24th of August 2007. The EPA requested the payment of the environmental permit fees to enable them to finalize the process. They indicated that the environmental permit needs to be obtained before the commencement of the project (EPA 2007, letter to Bui Development Secretariat, 8th October). Nonetheless, the environmental permit fees were not paid until the 6th of August 2008, after the first construction phase of preparatory works had commenced and first resettlement activities had already taken place.

The **Environmental Permit** has then been issued on the 1st of September 2008. As for the Koforidua project a high congruence between the EIS and environmental permit was found. The first condition of the environmental permit prescribed “to comply with all project specifications, mitigation, and monitoring and other environmental management provisions as indicated in the project Environmental and Social Impact Assessment Report, the Environmental and Social Management Plan and the Resettlement Planning Framework” (EPA 2008). The other conditions are extensive and detailed.

This section on the procedural effectiveness during the EIS stage shows multiple examples of the relative higher power position of the project proponent over the EPA due to the support of higher government institutions. As the project proponent was late with the payments of fees to the EPA, review procedures (especially the public hearings) were delayed. Nevertheless, the

project proponent then pressured the EPA to speed up the EIA process in order to not put the project in danger. Thus, the EPA had to make compromises on the expense of the quality of the EIA procedure in order to fulfill the requests of higher government institutions.

Indicator 2: Public participation during EIS stage

The involvement of the public during the EIS stage was found to be generally insufficient. Throughout the several attempts to write and finalize the Scoping report, the EPA had repeatedly pointed out to the project proponent that stakeholder involvement is an essential part of the process. Moreover, the EPA decided that public hearings have to be held due to the need for resettlement, the partly inundation of the national park and other far-reaching implications of the project. In general, public hearings are held during the EIS draft review process. However, for very sensitive cases the EPA can decide to request the public hearing already to part of the Scoping report review procedure. This was found to be appropriate for the Bui project (EPA HQ1). In 2001, six public hearings were organized. They were cancelled a few days before their planned date because the project was again put on hold. When the project was revived in 2006, the EPA advised the project proponent on several occasions to hold public hearings. The proponent nonetheless submitted the Scoping report without having the consulted public at a larger scale. It was only thereafter, when a National Stakeholder Consultation Meeting was organized in Accra. The EPA then intended to hold public hearings as part of the review process. However, this was not possible due to a delay of the payment of processing fees which are meant to cover the costs of the public hearings. The lack of stakeholder consultations was thus a main critic of the review comments of the Scoping report. As the draft EIS was submitted the same day as the review comments were sent to the proponent, it has to be assumed that this was not further considered. Finally, after the submission of the EIS draft, two out of five requested public hearings were held as part of the draft review process in each of the affected regions. That the three missing public hearings should be held was thus one of the main conditions of the EPA to accept the EIS report. However, due to the circumstances of severe time pressure described in the previous section, the EPA had to accept the EIS formally without this condition to be fulfilled. In the following, the processes were paid with more than a year delay and it is unclear if the requested three public hearings have ever been held. Raschid, Koranteng et al. (2008) in their review of the EIS also concluded that community participation and stakeholder consultation processes were insufficient. Further, they criticize that the EIA regulations fail to indicate the extent to which submissions made during public hearings are considered in the further design process (ibid.).

According to the director of the Environmental Assessment and Audit department of the EPA, the consultations of the affected people were done eventually, but not as part of the environmental permit process. He stated that this process can take a life time of the project and that usually they don't want that the progress of the project to be delayed through outstanding public consultations. Thus, the main concern of the EPA is that a framework for the resettlement is in place that involves consultations. (EPA HQ4)

The interviews with the affected communities revealed that they had always been aware of the possibility that they may have to be resettled due to the hydro dam project. Even though they may have been in contact with the project proponent before, during the public hearing they were for the first time officially informed about the project. The project proponent then had an opportunity to tell the public about the project, its benefits as well as its negative impacts and the planned mitigation measures to address them. The public also had the possibility to raise questions and concerns. Issues on compensation, the resettlement process and the impacts on the hippopotamus population as an important tourist attraction were mostly mentioned by the communities (Barrett 2007a). However, the affected people generally were enthusiastic about the project as they were happy to be part of a project of national importance. Looking back, the communities find that the project so far has brought some positive, but mostly negative impacts. The public hearing thus failed to provide them a realistic picture of the project impacts. The authorities of the affected communities found the public hearing to be useful in terms of information provided regarding the project. However they find it to be insufficient as there was no follow-up on it. They were never informed on how their concerns will be addressed in practice and many promises made during the public hearing have not been kept. (AP12; AP14;AP16)

Therefore, the public hearings were strongly delayed and incomplete, leaving restricted possibilities to influence the project design. Furthermore, the communities did not get the feeling that they are supported by the EPA. Hence, it can be concluded that the procedural effectiveness during the EIS stage was low with respect to public participation.

<i>Indicator 3: Timing of the EIA procedure</i>

For the Bui project, the EIA procedure was started at an early stage in the project development cycle because the finalized EIS was a necessary condition to receive the loan for the project. As a consequence, the final EIS and the Resettlement Planning Framework had been written and accepted before the detailed design stage of the project took place. The environmental permit

conditions were then based on these documents. Thus, the EIS stage failed to consider the detailed project design, as the necessary documents containing this information (Resettlement Action Plan, Environmental Management Plan) had not been available at that time. At the time of field work, these documents had still not been finalized and submitted to the EPA. While the framework of this research assumes that the project design stage coincides with the EIS stage and thus ends with the environmental permit decision, for the Bui project, the project design was still ongoing during the EIA follow-up stage. Time pressure from the project proponent's side (with support from higher government institutions) to finalize the EIA procedures was present throughout the EIS stage. It led to a shortening of the EIA process and may explain the lacking possibilities of the EPA to base their decisions on a detailed project design. Thus, even though it was started early in the project lifecycle, the timing of the EIA process during project's life-cycle was not optimal. This negatively influences the EIA performance. Complaints of a resettlement community authority saying that the resettlement procedure should have been planned, prepared and implemented much earlier in the project phase, support this finding (AP14).

Procedural effectiveness in the EIA follow-up stage

Indicator 4: Execution and quality of EIA procedures during EIA follow-up stage

For the Bui project, different compliance monitoring activities are in place. The EPA regional office of the Brong Ahafo region holds quarterly monitoring field visits to the Bui site. Monitoring the Bui project is found to be essential because it is a project of national interest (EPA RO2). Limitations in resources, however, hamper more frequent visits to the Bui site. The quarterly visits so far have always been announced visits. The author of this thesis attended one such monitoring visit. During the one-day activity, the BPA, project engineers of Sinohydro, and the national park officer were consulted. Further the construction work sites of the project were visited as well as the resettled communities. Throughout all monitoring activities, representatives of the BPA were present. The EPA monitoring team showed strong leadership during the monitoring activities. It determined the agenda throughout the day; was critical and demanding towards the BPA. Further the EPA regional office asked to get better informed about decision taken by the BPA and about current issues. The atmosphere between the different institutions was friendly.

Figure 16: Monitoring visit of the EPA regional office to the Bui site



(Source: Author 2012)

Moreover, in 2010 and 2011, annual joint monitoring exercises had been conducted in a cooperation of the Energy commission, the Forestry Commission, the EPA head quarter and the EPA regional office. These joint monitoring visits have been initiated by the Environmental and Social Impact Assessment division of the Energy Commission. According to the initiators of the monitoring activities, media reports on non-compliance of the BPA as well as their ownership towards an environmental and socially friendly project were the main reasons to start the initiative. The agenda of the joint monitoring visits was strongly based on the information provided by the EIS (i.e. the predicted impacts and proposed mitigation measures described in it). Firstly, the Environmental and Social Impact Assessment division of the Energy Commission identified quantitative and qualitative variables from the EIS in order to be able to assess if the project specifications are complied with. Then, the monitoring framework was proposed to the EPA and a team was formed. As part of the joint monitoring procedure, the project proponent, local political authorities as well as the affected communities were consulted. Such joint monitoring activities with other governmental institutions are not a common practice. The EPA intends make it the norm in order to extend their monitoring capacities. (Energy Commission)

In February 2012, the Policy Planning, Monitoring and Evaluation Directorate of the Ministry of Environment, Science and Technology has undertaken an additional monitoring field trip. The Minister of Environment, Science and Technology then sent the monitoring to the BPA, highlighting the identified issues for consideration.

In order to encourage the proponent to undertake self-monitoring activities, the environmental permit conditions requested the project proponent to submit Annual Environmental Reports. The first two Annual Environmental Reports of the years 2009 and 2010 had been submitted to the EPA. They have been reviewed by the EPA regional office and EPA head quarter and a revision of the reports was requested.

The efficiency of the monitoring activities of the EPA is hindered through a lack of essential information on the details of the project design (EPA HQ3). The environmental permit conditions requested the submission of a comprehensive Resettlement Action Plan for affected communities before any resettlement activities. Even though the communities had already been resettled to at the time of research, this Resettlement Action Plan had not yet been submitted. According the community relation officer of the BPA, the finalization of the Resettlement Action Plan was dependent on the documents regarding the (delayed) crop compensation payments (BPA1; BPA2). Moreover, an Environmental Management Plan would be necessary to carry out monitoring procedures satisfactorily. In the follow-up of monitoring activities and the review of the Annual Environmental Reports, the EPA as well as the Energy Commission asked the BPA to submit the required documents in order to enable them to critically assess the progress made. The BPA was also requested to address identified outstanding issues. These are necessary actions that have to be taken before the environmental certificate can be issued. According to the environmental permit conditions, environmental certificate has to be obtained by the BPA within 24 months of satisfactory performance and compliance with relevant permit conditions (i.e. 1st of September 2010). The environmental certificate has not been issued up to the moment of the field work.

A loophole in the Environmental Assessment Regulations from 1999 is the main reason for the EPA's difficulties to enforce the submission of the outstanding documents. In those regulations the deadlines for obtaining the environmental certificate and submitting the Environmental Management Plan as well as the annual reports are all mentioned to be a certain amount of months after the *commencement of operations* (EPA 1999). The Bui project, however, is still in the construction phase and its operations haven't been commenced yet. Thus, even though the environmental permit has been issued 4 years ago, the proponent is legally not required to hand in those documents or obtain the environmental certificate. This shortcoming regarding the formulation of the EIA regulations considerably weakens the EPA's possibilities for effective monitoring activities and **compliance assurance**.

Indicator 5: Public participation during EIA follow-up stage

Throughout the project, the BPA has had regular contact with the authorities of the resettled communities and the host villages. As mentioned before, the detailed design of the resettlement was only determined in the EIA follow-up stage. According to the community relation officer of the BPA, a participatory approach was chosen for doing so. He states that involving the communities in the process helps to prevent problems at a later stage of the resettlement process (BPA2). The communities were thus incorporated in decision-making processes for example on the town planning, the design of the houses or the location of their future farmlands. However, concerning other issues, the communities' demands were considered to a limited extent only. Many communities from the area around Bui request to receive compensation measures and community support. Not all of those requests can be granted by the BPA due to their restricted budget on such measures (BPA2). The village authorities of the resettled communities confirm that there is a frequent contact to the resettlement officer of the BPA. However they generally are disappointed by the BPA as many of the promises made by them are not fulfilled yet.

With respect to the EIA procedures, the communities are insofar involved in the EIA follow-up process as they are sometimes consulted during the monitoring visits. According to the EPA head quarter, they "haven't had any serious issues coming from the communities" (EPA HQ4). Interviews with the affected communities, however, showed that there such concerns do exist. The limited contact between the communities and the EPA and a lack of consultations without the presence of the BPA can explain this lack of knowledge of the EPA regarding the concerns of the people.

5.2.4 EIA performance – Substantive effectiveness

As for the Koforidua project, substantive effectiveness is assessed in this section for each process stage. The previously identified indicators are used to do so.

Substantive effectiveness during EIS stage

Indicator 6: Project design modifications

For the Bui project, several large major project design changes have been triggered through the EIA procedures during the EIS stage. Such a modification was for example the plan to create a habitat offset area that makes up for the area of the Bui national park which is going to be flooded through the reservoir. This is particularly important to create new habitats for

the endangered species of the Black hippopotamus. This measure was proposed by the Wildlife division and its development based on the knowledge from an earlier study of the Wildlife division. Another example for such an environmentally beneficial project modifications is a developed rescue plan for animals that will be trapped on islands through the inundation of the reservoir. It was an outcome of the review process. Furthermore, a management plan of the Bui National park was decided to be developed. Moreover, through the identification of social impacts and the development of mitigation measures for them, the EIA process has influenced the project design considerably with respect to community support measures. The Resettlement Planning Framework was written to ensure that the project improves the affected people's conditions, minimizes negative conditions and provides measures for unavoidable impacts (Barrett 2007b, p. i). Even though the Resettlement Planning Framework discusses many aspects of the resettlement process, it was written before the detailed design stage of the project and thus it is rather vague on many significant issues. Furthermore, consultations with affected communities revealed a need for introducing new livelihood opportunities to the people and for providing training for them. In the following, the BPA thus developed a livelihood enhancement program that ought to provide a "safety net" for those households that may become vulnerable due to the disruption of their livelihoods, economic and social networks (Barrett 2007b, p.96).

Indicator 7: Necessity for project design modifications

There are many indications that initially the necessity for project design modifications was considered to be high. The project had been criticized heavily for its negative environmental and social impacts by various researchers and journalists. International donors had refused to sponsor the project due its negative impacts on the people and the environment. The EPA's decisions that public hearings have to be held and that this should even happen in the early Scoping stage further indicate the perceived high necessity for project design modifications.

A sub-indicator for assessing the necessity of project changes refers to the presence of desired project design modifications. Good-functioning EIA procedures are a precondition to be able to identify and address such desired changes of the project design. As explained in the previous sections, the EIA procedures during the EIS stage were found to be limited in their effectiveness, especially due to insufficient stakeholder consultations. Thus, it has to be assumed that opportunities to identify desired project design modifications have been missed. The development of clear and specific measures to mitigate negative impacts of the project on downstream communities is an example of a potential desired project design modification.

They were found to be insufficiently covered by the EIS, as it will be further explained in section 5.2.5. Other potential desired project mitigation measures concern the rare species of the black hippopotamus. The potential endangerment of the hippos through the project was a major concern of many stakeholders, causing the project a lot of negative media attention. Among several propositions, the relocation of the hippos was discussed. The environmental permit conditions are rather vague on this issue, they merely prescribe that “appropriate steps to protect the hippopotamus” should be taken and that fodder species for them should be planted (EPA 2008). The hippos were finally left in the inundation area and the planned habitat offset should help them to regain new habitats.

Substantive effectiveness during EIA follow-up stage

<i>Indicator 8: Project implementation modifications</i>
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As explained before, many project details had not yet been defined when the environmental permit was issued. Thus decisions on EIA-relevant project specifications were taken during the EIA follow-up stage. Examples for such decisions are the ones on the location of the resettlement sites or on the specific content of the compensation packages. The EPA was not further involved in these procedures.

During the EIA follow-up stage, the EPA and other involved institutions identified several critical issues that needed to be studied in more detail. They requested that several supplementary EIA studies had to be done. The import and use of fly ash for the concrete of the dam was a critical issue for which a supplementary EIS was required. Further, a separate study had to be done on the power transmission lines and a Preliminary Environmental Report on the quarry providing the material for the project. Separate mitigation measures were developed as part of these supplementary studies. These represent project modifications. According to the environmental officer of the BPA “all the supplementaries [they] were ask to do were in the best interest of the BPA” (BPA1).

The Energy Commission advised the BPA that a health impact assessment should be done due to insufficient baseline data in the EIS for monitoring procedures. Such an assessment has been carried out by the proponent on a voluntary basis. Furthermore, project enhancements that are environmentally and/or socially beneficial were voluntarily introduced by the project proponent during this stage. According to the environmental officer of the Bui project, the BPA goes beyond the requirements of the EPA. An example for such project enhancements is the Forest Resource Enhancement Program. It involves the planting of trees along the lakeshore,

large-scale planting of trees on the land acquired for the project (to influence the micro climate, create carbon sinks and to gain timber as a resource) and the creation of a memory center on indigenous knowledge on native plants. Further, before the inundation of the reservoir, trees were cut in a way that fairways enable future lake transportation. Moreover, a sustainable fishing program was developed (BPA1). With respect to the resettlement communities, some measures were introduced that aimed to enhance the living conditions of the people rather than only replacing what has been at the old location (e.g. additional bedrooms were provided and additional facilities for the township) (BPA2). Furthermore, plans for an irrigation project, the Bui city, development of ecotourism and aquaculture in the lake exist. According to the BPA, these project enhancement programs are the result of the project developers' vision to enhance the development of the area in the future. The environmental officer of the BPA describes the Bui project as "one of the few project that is adding, that enhances the life within the area, and is not only interested in building a dam" (BPA1). The EIA process may have triggered those programs, but they are not a direct outcome of it. The project proponent has developed them voluntarily and separately from the EIA process. The EPA and also the Wildlife division were not involved in the development of these initiatives or not even informed about them.

Indicator 9: Necessity for project implementation modifications

The results of the monitoring activities of the EPA indicate that the BPA's compliance performance generally is considered as satisfying. Main issues that currently remain to be resolved are compensation issues, the provision of infrastructure for the resettled communities and the implementation of the livelihood program. With respect to the livelihood of the people, it is specifically recommended to develop alternative livelihoods for fishermen living downstream of the project (further described in section 5.2.5). As the following section on indicator 10 will show, these outcomes of the monitoring visits indicate that compliance with previously introduced measures is of more concern than the implementation of new measures. (EPA RO2; EPA RO3, EPA HQ5)

Indicator 10: Implementation of project modifications

Of the project design modifications and project implementation changes described under indicator 6 and 8, many have not yet been implemented at the time of research. For the extension of the Bui National park, three zones have been earmarked as potential habitat offset areas. These zones are sparsely populated and could become new habitat for the fauna that is forced to move to different areas because of the inundation of the reservoir. Depending on where the animals migrate, a zone will be chosen for the extension of the national park. Implementing this measure is expected to still take a long time, as it needs to be incorporated in the legislation (Monitoring visit). While the BPA finances this measure, the responsibility for implementing it lies with the Forestry Commission (EPA RO3). Another plan regarding the Bui project that is expected to still take a long time before it can be implemented is the Bui City project. The prospect of the development of Bui city was used as a main argument to get the public enthusiastic about the Bui hydro dam project. However, the project is far from being implemented. This is confirmed by the following statement on the BPA webpage: “The reality is that Bui City is still a concept for which no financial provision has been made yet.” (BPA 2012). Furthermore, several promises made to the affected communities, before or after the environmental permit was issued, have not been held yet. For example the decision on the location of the resettlement site that was supposed to be taken under consideration of the communities’ preferences, was not satisfying for all parties involved. Moreover, several elements of the compensation package that has been promised to the resettled communities have not yet been provided to them. This is the case even though the communities already have been resettled. Thus, many of the project design changes and specifications which are an outcome of the EIA process still have not been implemented in practice.

Table 5 presents an overview of the results with respect to the substantive effectiveness of the EIA system. The underlined results will be in the focus of the following section in which insights are given on how context factors and actor capacities have influenced them.

Table 5: Overview results of substantive EIA performance - Bui Project

<p><i>Indicator 6:</i> <i>Project design modifications</i></p>	<ul style="list-style-type: none"> - Presence of several environmental and / social beneficial project design changes or adaptations due to the EIA procedures
<p><i>Indicator 7:</i> <i>Necessity for project design modifications</i></p>	<ul style="list-style-type: none"> - High perceived necessity for environmentally beneficial project design changes - <u>Potential desired project modification are likely to not be identified and considered</u> - Presence of preventive effect was not assessable due to changes in staff.
<p><i>Indicator 8:</i> <i>Project implementation modifications</i></p>	<ul style="list-style-type: none"> - Presence of project modifications due to EIA follow-up procedures
<p><i>Indicator 9:</i> <i>Necessity for project implementation modifications</i></p>	<ul style="list-style-type: none"> - General satisfaction with several cases of non-compliance.
<p><i>Indicator 10:</i> <i>Implementation of project modifications</i></p>	<ul style="list-style-type: none"> - <u>Partly non-compliance with environmental permit conditions that refer to project design modifications</u> - <u>Several project specifications and modifications decided upon during the EIA follow-up stage are not yet implemented</u>

5.2.5 Explaining EIA performance with respect to actors' capacities

The following section uses an illustrative approach to explain the influence of context factors and actors capacities on EIA performance. This is done by looking into practical examples of results on EIA performance that were introduced in the previous section.

Explaining substantive effectiveness during EIS stage

Result indicator 7: Potential desired project design modifications are likely to not be identified and addressed adequately (e.g. downstream communities)

As explained above, the lack of procedural effectiveness during the EIS stage has hindered the effective development of project design modifications that improve the project from an environmental and social prospective. For instance, the negative impacts of the Bui dam on the downstream fishing communities have not been addressed adequately. The need to develop

mitigation measures regarding the downstream communities was already mentioned during the first stakeholder meeting (Barrett 2007ap. 153). Further, the downstream communities themselves raised concerns about the potential ceasing of the streams when they were first informed about the project. The effects on the downstream communities were also an issue during the review procedure of the Scoping and the draft EIS. The EPA then asked the EIA consultant to provide more specific information on the effects of the project on downstream users, for instance through changes in the river level. The EIS concludes that during the filling of the reservoir, the water level of the river downstream will be reduced or stop completely. This was found to have major impacts on the communities living downstream (Barrett 2007ap. 124). However, the provision of boreholes was the only community support measure for downstream communities that was mentioned in the EIS and the environmental permit conditions. In their review of the EIS and the Environmental and Social Management Plan, Raschid, Koranteng et al. (2008) criticize that no clear effective measures were suggested to minimize potential impacts on downstream users. The chief of a downstream community confirmed that the BPA had not promised any support measures to them, even though several they requested several ones. Lost land and destroyed crops had been valued, but they haven't been compensated yet. According to the chief of the downstream community, his community was insufficiently involved in decision-making processes regarding the project (AP16).

In the follow-up stage, monitoring outputs revealed that negative impacts of the project on the downstream fishing communities are of major concern. The inundation of the reservoir has caused the downstream river level to decrease considerably. Consequently, major losses in the fish population in the downstream river are experienced. This affects the livelihoods of the downstream fishing communities strongly. As a consequence, many of them change their livelihood strategy and move upstream to fish in the reservoir of the dam instead. Fishing in the lake has become the main livelihood activity in the area (see Figure 17). The long distance between the lake and the settlements however causes problems. Many people started to camp on the lake side. This however has been prohibited by the BPA for safety reasons. During the monitoring of the EPA regional office, it was thus criticized that no mitigation measure are put in place that prevent these problems for the downstream communities. (Monitoring visit; AP15; AP16)

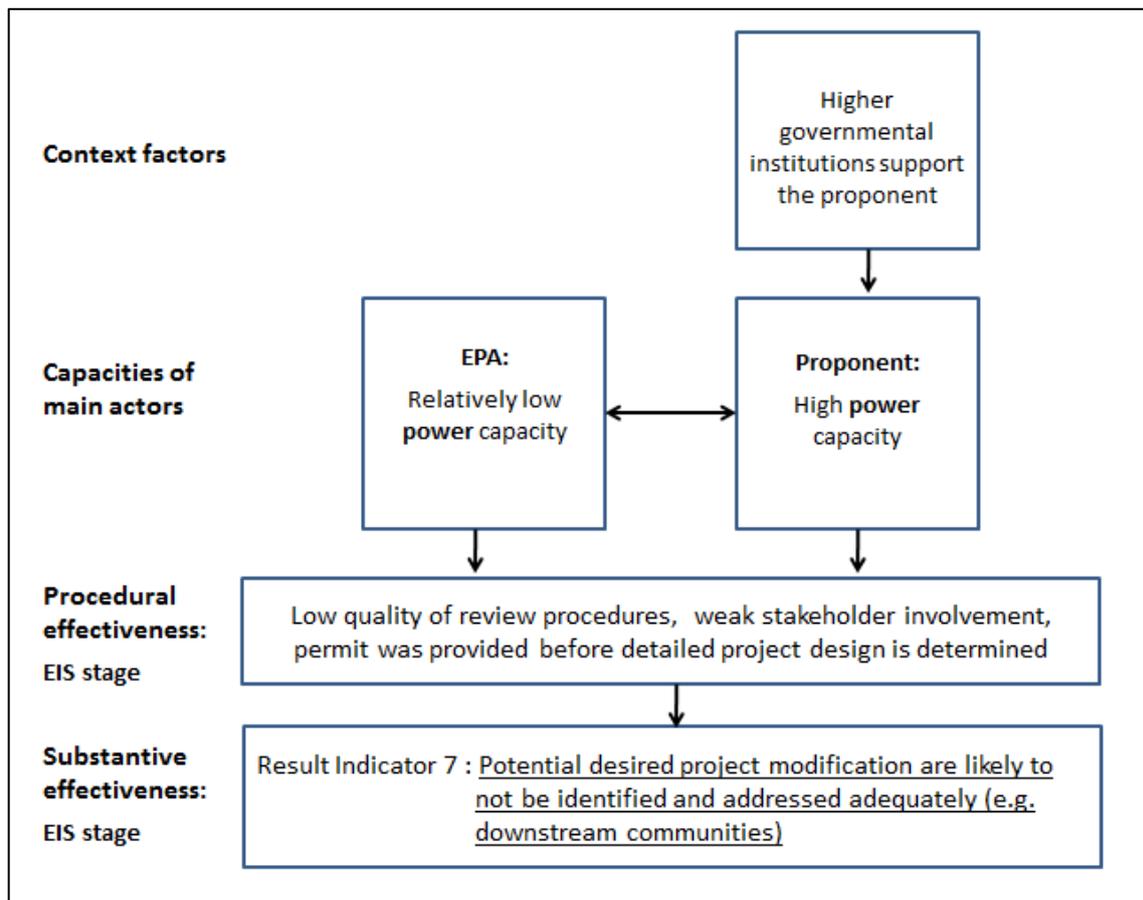
Figure 17: Fishing activities at the inundating reservoir



(Source: Author 2012)

The example of the downstream communities indicates that the shortened EIS review procedures and weak stakeholder involvement procedures caused the omission of an important potential negative impact during the EIS phase which leads to many difficulties in the implementation phase. Thus, as further explained in section 5.2.3 and illustrated in Figure 18 below, time pressure from higher government institutions to speed up the EIA process and the EPA's relative weaker **power** position led to a low procedural effectiveness in the EIS stage. This had the effect that certain potential negative impacts got neglected in the process (such as the ones on downstream communities) and that no satisfactory mitigation measures were developed.

Figure 18: Influence of context and capacities on necessity for project design changes – Bui



Explaining substantive effectiveness during follow-up stage

Result indicator 10: Partly non-compliance with environmental permit conditions that refer to project design modifications (e.g. location of resettlement sites)
Partly non-implementation of project specifications that were decided upon during EIA follow-up stage (e.g. compensation package)

As indicated before, the Resettlement Planning Framework fails to give detailed information on the resettlement conditions. Thus many details on the specific resettlement conditions have been decided upon in the follow-up of the environmental permit. Several of those decisions were found to be unsatisfactory or they have not yet been complied with. Two of them are described in more detail in the following: the location of the resettlement site and the resettlement compensation package.

Location of the resettlement sites

In the Resettlement Planning Framework, the resettlement sites had not yet been defined. It merely contains criteria for the selection of the sites. Among others, one criterion is that “Chief and villager preferences for resettlement sites will need to be incorporated into decision making.” and that “differences between the opinions expressed by chiefs and villagers, and amongst households within villages, [will need to be] reconciled” (Barrett 2007b, p.103). The preferences of the communities were assessed through consultations. They were mostly based on the main livelihood of the people (e.g. fishing villages wanted to be close to the river). In the EIA follow-up stage, the BPA determined two main resettlement locations, one within each of the bordering administrative regions. The one located in the Northern Region was affiliated to a host community. In the Brong Ahafo region, a Bui resettlement town was built consisting of three communities that previously to the resettlement had been located in different areas. Interviews with community and town authorities revealed that two of the three communities did not agree with that proposed location. The communities did also not want to be merged together to one town. They found the new location to be unsuitable for their traditional livelihoods and were concerned with the different cultural backgrounds of the three communities. They communicated these concerns to the BPA. The BPA responded that the communities won’t get any communal infrastructure in case they refuse to resettle to the selected location and in case they choose to set up individual communities elsewhere. The communal infrastructure (e.g. clinic, police station) had been promised to them to enhance their living conditions to make up for the inconveniences through the resettlement process. Thus, the communities saw no other way than to agree with the BPA’s plan to join them together. The field visit to the already existing township revealed that the initial concerns of the communities had become reality. Many resettled people found that the location is unsuitable for their livelihood and thus had to change it. Furthermore, disputes over the traditional leadership divide the communities living within the township, causing social problems.

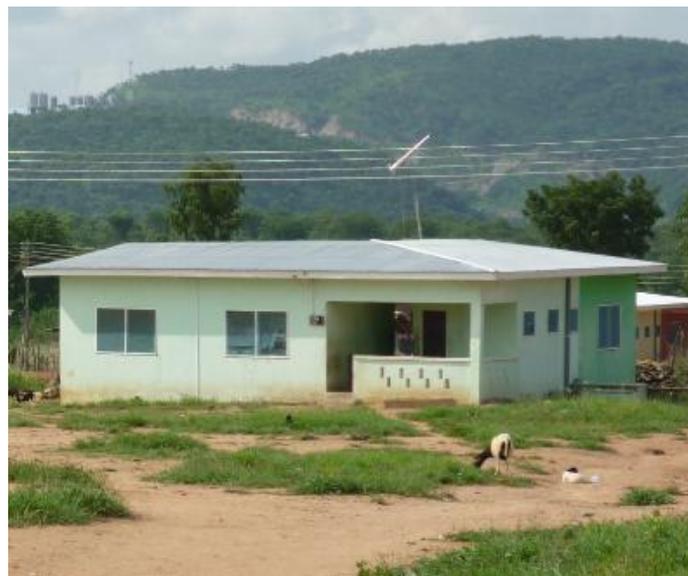
Resettlement compensation package

In the follow-up phase of the EIA process, the compensation package for the communities, which had to be resettled, was negotiated upon. The villages were asked to list their desired compensation measures. Of those, some could be granted by the BPA, others were denied. After the negotiations on the resettlement site, the final compensation package was presented to the communities through a letter from the BPA (BPA 2009, letter to chief of affected village,

November 8). The EPA was not a recipient of the letter; they were not involved in this process or even informed about these important decisions regarding the compensation measures for the communities (EPA RO3). The final package promised assistance in five domains; Housing units, community infrastructure, township infrastructure, income support, livelihood improvement. As the following sections show, many of the promised measures have not been implemented yet.

Firstly, the **compensation of housing units** was part of the package. Each household was promised to at least receive an equal number of rooms compared to their old house. The people were shown models of the planned houses and could share their wishes regarding the design and location of the house. They were generally very enthusiastic about the new houses. At the time of field visit, the resettled people already lived in their new houses. The people are in general satisfied them as they have extra facilities which the people didn't have before.

Figure 19: New housing facility for resettled people



(Source: Author 2012)

Secondly, **income support** was promised. It includes a one-time resettlement grant (Land Development Grant), compensation for the loss of economic assets through the Land Valuation Board, and a monthly household income compensation for a year. The financial supports have mostly been provided already. Concerning the payment of compensation for destroyed crops and land, very similar results compared to the ones of the Koforidua project were found. The owners of destroyed crops were informed insufficiently regarding the timing and the amount of compensation to be paid. The farmers whose crops got destroyed by the filling of the reservoir have been compensated with a delay, others are still waiting. Farmers of the

90

resettled communities received new farmlands at the resettlement site. Previously to the project start, the government has acquired land from other communities that is needed for the project. These communities, who expect to be compensated in monetary terms rather than new land, have not been paid for their land yet. The budget for the Bui project does not cover compensation and community support measures, thus it has to be obtained from the Ministry of Finance. Thus, the project proponent can shift his responsibility on this to the government, and the affected people are left with few options of who to complain to. In the case of Bui however, the media and other NGOs are involved and criticize the situation. This puts pressure on the government to pay the compensations faster.

Thirdly, the earlier mentioned **livelihood improvement program** was part of the compensation package. The first phase of the program, which includes the assessment of livelihood preferences of the resettled people and the formation of livelihood groups, has been completed. The second phase will involve training of those livelihood groups. It had not yet been started at the moment of the field visit. The outstanding finalization of the program had been one of the main critics raised in monitoring outcomes (EPA HQ3; Energy Commission)

Further, the compensation package promised that **infrastructure for each of the communities** is provided (toilet facilities and hand pump boreholes). This has already been done.

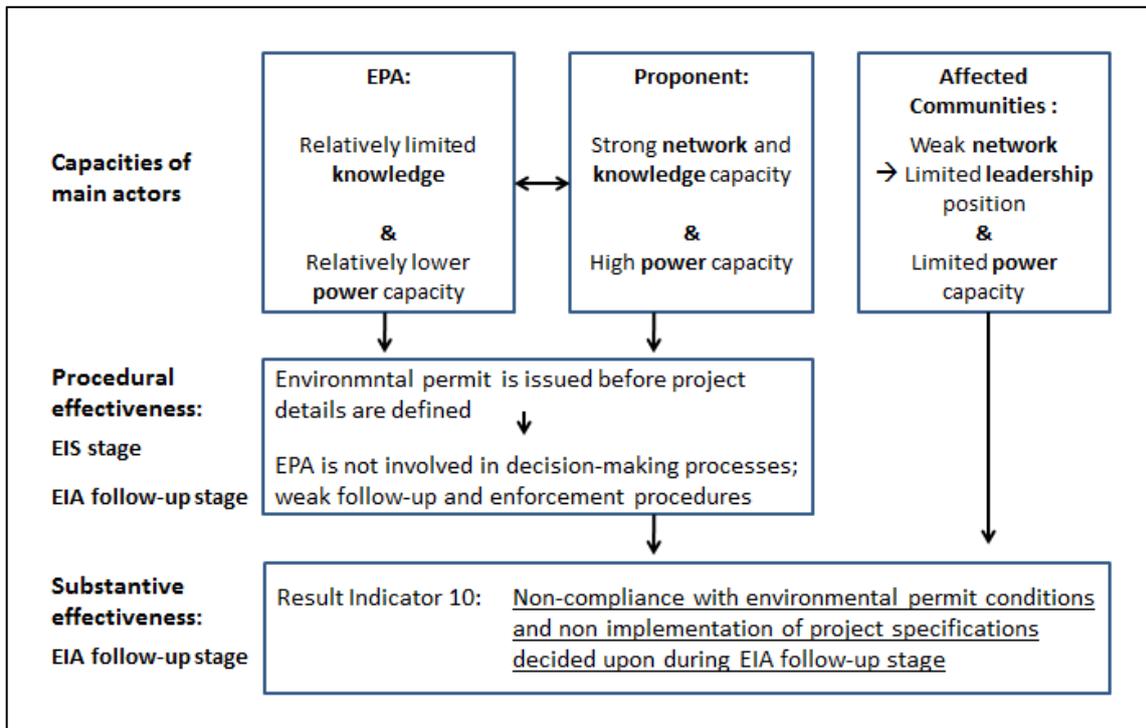
Finally, **infrastructure for the township** (e.g. schools, street lights, a clinic, a market stall, a police station, a lorry park, a community center and religious buildings) was guaranteed by the BPA. Several of those promised amenities have not been provided yet, or insufficiently. For instance, the clinic for the Bui resettlement town has been built, but now equipment for it was provided. It was thus not used at the time of the field visit. The police station and religious building have not been built at all. Even though the infrastructure of the Bui resettlement township is thus incomplete, the BPA has already handed over the primary responsibility for the township to the Assembly of the District. This had been done without the involvement of the EPA. According to the BPA, this was done in order to avoid that the communities will become dependent on the BPA and because the District Assemblies generally are responsible for providing facilities to the communities in their area (BPA1). The BPA is determined to support the Assemblies in their mandate to a certain extent. According to the resettlement village authorities, the District Assembly has insufficiently been involved in the initial decision-making processes of the BPA when the details of the compensation package have been determined. Nevertheless, through passing the responsibility over the town to them, the District Assemblies are made accountable for implementing those decisions. They are expected to provide some of the communal facilities that the BPA had promised to the communities.

Whose exact responsibility it is to provide the outstanding facilities remains unclear, no formal agreement on it exists. The District Assemblies are expected to have limited resources and seem to prioritize other villages in their region with relative worse conditions (GDD2; AP14; EPA RO2). This leaves the communities with concerns that in the end they won't receive the promised assets anymore. This causes a lot of discontentment among them, especially because the common facilities were the main argument to convince the communities to accept the proposed location of the resettlement site. In order to avoid these possible problems, two communities initially refused to move to the yet unfinished site. They only wanted to get resettled when the township was complete and all promises kept. However, they had to move at some point when the inundation of the reservoir had started and their villages were about to be cut off from the outer world. Thus they were forced to move to the new site eventually, without being sure that all promised amenities will be provided.

These examples illustrate that the affected communities often are in a limited **leadership** position when negotiating with the BPA. They have the feeling that as soon as they were resettled and thus gave the BPA what they wanted, their **power** to still get through their interests against the governmental institution has become even more limited. Thus, they can only appeal for support and hope that government addresses their requests. Finally, lacking **network** capacities are further lowering their negotiating position. Their main contact for any complains is the community relation officer of the BPA. Also, they often seek help of Ghana Dams Dialogue, the NGO that has been supporting them from the start of the project. The NGO undertakes many capacity building initiatives for the communities. One of their main advices to the communities is that they should unify themselves. The disputes regarding right for traditional chieftancy over the township has divided the communities. They thus have no united voice to raise claims to the BPA. This weakens their leadership position against the BPA and lowers their chances to get their interest through. The media can positively influence their leadership position. They sometimes monitor the situation and report about outstanding issues. The communities generally are disappointed by the EPA. Complaints are raised that the EPA doesn't come to talk to them and that they mostly are in contact with the BPA only. They also complain that if the EPA approaches them directly, for instance as part of monitoring visits, the BPA is always present and they cannot talk about their concerns freely. Further, the outcomes of the consultations held as part of the EIA process are insufficiently communicated to the affected people: "They only ask questions but don't give us answers."(AP14). Finally, the fact that the EPA is a government institution further undermines the people's trust in them.

These sections on the resettlement procedure reveal a complex system of interactions between context factors, capacities and elements of procedural effectiveness that influence substantive EIA performance. They highlight that low procedural effectiveness during the EIS stage can influence the procedures and EIA performance during the follow-up stage. During the EIS stage, time pressure led to a shortened EIA procedure, leaving many decisions on the resettlement process undecided at the moment when the environmental permit was given. These relations were illustrated in Figure 18 of the previous example on downstream communities. When specific decisions on the resettlement process were finally taken in the later EIA follow-up stage, the EPA was less involved in the process. Their **resource** capacity limits their possibilities to do so (they have eight officers working at the EPA office in the Brong Ahafo Region which are responsible for 27 districts). Further, the Resettlement Action Plan containing detailed information was never handed in. Thus EPA has limited **knowledge** regarding those decisions, even though they repeatedly ask for more information and involvement. This lack of knowledge on agreements and activities related to the resettlement issues during the follow-up stage hinders the monitoring activities of the EPA and their potential to influence those decisions. It leaves the project proponent with more freedom regarding the design of mitigation measures. Furthermore, the EPA has limited potential to help enforcing the promises made, which increases potential for non-compliance. An important factor for the strong **power** position of the BPA in these issues is their predominant **network** capacity. As Figure 15 on page 71 illustrated, they are the first contact for all main actors involved, all concerns are directly shared with them. Finally, the affected people are considered to have a low **network** capacity among each other which lowers their **leadership** position. Figure 20 below illustrates these relations between capacities, EIA procedures and substantive performance with a focus on the EIA follow-up stage.

Figure 20: Influence of capacities on non-compliance with permit conditions - Bui



6 SECTOR-SPECIFIC RESULTS

To complement and verify the in-depth case study analyses, additional data on the water sector in general has been collected. This section describes elements of EIA performance that were found to be valid for the overall water sector. Also, the way these elements are influenced by capacities and context factors is described. Thereafter, the general findings on the capacities of the actors involved in the EIA process of water projects are summarized. Finally an overview of context factors that were found to have an important influence on EIA performance in the water sector is given. This chapter thus integrates all previously presented findings and provides answers to all sub-questions.

6.1 EIA performance of water sector

This section looks into procedural and substantive EIA performance of water projects in general and the factors influencing it. It highlights important differences and similarities between the two case studies. It also highlights results from the case studies that have been verified to apply for the whole water sector. This was done by key informant interviews and validation workshops. The section is structured along the two distinguished EIA process stages, but firstly an additional element is added to determine EIA performance: the actual execution of the EIA process.

6.1.1 EIA process execution

Section 4.1 indicated that the initial decision to register for the EIA process is an important indicator for EIA performance, which can only be assessed at sector-level. Comparing the number of projects that are subject to the EIA procedures with the number of actual EIA's on water projects would be the ideal way of assessing, but no such quantitative data was found at the EPA with respect to the water sector. However, interviews with the staff of the Environmental Assessment and Audit department revealed further information on the EIA studies for water projects.

Two types of water supply projects can be distinguished, requiring different processes to obtain an environmental permit. For urban water supply projects the GWCL generally is the responsible institution. These projects are mostly funded by the World Bank or other international investors. As illustrated for the Koforidua project, it is the contracting companies who initiate large water supply projects and apply for international funding to execute them. It is thus not the Ghana government or the local people themselves who start the project. In

Ghana active contracting companies that are specialized in water supply systems commonly are international companies. Thus international actors are largely involved in these projects, both as contractors and as funding institutions. For these large scale water supply projects, the full EIA process is usually required. For smaller, rural water projects, the Water and Sanitation Agency generally is the project proponent. These projects generally don't require a full EIA. Thus the permit for those projects is issued right away or after a Preliminary Environmental Assessment has been conducted.

It was confirmed by several informants that international donor involvement has got an influence on the performance and nature of the EIA process. Many donors ask for a full EIA procedure, thus there is a high compliance of projects with international donor involvement with the EIA regulations. However, there is a risk that for government projects, which do not involve an international donor, no environmental permit is obtained in order to save costs and time. An example where this happens is the road sector. It is indicated through the Environmental Assessment and Audit department though that the performance in the water sector has been improving considerably during the past years and thus that it can be expected that the EIA procedure is now done for all projects for which it is necessary. (EPA HQ4)

6.1.2 EIA performance during the EIS stage

The following sections will elaborate on how EIA procedures are influenced by actor capacities and context factors during the EIS stage. Thereafter, the substantive effectiveness of EIA in the water sector is described and explained with respect to the factors influencing it.

EIA procedures - Procedural effectiveness

Many efforts of the EPA to enhance EIA performance have so far been concentrated on the EIA procedures that take place before the environmental permit is issued. This is to build a strong foundation for the follow-up procedure (EPA HQ4). The study of the cases confirms that the EIA system generally performs better during the EIS stage than during the follow-up stage. The EIA activities during the EIS phase generally help to identify likely impacts of the project. Also, measures that need to be taken in order to mitigate, reduce or compensate those impacts are distinguished. The case study comparison highlighted several strong and weak points of the EIA procedures for the water sector and gives an insight into which capacities and context factors are of most relevance for them.

The scoping procedure and the assessment procedure that result in the EIS report are essential EIA procedures that seek to identify necessary environmentally beneficial project changes. The

case study analyses showed that next to the project proponent's knowledge, two main aspects of the EIA procedures determine the quality of the EIS report: public participation and the review procedures.

Public participation specifically refers to the involvement of the project-affected-people in the project design stage. Through the consultation of the affected people, those people's main concerns as well as potential social impacts should be assessed and taken into consideration in the EIS report. Key informant interviews and the case studies revealed that public participation generally is a weakness of the EIA process for water projects. The case studies indicated that the public information and consultation often is insufficient. Further, there are limited possibilities for the affected people to influence the project design. The limited knowledge the affected people have about the project's details and its impacts supports this lack of involvement. Insufficient consultations and involvement of the public can have the consequence that necessary project design changes are not assessed and thus neglected.

The case studies indicated that with respect to the review procedures during the EIS stage, there is room for improvement for the water sector. The knowledge capacity of the EPA on water projects is essential for the quality of the review procedures. The absence of a department specialized in water issues where expertise can be accumulated as well as inadequate methods to organize and store knowledge systematically are expected to hamper efficient review procedures. As for public participation, weak review procedures can negatively influence the potential of the EIS report to uncover possible negative impacts of the project and thus fail to bring about changes to the project design.

A comprehensive and high quality EIS report was found, however, to be essential for the overall EIA performance of the water sector in Ghana. The case studies indicated a high influence of the EIS on the environmental permit decision and the formulation of its conditions. A study of the environmental permit of four additional water supply projects (registered for the EIA between 2010 and 2011) revealed that the same applies for all of these projects. They thus all include a condition that makes it mandatory to adhere to project specifications, monitoring and environmental management measures as formulated in the EIS. Thus, any project changes that are suggested by the EIS are made compulsory for the project proponent. Further, the EPA's decision on whether to issue the permit or not is strongly based on the quality of the EIS. This dependency of the environmental permit on the EIS is rooted in the regulatory framework of the EIA system. In Ghana, the same institution that is responsible for reviewing and advising the project proponent's work on EIA, also takes the final decision on

the environmental permit. It is the Environmental Assessment and Audit department of the EPA head quarter that has the key role in all EIA-related processes during the EIS stage.

Investigations on the timing of the project revealed that the EIA studies often are started at a late stage of the project design process, as it was the case for the Koforidua project. The analysis further showed that time pressure regarding the issuing of the environmental permit is a common phenomenon for public projects: “Governments are ready to comply, but they don’t have time.” (EPA HQ4). According to the head of the Environmental Assessment and Audit department, the EIA procedures leading to the environmental permit often have to be conducted within a short period of time. Even though the legislation foresees 90 days for the overall process to issue the permit from the date of receipt of the application form (EPA 1999), government projects may have to be finalized within 30 days instead. This lowers the effectiveness of the EIA procedures during the EIS stage. (EPA HQ4; EPA RO 3)

EIA Performance - Substantive effectiveness

Effective EIA procedures are a pre-requisite for a high substantive EIA performance. As a consequence of the procedural shortcomings mentioned above, it has to be expected that the EIS report, as well as the environmental permit that is strongly based on it, may fail to identify all necessary project design changes. This for instance happened when the negative effects of the Bui project for the downstream communities were not covered sufficiently by the EIS and the environmental permit. The two cases studies illustrate that the necessity for such environmental project changes is vital to take into consideration. It strongly depends on the environmental friendliness of the initial project design. This is influenced by learning effects from the effects of previous projects and by the proponent’s dedication for sustainable development and thus its ownership for the EIA goals. For the Koforidua project and water supply projects in general, the necessity for changing the project design was found to be rather low. For the Bui hydro dam project, however many critical issues were at stake. The potential for the EIA process to make the project more environmentally friendly thus was very different for the two cases.

When the EIA procedures reveal necessary project design changes, for example mitigation measures for certain impacts, the level of substantive effectiveness of the EIA determines whether the changes are actually are incorporated into the project design and eventually implemented. The EPA and the project proponent are the main actors that influence substantive effectiveness. The proponent takes the decision regarding the voluntary acceptance of the project changes or the EPA can force the proponent to do so through their

mandate to issue the environmental permit. Two capacities of the EPA and the proponent influence the outcome of those decision-making processes greatly: 'ownership' and 'power'. If the proponent proves to have a high ownership for the EIA process goals, the proponent may decide voluntarily to incorporate the suggested measures in his project design. The proponent's commitment to the EIA goals was generally found to be limited. The development and implementation of mitigation or compensation measures as proposed by the EIA procedures often come along with costs and take time. However, as water projects are public projects, they often face limited budgets and severe time pressure. The late timing of the EIA process within the project's life - cycle is another indicator for low ownership capacity of the proponent. As many decisions have already been made at a late project development stage, the potential of EIA to improve the project design with respect to environmental and social issues is limited when the EIA process is started late. The choice of the proponent to nevertheless start it late indicates that obtaining the permit is the main motive of the proponent with respect to the EIA process. Thus, the proponent's ownership for the EIA process is limited. The following statement of the head of the Environmental Assessment and Audit department illustrates this: "we end up finding that the EIA becomes more of a licensing tool in some instances, without really affecting the design" (EPA HQ4). He thus suggests that the EIA should not be focused mainly on licensing. Rather its possibilities for project improvement should be in the center of attention. This would increase the project proponent's ownership for the EIA process. (EPA HQ4; EPA RO3).

If the project proponent has limited interest in changing the project design to be more environmentally and socially friendly, the power-relations between the EPA and the proponent determines the outcome of the decision-making processes that are made upon those changes. It is thus often the power play between the project proponent and the EPA that determines substantive EIA performance. The regulatory framework of the EIA system provides the EPA with a very broad mandate during the EIS stage. It includes the review decisions on the scoping and EIS report as well as the decision on the issuing of the permit and the formulation of its conditions. This provides the EPA with formal authority and strengthens its power capacity and ability to induce project design changes already early in the EIS stage. The prospect of having to obtain an environmental permit from the EPA later in the process, gives the project proponents incentives to follow the EPA's advice and to incorporate recommended project changes in the EIS. These are then made obligatory to be implemented as it is a condition of the environmental permit to comply with the specifications written in the EIS. The EPA's legal mandate thus puts it in a strong power position to determine the decision-making process on

the acceptance of identified project changes into the project design. However, the case studies showed that for public projects such as water projects, this relatively strong power position of the EPA over the project proponent can be weakened in practice, mostly due to context factors influencing the power capacity of the actors. This particularly is the case when higher government institutions support the proponent as they have an interest in the quick implementation of the project. As mentioned above, the time is limited when it comes to public projects. Higher government institutions often have an interest in the proponent obtaining the environmental permit quickly, so that the project can be started. The proponent can use time pressure as an argument in their discussions with the EPA, as this statement of the head of the Environmental Assessment and Audit department of the EPA underlines: “they come up with that kind of excuses, we need to quickly get this, the government is on our back, you know. But our job is to stand our ground.” (EPA HQ4). The Bui case indicated that in this context of severe time pressure and interferences of higher government institutions, the proponent’s power capacity is strengthened. As a consequence of the proponent having more power than the EPA, the EPA had to make compromises at the expense of the performance level of the EIA process. Which actor is superior in terms of power, the EPA or the project proponent, depends on the specific situation, the issue that is at stake and the nature of the project.

6.1.3 EIA performance during the EIA follow-up stage

The following sections elaborate on the procedural as well as substantive effectiveness of the EIA follow-up procedures for water projects and explain how actor capacities and context factors influence it.

EIA procedures - Procedural effectiveness

Key informant interviews have confirmed the results of the case study analysis, which indicate that the EIA procedural performance of the follow-up stage is in general rather weak for the water sector (EPA HQ1; EPA HQ4; EPA HQ5; EPA RO1; EPA RO3). The AKOBEN program, which has been developed to support monitoring and compliance assurance activities of the EPA, is not (yet) applied in the water sector. Compliance monitoring activities for water supply projects mostly rely on self-reporting activities of the proponent. Monitoring activities done by the EPA itself are very limited for water supply projects, as the case of the Koforidua project illustrates. For larger projects such as the Bui hydro dam, the EPA undertakes some monitoring activities. However, for the Bui project no unannounced monitoring visits have been done yet;

the proponent generally is present. The level of involvement of the project-affected-people during the project implementation was found to be varied for different projects, but limited in general. Lacking and insufficient monitoring activities hamper the EPA's possibilities for efficient procedures to enforce the proponents' compliance with the environmental permit conditions. The study further revealed that no environmental certificate has ever been issued for any water project (until the time of the field visit). The issuing of an environmental certificate in case of compliance, however, is an important tool to force the proponent to comply with the environmental permit conditions and thus also to submit requested monitoring reports. Nevertheless, there appear to be few to no consequences for the proponent if no environmental certificate is obtained. This undermines the purpose of the environmental certificate and limits possibilities for effective enforcement procedures.

Several reasons have been revealed for the EPA's neglect of follow-up procedures. Taking into account the EPA's broad mandate on an increasing number of projects, their monetary and staff resources are insufficient. This especially accounts for the resource-intensive follow-up procedures and the regional offices that ought to take over a large part of the monitoring and enforcement tasks. As a consequence of limited resources available, reporting on monitoring has to be kept to a minimum. The following statement of the head of the Environmental Assessment and Audit department underlines this: "the thing is not to put [...] too much pressure on reporting because it comes with work. When you see the report, you have to review it and act on it." (EPA HQ4). Hence, monitoring activities are reduced and Annual reports are requested rather than others (e.g. quarterly ones). As the respondent continued: "it saves you time, money and then it also doesn't put pressure on the company as well, so you can work together. Because in principal you have agreed, you have permitted. This means that the fundamentals are okay. The rest is the implementation." (EPA HQ4). Furthermore, because the EIA is a preventive tool, it is expected that more can be achieved through the first EIS stage. Moreover, the analysis of the Bui project revealed a general shortcoming of the EIA regulations from 1999 that hinders the effective monitoring and enforcement procedures of the EPA considerably. The regulations prescribe that the Annual Environmental Reports and the Environmental Management Report have to be handed in and the environmental certificate should be obtained some months after the start of *operations*. The example of the Bui project showed that for projects with long construction phases, this formulation allows the proponent to hand in the necessary documents at a late stage of the project. This limits the possibilities of the EPA to enforce the environmental permit conditions. Currently an

amendment of the EIA regulations is in progress. According to the head of the Environmental Assessment and Audit department, this issue will be addressed during this process. (EPA HQ4)

Next to the general trend of the EPA to focus on the EIS stage rather than the follow-up one, there are indications that the EIA follow-up is specifically weak for public sectors and thus also the water sector. Several context factors and actors' capacities are found to be important in this process. Due to the limited resources available to spend on the monitoring and enforcement procedures, the EPA can only apply follow-up procedures to certain selected priority project. This selection of projects happens both, within the water sector, but also between the water sector and other sectors.

On the one hand, this prioritization takes place within the water sector. Cases of large scale, high national priority, as well as those who receive an increased international media attention (especially negative attention that criticizes the project), are selected and the EPA's resources are spent on them. The Bui project is such an example of a high priority case. These larger projects are, however, expected to have an enhanced compliance as they have internal structures (e.g. environmental officers) to deal with environmental issues. As these internal structures are assumed to be in place and effective, the EPA considers sporadic monitoring visits as sufficient for these projects. This allows the EPA to minimize their expenditure on the follow-up. Cases of lesser priority and attention (such as water supply projects) are even more neglected, as the case study on the Koforidua project illustrates. (EPA HQ4)

On the other hand, priorities regarding resource expenditures are also set with respect to the different sectors. Key informant interviews revealed that the monitoring and enforcement activities of the EPA are rather focused on private sector projects (EPA4, EPA5). The reasoning behind this choice relates to increased difficulties of the EPA to enforce their requests and thus to influence decision-making processes on public projects. This prospect of a lower substantive performance for public projects thus leads to the EPA's focus on the private sector. The factors that explain this priority for the private sectors are further elaborated on in the following section on substantive effectiveness.

EIA Performance - Substantive effectiveness

Comprehensive monitoring activities and effective enforcement activities of the EPA are preconditions for a high substantive EIA performance during the follow-up phase. Only through monitoring activities, necessary project implementation changes can be identified. Also, monitoring and enforcement procedures are needed to make sure that environmental permit conditions are complied with and that previously determined project design changes actually

are implemented. The revealed low procedural effectiveness of the EIA follow-up stage thus comes along with a low potential for substantive effectiveness. As indicated above, the substantive effectiveness as such is, however, also a major challenge for EIA performance. Even if the follow-up procedures detect necessary changes or non-compliance with the environmental permit conditions, acting upon these issues is particularly difficult for the EPA when it comes to government projects. This is one of the main reasons for the EPA to choose to focus their follow-up attention on private projects, and not on public ones.

As for the EIS stage, the capacities 'ownership' and 'power' appear to also have a major influence on substantive EIA performance in the EIA follow-up stage. The case studies revealed that non-compliance with the environmental permit conditions is a major problem. This indicates that the project proponents have limited ownership towards EIA goals. The institutional setting, a context factor, can enable the proponent to shift his responsibility regarding the compliance with the conditions of his environmental permit to other actors. This facilitates the proponent's lack of ownership. The issue on crop and land compensation measures illustrates this: non-compliance with crop-and land compensation measures proved to be a common phenomenon in the public sector. As discussed previously, the enforcement of these measures is hindered through the contextual institutional setting. This implies that responsibility for the payment of the compensation can be shifted to other governmental institutions. Thus, the project proponent, who is obliged through the environmental permit conditions to ensure that the compensation measures are complied with, is not directly responsible for the payment of the compensation. Technically, the compensation of land and crops is technically part of the EPA mandate, as it is a measure to compensate for negative impacts of the project. In practice, however, the Ministry of Finance is responsible the payment of the compensation (EPA HQ5). As it is the general practice of the Ghana government not to compensate for land but only for crops, people who are affected by water projects only receive limited compensation. And while the EPA and/or the EIA process can influence the proponent's actions, they have no influence on the Ministry of Finance, and thus can do little to address this grief.

As a consequence of this lacking ownership, the EPA should undertake compliance enforcement activities. However, these activities appear to be a particular challenge for projects that are initiated by the Ghana government. As it was the case for the substantive performance during the EIS stage, the power relations between the EPA and the proponent are decisive for the EIA's substantive performance in the follow-up stage. The EPA's power

capacity, which is provided by the legal framework, is likely to be limited by context factors. As the environmental certificate as a tool to help enforcing the environmental permit conditions is not functioning well for public projects, the EPA is left with one main option to force the proponent to comply with the measures decided upon during the EIS stage: It can threaten the proponent with revoking his permit in a case of non-compliance. However, this option is very difficult to put into action when dealing with public projects, for two main reasons. Firstly, as mentioned before, the government projects often are initiated or supported by government institutions that are superior to the EPA and that the EPA may depend on. This dependency implies that the EPA has relatively little power to push through its interests and to enforce its conditions. Secondly, public projects often have a positive public reputation. Water projects such as the drinking water supply project in Koforidua are generally intended to be beneficial for the public. Thus, not only the government, but also the general public is in favor of these projects and wants them to be implemented. Revoking the permit of water projects due to non-compliance would possibly trigger opposition of the public as well as the government. Only in cases of severe violation of the permit, the option of revoking the permit should thus be considered. The Bui project illustrates this process. The leading government of Ghana has been the initiator and thus a strong supporter of the Bui project. This influences the power-relation between the EPA and the proponent to the advantage of the proponent. Thus, rejecting the permit for the project due to negative environmental and social impacts is hardly a realistic option for the EPA. For such projects, the environmental institutions are left with attempting to make them as environmental-friendly as possible. A statement of the park manager of the Bui National Park illustrates this. The Wildlife division has protected the park's nature ever since it was created. Now, the Bui project threatens to flood about 20% of the national park. Asking the officer of the Wildlife division if he would have stopped the project if he could, he answered: "to be honest I know it is a big national project, I wouldn't try to stop it in any way. But then I would want to make sure that things are done properly, especially things concerning the environment are done properly, so that at least we don't lose much biodiversity"(Wildlife division). He also indicates that their possibility to influence such a project is very limited, as their superior Ministry will take the final decision on it: "If the minister says no, even if you have good intentions, it's no" (ibid.). These contextual circumstances for public projects leave the EPA with fewer possibilities to enforce the permit conditions, especially for relatively smaller issues of non-compliance. This weakens the compliance assurance procedure for public projects considerably, leading to the EPA's choice

to focus on private projects instead. As a consequence, public projects are found to be less compliant than private ones (EPA RO3).

Finally the capacities of the affected people have to be considered. As the party who ought to benefit from the EIA process (e.g. through compensation measures described in the environmental permit), they are indirectly involved in the disputes on compliance with the environmental permit conditions. In case of non-compliance, they could inform the EPA on it or undertake own initiatives to make the proponent comply. However, the study of the case studies indicated that a lack of capacities very much limits the extent to which the project-affected-people can influence the proponent's level of compliance. In general, the affected people were found to be in an inferior position with respect to all seven capacities. For both case studies the affected communities mentioned that once they had fulfilled the government's requests (e.g. giving up their land), they found themselves in a situation in which it was difficult to still get their claims for compensation fulfilled. The fact that their own government initiated the project limits their options to force the proponent to comply with the promises particularly; the people feel powerless against their own government. Particularly a lack of network capacities among the affected people was found to hamper these people's influence. Specifically this is due to a lack of unity between the affected people and communities as well as a lack of supporting contact persons to whom they can communicate their concerns. However, the study of the Bui project showed that when high priority project receive a lot of attention, actors who are not directly part of the EIA process can positively influence the affected communities' capacities and the proponent's compliance with the environmental permit conditions. For such projects, NGOs may undertake capacity building initiatives for the affected people. Further, the media and scientists reporting on non-compliance with the conditions can pressure the proponent to comply more rapidly. For projects that are lesser known, such as water supply projects, the support of actors that are part of the context of the EIA system is not so probable.

It can thus be concluded that for public projects, the procedural as well as the substantive performance of the EIA follow-up stage is rather weak. Most energy and resources of the EPA are generally spent on the EIS stage, as a good EIS report is seen as a necessity for a good EIA performance. However, as the following statement highlights, the implementation of the EIA measures is not a given fact: "This is Ghana: We are good in presenting reports, but the implementation is the problem" (AP16). The actual implementation of the project thus needs to be given more attention. According to the Environmental Assessment and Audit department

of the EPA, there are plans to enhance the EIA performance during the follow-up stage after having set up a strong basis for it: “the next phase we are now is to ensure that we have the institutional set up to ensure compliance” (EPA HQ4). For instance, a Compliance Enforcement Unit is planned for the Environmental Assessment and Audit department in order to enhance the performance of compliance assurance procedures. Finally, the example of the Bui project showed that cooperation with other governmental or non-governmental institutions can extend the EPA’s capacity to monitor and enforce its regulations.

6.2 Important capacities and context factors

The detailed case study findings show that the way EIA performance is influenced by actor capacities and context factors is highly complex and dynamic. Within this complexity, patterns of capacities and context factors that largely influence EIA performance in the water sector have been revealed above. The following section summarizes main findings on the capacity levels of the main actor groups that are involved in the EIA of water projects. Thereafter, an overview of the context factors that were found to strongly influence EIA performance in the water sector is provided.

6.2.1 Capacities of main actors

All of the seven identified actor capacities are influencing the EIA performance in the water sector. The following section describes the individual capacities of the main actor groups involved in the EIA process for water projects. For each capacity, its relative level with respect to the main actor groups of the EIA system is indicated. Furthermore, as the different types of capacities were found to be strongly interrelated, some of these relations are indicated and shortly summarized at the end of this sub-section.

Resources

Monetary, staff and time resources are necessary to conduct any EIA procedure. They thus are highly relevant with respect to procedural effectiveness. Resources can be a source of power but in case of scarcity they can also limit an actor’s possibility to achieve his or her goals. Through the funding made available for the project, the **proponent** generally has the more resources available than the other main actors involved in the EIA process. However, social mitigation measures are often not included in the project budget. The Environmental Assessment and Audit department of the **EPA** and the regional offices of the EPA are limited in their monetary and human resources, particularly with respect to their broad mandate. This is

further confirmed by other stakeholders, as the following statement indicates: “The EPA itself, they don’t have enough funds, they also depend on the government budget. And the government budget is not enough for their operational activities. So some support is supposed to be gotten from the sectors to enable the EPA perform their functions.” (Energy Commission). Cooperation with sector authorities is thus expected to support the EPA, also in terms of resources. This is recommended as the lack of resources of the EPA negatively affects the execution and quality of the EIA procedures. A decentralization process within the EPA is further recommended to enable the EPA to use its limited available resources more effectively. Finally, the **affected people** are very limited in terms of monetary resources.

Knowledge

Knowledge is a capacity that influences the EIA performance in different ways. Two main types of knowledge can be distinguished: expertise knowledge needed to conduct the EIA and information on the project itself.

The involved actors’ experience and expertise is importantly influencing the effectiveness of the EIA procedures, particularly during the EIS stage. The knowledge level of the project **proponent** differs from case to case, but generally a large expertise and knowledge base is available. The staff of the Environmental Assessment and Audit department and the regional offices of the **EPA** prove to often have long-term experience in their tasks. At the EPA in general, a lot of general expertise is available. However, there is a lack of specific knowledge on water projects. The water sector is not represented with an own department of the EPA where expert knowledge is accumulated. As explained earlier in section 5.1.2, the Environmental Assessment and Audit department is directly in charge of the whole EIA process regarding water projects. This is because of a lack of capacities of the otherwise responsible department of Natural Resources (which is specialized in water among other issues). The lack of a specific department is mitigated through intense knowledge exchange and a system of mutual control within the Agency. Furthermore, external experts are involved in the process and training programs are held. Regardless of this, the use of the available knowledge is limited through the organization of available knowledge and data. The recording and storing of available data is analog and generally unstructured. Few mechanisms are in place to systematically learn from previous experiences. While no sector-specific EIA guidelines and checklists are developed for water supply projects, they do exist for hydro power plants as part of the Energy sector guidelines.

The second type of knowledge refers to the information on the project in general. If the **proponent** gates such knowledge, the procedural and substantive effectiveness of the EIA process can be influenced negatively. The results on the Bui case study illustrated this. The proponent insufficiently informed the **EPA** about decisions that were taken regarding project changes and project specifications. The lack of information leads to a lack of possibilities for the EPA to influence the project. Moreover, the **affected people** appear to be strongly dependent on the knowledge provided by the proponent. Thus, knowledge-gating of the proponent affects their possibilities to achieve their goals negatively. Knowledge about the decisions that are taken regarding relevant issues for the EIA is thus an important source of power. It determines if actions can be undertaken to influence those decisions timely and if the EPA can make sure that they are implemented. The EPA and the affected people can use their network capacities to share knowledge on these issues and thus to approach the problem of knowledge-gating.

Network

Thus, the network capacity is another essential factor that influences other capacities such as power. It influences both, the procedural and substantive effectiveness of the EIA procedure. The EPA and the project proponent were both found to have a vast network of actors that are directly or indirectly involved in the EIA process. It is often based on long-term relationships. Their use of the network to exchange information and knowledge differs strongly, however. As the **proponent** generally is the main contact for most of the involved actors (see sections 5.1.2 and 5.2.2), any concerns and issues related to the environment are mostly communicated to the proponent directly. The proponent can then decide to gate this knowledge. Even though the EPA has a vast network of different actors, it appears that it could use its network more extensively to specifically build further on its capacities. The case studies indicated that the EPA has limited collaboration and knowledge exchange with institutions with similar interests (e.g. with the Wildlife division, research institutes specialized on environmental issues, environmental NGOs). This limits its possibilities to build up on knowledge, leadership and power capacities. The statement of an officer of the Wildlife division confirms this view: "See one problem we have here is that we have sometimes we have so many agencies doing similar or the same thing, but we don't consult each other." (Wildlife division). However, not only the cooperation with other environmental institutes is important, but also the collaboration with government institutions of the different sectors/industries. It can particularly increase the power capacity of the EPA. Finally, the **affected people** were found to have a very low network

capacity. Firstly, there is limited collaboration between the affected persons or between affected communities. Secondly, their network with respect to the other actors involved in the EIA process is limited. The affected people mostly communicate with local or regional authorities (which often show limited ownership for their goals) or with the project proponent directly.

Adaptability

Adaptability refers to the ability of the actors to adopt alternative strategies should circumstances change. Actors may have to adapt their use of other capacities such as knowledge and power in order to be able to pursue their initial goals. The **EPA** and the project **proponent** both appear to be highly capable of adapting to changing situations. This capacity is especially important for the Environmental Assessment and Audit department of the EPA as their field is highly dynamic and in changing circumstances they often have to adapt their strategies quickly to still be able to achieve their goals. Hence they are determined to critically assess their performance, to adapt their procedures to new circumstances and to improve their performance through it. Finally the **affected people** are found to be limited in this capacity as their strategies are rather uniform and they often stick to them for a long time.

Leadership

The leadership capacity refers to the ability of an actor to focus a group's agenda on its own objectives. The **EPA** shows strong leadership throughout its involvement in EIA procedures. It often determines the agenda of discussions with the **proponent** on EIA issues. The EPA is generally determined to maintain good relations with the project proponent and to base its relationship on partnership rather than on confrontation. A prosecution in case of non-compliance is seen as the last option to be applied, as: "you want developers to come to a level where they appreciate the environment so that they don't need to be policed" (EPA RO3). This approach can increase the quality and efficiency of the EIA process, but it can also mean that compromises have to be made. Limitations in other capacities, such as resources or knowledge, can limit the EPA's possibilities to show leadership. The following statement of a staff member of the regional office in Sunyani illustrates this: "as much as we try to be proactive, there are times when we can only react." (EPA RO3). The **affected communities** proved to have a very limited leadership capacity on their own. This negatively influences their goal achievement, while increased cooperation with the EPA or other institutions can increase it.

Ownership

The ownership capacity of the actors indicates their commitment to the EIA process and its goals. Ownership was found to be particularly decisive with respect to substantive EIA performance, as it determines to what extent the proponent is willing to accept and implement the project changes that are proposed through the EIA procedures. As the EIA authority, the **EPA** has a high level of commitment for EIA goals. Achieving sustainable development through the EIA process is their overarching goal, which guides all their activities. Varied levels of commitment to EIA goals were found among the project **proponents**. The developers of the two case studies projects expressed some commitment to EIA goals. They mentioned that the EIA process can help them to prevent problems in the future. However, other interests, such as political and economic ones, often appear to be superior to environmental ones. The fact that there was a high level of non-compliance with the environmental permit conditions and a late start of the EIA process within the project's life-cycle, support this argument. Thus, the proponent's decisions on the design or implementation of the project are not necessarily guided by a purpose to achieve EIA process goals. Their formal role in the EIA process is thus expected to nonetheless be the main reason for their involvement. The proponents mostly see the EIA process as a tool to obtain an environmental permit and to receive funding from international donor institutions. The **affected people** are mostly concerned with the social and economic impacts of the project. They particularly support the EIA goals on issues relating to these two topics. However, there are indications that their interest in these issues is mostly driven by their own benefits. The protection of the environment proved to be of secondary priority for most affected people.

Power

The most influential capacity on EIA performance in the water sector is 'power'. It refers to the ability of an actor to achieve his or her goals regardless of resistance. The research revealed that this capacity is built up and strongly influenced by other actor capacities, but also context factors. The **EPA** has decision-making and enforcement power over the **proponent**, as is given by their formal mandate. However, context factors can influence this power-relation between the two actors. Interferences of other (eventually higher) government institutions, the donor and/or other institutions can influence the power capacity of the EPA and/or proponent. Furthermore, the public attitude towards a project, as well as media attention and scientific reports on it, can influence the actors' power to influence decisions regarding the project. For public projects, the project proponent is likely to be supported by the higher government of

Ghana. This backing of very powerful players from the political arena can put the proponent in an enhanced power position compared to the EPA. However, the relative power capacities between the EPA and the project proponent are also strongly dependent on the nature of the project and the context of the decision-making processes. Finally, the study revealed that the **affected people** have the weakest power capacity; they often do not have the ability to achieve their goals on their own. They judge themselves to be powerless, especially because they have complaints against their own government. Due to their lack of power, the affected people often cannot achieve their goals, which generally are in line with the EIA goals related to social issues.

Interrelations between capacities

The study revealed that the actor capacities have a strong effect on each other, but also that they often are influenced by context factors. Power was found to be an overall capacity, which is strongly dependent upon other capacities. It is often the combination of an actor's resources, knowledge, network and leadership capacities, as well as his or her ability to adapt the use of these capacities to changing circumstances that forms a basis for his or her power. The actor's ownership towards the EIA goals, then determines how he uses his capacities to influence the EIA process and thus the EIA performance.

The more fundamental capacities such as knowledge, resources and network were found to be essential factors for the effectiveness of the EIA procedures. However, when it comes to decision-making processes regarding project changes and their implementation, 'ownership' and 'power' were found to be capacities of particular importance. They determine the substantive performance of the EIA process for the water sector to a large extent. Importantly, these two capacities were found to not only be a result of other more fundamental capacities, but they were also found to be strongly influenced by context factors.

6.2.2 Context factors

The following section presents the main context factors that are of relevance for explaining EIA performance in the water sector. The study has revealed that several actors groups that are considered to be part of the context of the EIA process can significantly influence its performance. The revealed context factors refer to powerful actors who are not directly involved in the EIA process but can influence the power-relations between the actors of the EIA system. As substantive performance of the EIA process often is a result of the power play between the EPA and the proponent, context factors are of considerable importance when EIA performance is to be explained. The following section will give an overview of the most influential contextual actor groups: the funding institutions, superior government institutions, government institutions responsible for the implementation of mitigation measures, government institutions responsible for the respective sector, other institutions with similar interests, the media and the general public.

Donor institution

By providing funding for the project design, the donor institution is a very powerful actor. Especially during the design phase of the project, the whole project implementation can depend on the will of the donor institution. Especially international donor institutions increasingly have an interest in funding projects that are sustainable. In the past three to four years, it has become common practice for large projects with international donors like the World Bank that the implementation of the EIA procedure on the project is a requirement for it to be funded. Thus, the EIS has to be finalized or even the environmental permit issued before the loan becomes effective. Nowadays, the trend is increasingly adopted for smaller projects as well. This development leads to a growing cooperation between the EPA and funding institutions (EPA HQ4, EPA HQ5) International donor involvement thus affects the EIA performance positively; the initial assumption that international donor involvement affects the EIA process positively, mentioned in section 4.3, is confirmed by the findings.

Superior government institutions

Highly important contextual players that influence EIA performance are higher government institutions or even the leading government of Ghana (when they have an interest in the implementation of the project). It can affect both, the procedural and the substantive effectiveness of the EIA process. The government's request to conduct the EIA procedures during a shortened time-span can negatively affect their quality. Also, the support of the

government for either of the parties can influence the power-relations between the EPA and the proponent. For public projects, the higher government often has a strong political interest in the implementation of the project; it can even be the project initiator (this was the case for the Bui project). Its goal of a quick implementation at lowest cost may be hindered, however, through the EIA process; then the government may demand the EPA to shorten the EIA procedures and to issue the permit. The EPA as a government institution is dependent upon higher government institutions. If those government institutions place requests upon the EPA, their power position can be weakened. During the period of data collection, this dependency on the government was about to increase even further. The Ministry of Environment, Science and Technology intended to take over the existing Environment Fund that until then had been managed by the EPA board. Nation-wide protests from EPA staff members followed, as they were concerned that the monies would be abused. The decision on the new fund was then revised.

Government institutions involved in implementation of measures

The case studies revealed that other government institutions beside the project proponent or the EPA can be responsible for implementing EIA measures (e.g. the Ministry of Finance, responsible for the payment of crop and land compensation measures; or the Forestry Commission, responsible for the creation of the habitat offset for the Bui project). This complicates the EIA follow-up process through a shifting of responsibility away from the project proponent. In case of non-compliance with the environmental permit conditions that refer to those measures, the proponent cannot be held directly responsible for it. This leaves the EPA with limited power to ensure that the project changes are implemented. The other government institutions which are responsible for the mitigation or compensation measures thus have a direct influence on the substantive performance of EIA, without being directly involved in the EIA process.

Government institutions responsible for the respective sector

The Bui case showed that cooperation between the EPA and the government institutions that are responsible for the sector (e.g. the Energy Commission for a hydro dam project) can positively influence EIA performance, especially in the follow-up stage. A liaison with the responsible sector institutions can increase the procedural effectiveness through combining resources and knowledge. Moreover, it can strengthen the EPA's power capacity and thus increase its ability to influence decisions on the projects and to enforce compliance with the environmental permit. The substantive effectiveness of the EIA process can thus be increased

as well. The following statement of the head of the Environmental Assessment and Audit department illustrates this: “My experience tells me that whenever you have that collaboration, compliance levels are high, because the operators know that they are not dealing with environmental institutions, they are dealing with the chief regulator of the industry [...] Whenever their authority speaks, the operators listen.” (EPA HQ4). This is confirmed by the Environmental and Social Impact Assessment division of the Energy Commission, whose representatives find that their commission as the regulator of the energy sector should first try to deal with such issues before the EPA comes in (in case of water-related energy projects such as the Bui project). Because: “the EPA cannot be everybody”, they thus support it in its tasks (Energy Commission). The head of the Environmental Assessment and Audit department further indicated that if the Agency speaks to the proponent as a single institution, environmental issues are more perceived as a burden; a hindrance to development. Building up on these experiences, the EPA undertook efforts to sensitize these other sector-specific government institutions towards environmental issues and to influence their institutional setup accordingly: “It was our strategy as an Agency to mainstream environmental responsibility in the institutions; you know that we don’t bear the responsibility alone” (EPA HQ4). Thus, as part of the Ghana Environmental Assessment Capacity Development Program, the EPA approached these institutions and trained them to develop their own environmental officers or divisions. Several institutions adopted this approach, which facilitates the creation and maintenance of liaisons between themselves and the EPA, positively influencing the EPA’s capacities (especially their network, leadership and power capacity).

Other institutions with similar interests

Not only cooperation of the EPA with sector-relevant government institution can influence EIA performance, but also its liaison with institutions with similar interests to protect the environment and support affected communities. The elaborations on the network capacities indicated that many present institutions with similar interests exist (e.g. research institutes, NGOs, etc.), but they only rarely work together and share knowledge. Collaboration with such institutions could increase the efficiency of the EIA procedures through enhanced resource and knowledge capacities. Also, it would strengthen the EPA’s leadership and power capacities and thus positively affect the substantive performance. Finally, organizations supporting the affected people can influence their capacities positively, as the Bui case illustrated.

Media and the public

The (international) media can influence the EIA performance indirectly through affecting the public attitude towards the project. Thus, critical media reports, but also scientific reports on for example non-compliance, can pressure the project proponent to comply and thus can influence the substantive performance positively.

Moreover, the attitude of the public towards the project and the interest of media are factors that determine which project the EPA focuses its attention on. This leads to varying EIA performance levels between different projects. The case study analysis indicated that for high priority cases such as the Bui project, the EIA performance is enhanced. This confirms the hypothesis of De Jong et al., saying that high priority cases generally are better performing than low priority cases (2012).

7 DISCUSSION AND RECOMMENDATIONS

7.1 Discussion of the results

In this paper, a framework was introduced to qualitatively assess EIA performance in Ghana and to reveal how actor capacities and context factors influence this performance. The research emphasizes the performance element of the framework. It contributes to the scientific knowledge on EIA performance and specifically to the understanding how EIA performance is influenced by capacities and context factors.

A comprehensive approach was developed to study EIA performance. It combines several elements of different types of evaluation studies on EIA performance as distinguished by Emmelin (1998). However, these evaluation studies are generally found to be underrepresented in the literature on EIA performance evaluation and hence, many knowledge gaps were identified (see chapter 3). Firstly, this study takes into account both, procedural effectiveness and substantive effectiveness, to assess the EIA performance. Secondly, a “whole process” approach was used to assess EIA performance. It considers the EIA process leading to the EIS and the environmental permit decision and it also focuses on the EIA follow-up process. Thirdly, EIA performance is assessed with respect to its actual practice. This is done through in depth case study analyses. Finally, the knowledge gap on underlying factors that influence EIA performance is addressed as the overall focus of this study (see section 1.1). The framework offers a systematic approach to analyze the relations between EIA performance, actor capacities and context factors. Its detailed, empirical research gives insight into different patterns of how performance, capacities and context relate to each other. The following sections discuss what the main findings of this research contribute to the mentioned knowledge gaps on EIA performance.

In order to provide a comprehensive understanding of EIA performance and the factors leading to it, the procedural effectiveness as well as substantive effectiveness was studied for the water sector in Ghana. As mentioned in chapter 3, the little empirical research available on substantive performance indicates that the actual influence of EIA on design as well as consent decisions is rather moderate (Barker, Wood 1999; Cashmore, Gwilliam et al. 2004; Wood, Jones 1997). This has partly been confirmed for the substantive EIA performance of the water sector. In Ghana, the consent decision on the issuing of the environmental permit is strongly based on the information provided by the EIA process. As the design changes proposed by the EIS are made conditional through the environmental permit conditions, decisions regarding the

project design are influenced by the EIA procedure to a certain extent. However, in the follow-up of the environmental permit, the influence of the EIA process on decisions regarding the project implementation has been revealed as limited for the water sector in Ghana. Furthermore, decisions on changes of the project design that were influenced by the EIA process are often insufficiently implemented or not put in practice at all. Therefore, this research highlights the importance of making a distinction between the quality of information provided by EIA and its actual degree of influence on decisions when studying EIA performance. However, for achieving the short-term goal of EIA (namely to contribute to informed decision-making processes towards sustainable development) both aspects are necessary.

These findings further reveal the importance of considering the EIA follow-up stage, particularly when studying substantive EIA performance. They thus reinforce this argument of Marshall, Arts et al. (2005). The overall EIA performance of the follow-up stage was found to be weak for the water sector in Ghana. This confirms the previously mentioned literature on EIA performance in developing countries in general (Arts, Caldwell et al. 2001; e.g. Runhaar 2009) as well as studies on the EIA performance in Ghana specifically (Van Roosbroeck, Amlalo 2006).

The study further chose a practice-oriented approach to study EIA performance. The research does not focus on the quality of the EIA legislation, but it rather explores if the goals of EIA are achieved in practice. Kolhoff, Runhaar et al. (forthcoming) found that Ghana's EIA regulatory framework is of high ambitions. Compared to other countries, they found that Ghana's EIA system particularly is ambitious with respect to public consultation and the aspects considered for EIA. It focuses on sustainability assessment rather than only environmental assessment. The case study analysis on the practical implementation of the EIA legislation, however, showed that the high ambitions for EIA in Ghana are only partly fulfilled in practice. For instance, public consultation and participation were found to be lacking or insufficient, even though it is encouraged by the legislation. Also, the high ambitions with respect to the subjects considered as part of the EIA are considerably challenging for EIA performance. In chapter 1, the hypothesis of Kolhoff, Runhaar et al. (forthcoming) was introduced which implies that the fit between the ambitions for EIA, on the one hand, and actor capacities and the context of the EIA, on the other hand, can partly explain EIA performance. This research verified that the reason why the ambitious EIA goals cannot be achieved in practice lies in constraints in capacities of the main actors involved. Further, the context of the EIA system was revealed to be the underlying source of some of these constraints. The ambitious approach of EIA in Ghana

that considers various types of impacts (environmental, social and economic impacts) to be subject to EIA, illustrates this. It considerably affects the EIA process and strains the EPA's capacities. The study showed that the EPA has to focus most of their attention on dealing with social issues. Assessing social impacts and finding measures to mitigate, reduce or compensate them is a highly resource and time-consuming process. These impacts are highly dynamic and context-dependent as they involve dealing with people and opinions. Dealing with such impacts takes up most of the EPA's time and resources. Moreover, the case studies showed a high level of non-compliance with respect to these social impacts. The enforcement of those compensation measures of the affected people was further hindered through the lack of possibilities of the EPA to hold accountable the institutions for the implementation of these measures. Hence, it is questionable if the EPA has the knowledge, resources and even the legal mandate to perform well with respect to the social impacts. This affects the overall EIA performance negatively.

Context and capacities of the main actors were thus found to be highly influential on EIA performance. The research offers new insights regarding the way capacities and context factors influence EIA performance. Context-capacity- performance relations are highly complex and interrelated. The chosen approach helps to point out which capacities are particularly influential for procedural effectiveness and which ones for substantive effectiveness. The study revealed that basic capacities such as knowledge, network or resources are decisive for the quality of the EIA procedures and thus for identifying necessary project changes to make it more sustainable (i.e. the procedural effectiveness of EIA). The capacities 'ownership' and 'power' of the EIA authority and the project proponent were found to be of considerable importance for the decision-making processes regarding the implementation of these changes in practice (i.e. the substantive effectiveness of EIA). Context factors were revealed to be highly influential on these capacities. They can significantly affect the power-relations between the EIA authority and the project proponent that often decide on the substantive effectiveness of the EIA procedure. The findings of this research thus agree with Sadler's (2004) statement that the influence of EIA on decision-making is affected by the political and cultural surrounding. Furthermore, it affirms the hypothesis of Kolhoff, Runhaar et al. (2009) which implies that the EIA systems in developing countries often are highly ambitious (as they are based on Western models for EIA), but that the achievement of these ambitions often is problematic due to a more constraining context in these countries.

This research highlights the importance to distinguish the two types of effectiveness when studying the underlying factors of EIA performance. It further illustrates that for the water

sector in Ghana as a public sector, the context of the EIA system can considerably affect EIA performance. Therefore, it is recommended that further empirical research is carried out on context factors that can influence EIA performance.

7.2 Recommendations for enhancing EIA performance

The research revealed that the high ambitions for EIA in Ghana often cannot be achieved in practice for the water sector. There is thus room for improvements for the EIA system in Ghana with respect to its performance. In order to effectively develop strategies to increase the EIA performance, a thorough and comprehensive understanding of EIA performance and its underlying factors is necessary. This research identified the weaknesses of the EIA for water project with respect to the EIA procedures and to decision-making procedures. It further identified the capacities influencing these EIA performance elements. Thus it provides a good foundation to establish recommendation for improvement of the EIA performance. Some of them are given in the following section.

The study found that the quality and execution of EIA procedures often is negatively influenced by basic capacities of the actors involved such as knowledge and resources. Power issues also play a role when it comes to time pressure to finalize the environmental permit. Furthermore, when it comes to the implementation of necessary project changes, relative low power capacities of the EPA and limited ownership of the proponent for EIA goals are hampering factors. Firstly, in order to make the EIA system more efficient, further decentralization of the EPA is recommended. Interviews with staff of two regional offices revealed that they wish to receive more decision-making power regarding the EIA process of smaller projects. If some smaller project would fully be handled by the regional offices, this would save time, staff hours and monetary resources. Plans for handing over more responsibilities to the regional offices are under development. The use and establishment of actor networks was further found to have a large potential to strengthen other capacities of the actors and to increase the EIA performance. This accounts for networks between actors of the EIA system, but for networks with actors that are not directly involved in the EIA process. The research revealed that the EPA has a large network, but that they use it for information and knowledge exchange to only a limited extent. Within the EIA system, it is recommended to strengthen and intensify the relations between the EPA and the affected communities. This would increase the EPA's knowledge capacities and could improve the weak follow-up procedures. The affected people, on the other hand, would have more support in their concerns. Furthermore, it is highly

recommended that the EPA should increasingly collaborate with other institutions or organizations that are involved in the project and that have similar interests to protect the environment or support the affected people (even though they are not directly involved in the EIA process). This research identified several institutions that pursue similar goals as the EPA with respect to the project. However, they often do not know about the decisions taken during the EIA process and their knowledge on environmental and social issues is not communicated to the EPA (e.g. engineering consultant of the Koforidua project or the Wildlife division involved in the Bui project). The interviewed people generally favor such increased cooperation. The EPA's enhanced cooperation with such institutions would reduce their need for resources and positively enhance their knowledge, leadership and power capacities. Similarly, the research revealed that the liaison with sector authorities is highly beneficial for the performance of EIA, especially for enhancing its substantive effectiveness. As described in section 6.2, mainstreaming environmental responsibility into sector authorities proved to support EIA performance considerably as the EPA's power capacity is enhanced through the collaboration. The same applies for donor institutions that have a certain power over the project proponent. They thus can support the EPA's power capacities, when increasingly aware of the EIA process or even involved with it. Currently, there is trend of increasing interest of donors towards the EIA process. The EPA thus tries to cooperate with them, to communicate them the outcomes of the EIA process (e.g. the environmental permit and its conditions). In some instances, they might even provide trainings for them on EIA. Finally, interventions to raise the awareness of the proponent regarding the benefits of the EIA process for their project are recommended. The EIA performance can be increased, if the reputation of EIA shifts from being a licensing apparatus to a tool to improve the quality of the project and to prevent problems in the future.

It is important to consider that the study focused on projects for which the environmental permit has already been issued more than two years ago. The research takes a retrospective approach, looking back at past EIA procedures, but also the present ones. Thus shortcomings in the EIA performance from back then may already have been overcome in the meantime. The Environmental Assessment and Audit department of the EPA was found to be self-critical and determined to increase their performance. Hence in the meantime, several initiatives have been started to address some of the shortcomings revealed by this research. For instance, trainings are held on EIA for the staff of the EPA and plans are on the way to introduce digital data storage to increase the EPA's knowledge capacity. Furthermore, Environmental

Assessment and Audit department for the EPA plans to undertake efforts to increase their performance regarding the follow-up on the permit. Finally, a new EIA legislation is under development which among other issues aims to enhance regulations on public participation. If those plans will be implemented in the future, the performance of the EIA system is thus expected to get one step closer to reach its high ambitions.

8 CONCLUSIONS

This study explores how EIA performance of the water sector in Ghana is influenced by the capacities of the main actors involved in the EIA process and how these capacities are in turn influenced by the context of the EIA system. The relations between context factors, capacities, procedural and substantive EIA performance appear to be highly complex and dynamic. However, this study shows that patterns of influence of capacities and context factors on procedural and substantive EIA performance can be recognized. This is true for both EIA process stages: the EIS stage and the EIA follow-up stage.

The EIA process of the water sector in Ghana was found to be clearly emphasized on its first stage, namely the EIS stage. Resources, time and energy of the EPA are mostly spent on the EIA procedures leading up to the EIS report and the issuing of the environmental permit. As the EIA is a preventive tool to influence the project design at an early stage of a project's life-cycle, more is expected to be achieved during this phase. Furthermore, during the EIS stage, the EIA process is often in the spotlight because it has the attention of donor institutions, media and the public. Nevertheless, some procedural shortcomings have been revealed for the water sector in Ghana, especially with respect to the review processes and public participation. The very ambitious objectives of the EIA legislation concerning public consultation can thus not be achieved in practice. Knowledge was found to be the most essential capacity influencing the effectiveness of the EIA procedures during the EIS stage. For instance, a lack of systematically organized knowledge of the EPA on water issues negatively affects the review procedures. Furthermore, lacking information of the affected communities is an important factor leading to the weak public consultation and participation. Finally, sector authorities or higher government institutions can put time pressure on the EIA procedures. Thus, they are an important context factor that can negatively affect the quality of the EIS procedure. The EIA procedures aim to identify necessary project changes for a more environmentally and socially friendly project. The mentioned shortcomings of the procedures thus result in a limited potential of EIA to identify such changes. For those project design changes that nevertheless are identified and proposed as an outcome of the EIA procedures, the degree to which they actually are implemented in practice has to be considered. The substantive effectiveness of the EIA is then of importance as it determines to what extent those suggested changes are incorporated into the project design. Two capacities of the EPA and the proponent greatly influence the substantive effectiveness: 'ownership' and 'power'. Whenever the proponent has low

ownership for the EIA goals, the power-relations between the project proponent and the EPA determines if identified necessary project changes are integrated into the design. The context of the EIA system was found to strongly influence the actors' ownership and power capacities. Media attention, the public attitude towards the project and international donor involvement can increase the proponent's ownership of EIA goals. The proponent's power capacity can also be enhanced by interferences of higher government institutions that have an interest in the prompt and smooth progress of the project but show limited concerns for EIA goals.

As the first stage enjoys the most attention of the EPA, the EIA performance during the EIA follow-up stage was found to be weak in general. A decisive factor influencing this trend is the insufficient resource capacity of the EPA. As a consequence, the EPA's monitoring and enforcement activities are limited and they are able to only focus on some projects and sectors. As a general trend, the EPA prefers to spend resources on follow-up procedures of private projects. The EIA follow-up of public projects is thus neglected. The reason for this choice relates to the reduced potential of the EPA to enforce compliance with environmental permit conditions for public projects (i.e. lower substantive effectiveness for public projects). As for the EIS stage, 'power' is the essential factor determining substantive performance in the EIA follow-up stage. When the proponent lacks ownership, non-compliance with the environmental permit conditions occurs. It is then often a question of power whether or not the EPA can force the proponent to implement the project changes that were proposed by the EIA process in practice. As for the EIS stage, context factors considerably influence the EPA's power position in the follow-up stage. Two important contextual factors for public projects are higher government institutions which generally favor the project implementation and a positive attitude of the public towards the project. They decrease the EPA's ability to enforce their requests over the project proponent and lead to the EPA's decision to focus its follow-up efforts on other projects than water projects. As a consequence, the EIA follow-up for the water sector is weak with respect to both, procedural and substantive effectiveness. A weak follow-up performance implies that the project design changes that were identified and incorporated into the project design during the first stage of the EIA process are not certainly implemented in practice. Low performance during the EIA follow-up stage can thus undermine the overall EIA performance. Thus for having a good performing EIA system, both stages need to have a high performance.

The research thus reveals that the ambitious goals for EIA in Ghana are only partly achieved in practice for the water sector. Especially the EIA follow-up is found to be weak, which undermines the overall EIA performance. The research highlights that the performance of EIA in the water sector is constrained through actor capacities and context factors. It also shows that for effective EIA procedures that identify changes to be made to the project, basic capacities such as resources or knowledge are essential. For the implementation of these changes in practice and thus the substantive performance of EIA, power and ownership are of particular importance. For water projects, contextual factors can play an essential role, as they largely influence the power interplay between the EPA and the project proponent. The EIA legislation is thus overly ambitious with respect to the capacities of the actors involved in the EIA process and the constraining context of EIA.

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Appendix I: Capacity indicators

Capacity	Indicators
Power	What is the level of resources, knowledge and network of each actor (see questions for these capacities below)?
	How often did the actor achieve their goals completely/partly/not at all during each EIA project stage?
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)
	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?
	Perceived goals of EIA (sub)stages - which expressed goals did the actor aim for during each EIA process stage?
	(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?
	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 – 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, informal) – 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?
	(Type of) evaluation knowledge available – which processes are in place to evaluate outcomes of EIA process stages? Which information is used in this evaluation?
	Mechanisms for learning in place – Do changes in written or operational policy result from evaluation efforts?
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?
	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?
Ownership	Did the actor have a formal role and responsibility allocated to them in the EIA process?
	Do the goals of the actor align with EIA process goals?
	Do the goals of the actor align with the goals of other actors (co-ownership of goals)?
	Did the actor participate in the EIA process beyond the minimum requirements as laid down in their mandate, did they fulfill the minimum requirements, or was the actor's compliance to EIA process requirements below the minimum requirements?
	Duration of involvement – how long was the actor involved in the EIA project?
	Intensity of participation – were the same representatives involved in each meeting?
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 goals aimed for 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?
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?

(Source: Van der Leest 2012)

Appendix II: List of Interviews

Main interview group	Reference Code	Type of information	Type of communication	Function of respondent	Date of Interview
EIA authority	EPA HQ1	Water sector and both cases	Interview	Director of Environmental Assessment and Audit department of EPA head quarter	24.05.12
	EPA HQ2	Water sector and Koforidua case	Personal communication	Director of Environmental Assessment and Audit department of EPA head quarter	26.05.12
	EPA HQ3	Bui case	Interview	Program Officer Environmental Assessment and Audit department of EPA head quarter, present at Annual Monitoring visit of Bui	22.06.12
	EPA HQ4	Water sector and Bui case	Interview	Director of Environmental Assessment and Audit department of EPA head quarter	29.06.12
	EPA HQ5	Water sector	Validation workshop	Director, Principal Program Officer Environmental Assessment and Audit department of EPA head quarter present, also a representative of the resource department and a water specialist of the EPA	27.07.12
	EPA RO1	Water sector and Koforidua	Group interview	Director of EPA regional office of the Eastern Regions and	01.06.12

Proponent		case	(3 people)	his two deputies	
	EPA RO2	Water sector and Bui case	Interview	Principal Program Officer of EPA regional office in Brong Ahafo Region	05.07.12
	EPA RO3	Water sector and Bui case	Group interview (2 people)	Director of EPA regional office in Brong Ahafo Region and Principal Program Officer of EPA regional office in Brong Ahafo Region	09.07.12
	GWCL HQ1	Koforidua case	Interview	Environmental officer	22.06.12
	GWCL HQ2	Koforidua case	Interview	Senior Planning & Research Engineer	03.07.12
	GWCL RO	Koforidua case	Group interview (3 people)	Regional distribution manager, Regional production manager, Water quality manager	29.06.12
	Contractor	Koforidua case	Interview	Senior project manager	03.07.12
	EIA consult.	Koforidua case	Interview	Executive Director of Envirorich Consult Limited	06.06.12
			Personal communication		08.06.12
	Engin. consult.	Koforidua case	Interview	Engineering consultant responsible for the Koforidua project	13.07.12
	BPA1	Bui case	Interview	Environmental officer of Bui project	06.06.12
BPA2	Bui case	Interview	Community relation and resettlement officer of Bui	06.06.12	

Affected / Benefiting people				project	
	BPA3	Bui case	Interview	External relation officer of Bui project	06.06.12
	AP1	Koforidua case	Interview	Habitant of Koforidua, Beneficiary of project	11.06.12
	AP2	Koforidua case	Interview	Local water manager in affected community (Oterkpolu)	11.06.12
	AP3	Koforidua case	Interview	Affected land holder (Oterkpolu)	11.06.12
	AP4	Koforidua case	Group Interview (approx. 8 people)	Chief secretary of affected community, affected land holders (Oterkpolu)	15.06.12
	AP5	Koforidua case	Group Interview (approx. 30 people)	Chief of affected community, chief secretary, elders of affected community, affected land holders (Oterkpolu)	15.06.12
	AP6	Koforidua case	Group Interview	Assembly man of affected community, water manager, affected land owner (Oterkpolu)	01.07.12
	AP7	Koforidua case	Interview	Affected land owner (Odorkom)	27.06.12
	AP8	Koforidua case	Interview	Affected land owner (Yorkornor)	27.06.12
	AP9	Koforidua case	Interview	Sub- chief of affected community (Suhyen)	27.06.12
AP10	Koforidua case	Group interview	Sub-chief and advisor of chief of affected community (Jumapo)	27.06.12	

NGOs/Research institutes	AP11	Koforidua case	Interview	Sub-chief / Community water resource manager of affected community (Oyoko)	27.06.12	
	AP12	Bui case	Interview	Chief of resettled community (Bui)	06.07.12	
	AP13	Bui case	Interview	Spokesman of chief of resettled community (Dokoyina)	07.06.12	
	AP14	Bui case	Interview	Assembly man Bui resettlement camp	06.07.12 07.07.12	
	AP15	Bui case	Interview	Chief of host community	07.07.12	
	AP16	Bui case	Group interview (3 people)	Sub-chief, linguist of chief and elder of downstream community	08.07.21	
	GDD1	Bui case	Interview	President Ghana Dams Dialogue initiative/ Executive Director of Volta River Basin Foundation	03.07.12	
	GDD2	Bui case	Joined meeting of Ghana Dams Dialogue with resettled community	Representatives of Ghana Dams Dialogue and the Bui resettlement township present	06.07.12	
	Other Government	Energy Commission	Bui case	Group interview (2 people present)	Director of the Environmental and Social Impact Assessment division of Energy Commission and Program officer of the Environmental and Social Impact	26.06.12

Insitutes				Assessment division of Energy Commission	
	Wildlife division	Bui case	Interview	Park Manager of Bui National Park, Wildlife division	07.07.12
Other	Monitoring visit	Bui case	Joined monitoring visit of EPA Brong Ahafo region	Representatives of the EPA Brong Ahafo, the BPA, the contracting company, the Wildlife Division and the affected communities (partly) present throughout the monitoring activities	05.07.12