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The influence of actor capacities on EIA system performance in low and middle income countries —Cases from Georgia and Ghana

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ABSTRACT

In this paper, we aim to better understand the factors that contribute to the substantive performance of EIA systems in low and middle income countries. Substantive performance is defined as the extent to which the EIA process contributes to the EIA objectives for the long term, namely environmental protection or, even more ambitious, sustainable development. We have therefore developed a conceptual model in which we focus on the key actors in the EIA system, the proponent and the EIA authority and their level of ownership as a key capacity to measure their performance, and we distinguish procedural performance and some contextual factors. This conceptual model is then verified and refined for the EIA phase and the EIA follow-up phase (permitting, monitoring and enforcement) by means of 12 case studies from Ghana (four cases) and Georgia (eight cases), both lower–middle income countries. We observe that in most cases the level of substantive performance increases during the EIA phase but drops during the EIA follow-up phase, and as a result only five out of 12 operational cases are in compliance with permit conditions or national environmental standards. We conclude, firstly that ownership of the proponent is the most important factor explaining the level of substantive performance; the higher the proponent's level of ownership the higher the level of substantive performance. The influence of the EIA authority on substantive performance is limited. Secondly, the influence of procedural performance on substantive performance seems less important than expected in the EIA phase but more important during the EIA follow-up phase.

In order to improve substantive performance we learned two lessons. Firstly, increasing the proponent's level of ownership seems obvious, but direct change is probably difficult. However, where international finance institutes are involved they can increase ownership. Despite the limited influence of the EIA authority, a proactive strategy of, for example, working together with international finance institutes has a slightly larger influence than a reactive strategy.

1. Introduction

In nearly all low and middle income countries (LMCs), EIA has been legally established since the UNCED conference in Rio in 1992 (NCEA, 2013). However, in the majority of those countries, the substantive performance of EIA is still considered to be weak (Khadka and Shrestha, 2011; Marara et al., 2011; Clausen et al., 2011; Bitondo et al., 2014). Sadler (1996) defines substantive performance as the extent to which the EIA process contributes to the EIA objectives. The EIA objective for the long term is environmental protection or, even more ambitious, sustainable development and, for the short term, informed and accountable decision-making (IAIA, 1999).

Little is still known about the factors explaining substantive performance (Annandale, 2001; Cashmore et al., 2004; Ostrovskaya and Leentvaar, 2011). Research on EIA performance in LMCs mainly focuses on procedural performance, i.e., the extent to which procedural requirements are met (Sadler, 1996; Zhang et al., 2012). Although procedural performance is important and a pre-condition for substantive performance (Van Doren et al., 2012; Khadka and Shrestha, 2011), it is not necessarily sufficient to explain substantive performance. All requirements of the EIA procedure, such as the delivery of an EIA report, can be fulfilled, but that does not mean that a project will be implemented in an environmental friendly way. To design and implement interventions that contribute to improved EIA substantive performance, it is

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necessary to better understand the factors explaining substantive performance. For this purpose, hypotheses raised in literature about factors that affect substantive performance (such as capacities, procedural performance and contextual factors; Kolhoff et al., 2009, 2013; Van Doren et al., 2012) need to be further elaborated (e.g. what is relative importance? how are they related? how can they be defined?) and *empirically* tested.

The aim of this paper is to contribute to a better understanding of substantive performance, elaborating in particular on the role and importance of actor *capacities*, defined as the abilities of people, organizations, and society as a whole to achieve their objectives (OECD, 2006; UNDP, 2008; Armstrong, 2013). Of all the actors that might influence substantive performance we focus on the proponent, that can be a public or private organization, and the authority responsible for EIA and EIA follow-up (hereafter, 'the EIA authority'). We consider them as the primary actors because they have the primary responsible formal role in each of the EIA procedural steps and therefore distinguishes from other actors. The central question studied in this paper is what is the influence of (i) the key capacities of the proponent and the EIA authority (ii) the contextual factors such as international finance institutes (IFIs) and non-governmental organizations (NGOs) and (iii) procedural performance on substantive performance. Therefore, in this paper we develop a conceptual framework that specifies actor capacities and connects these to the substantive performance of EIA systems. This conceptual framework is then verified and refined based on 12 case studies from Ghana (four cases) and Georgia (eight cases), both lower–middle income countries.

In this paper we aim to better understand the factors influencing long-term substantive performance of EIA systems in LMCs. We have therefore studied the influence of the key capacities ownership (motivation and means) of the proponent and the EIA authority, the importance of procedural performance and the influence of contextual factors such as IFIs and NGOs.

2. Conceptual framework

In this section, the following concepts will be described and operationalized: substantive performance, procedural performance and regulatory framework, capacities of the two primary actors and contextual factors. In Fig. 1, the relations between these concepts are indicated.

2.1. Substantive performance

In the introduction we defined substantive performance as the extent to which the EIA process contributes to the EIA objectives (Sadler, 1996). One can distinguish between two forms of substantive performance, one focusing on the short-term objective of EIA, informed and accountable decision-making, that has frequently been studied in LMCs (Ogunba, 2004; Ali, 2007; Alemagi et al., 2007) and one focusing on the long-term objective of EIA, environmental protection or more ambitiously sustainable development, which is less frequently studied in LMCs (Khadka and Shrestha, 2011). In this paper, we focus on the long-term objective of EIA. Our study has therefore included not only the EIA phase following the procedural steps of screening, scoping, EIA execution and reviewing, but also the less studied EIA *follow-up phase*, including the procedural steps of environmental permitting or licensing, compliance monitoring or inspection and compliance enforcement. The importance of including EIA follow-up is emphasized by Khadka and Shrestha (2011) who, in a study on EIA performance in LMCs, concluded that EIA substantive performance on its long-term objective remains weak if there is no improvement in the performance capacity (capacity means) of the EIA authority responsible for EIA follow-up phase. Empirical research with this focus on substantive performance, including the EIA follow-up phase, is rare in LMC, and it is expected that the findings of this study will provide new insights into the factors explaining this form of substantive performance.

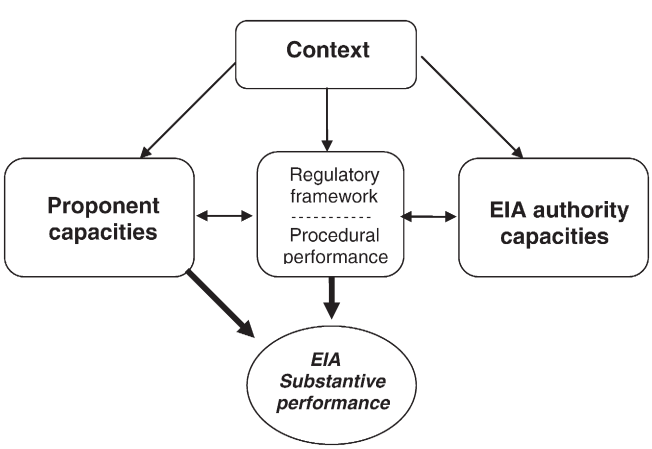

Fig. 1. Conceptual framework: factors influencing EIA substantive performance.

2.2. Procedural performance

Procedural performance refers to the extent to which the requirements of the regulatory framework are met (Sadler, 1996). Procedural performance is influenced by, on the one hand, clarity, and the ambitions that have been set in the EIA regulatory framework and other regulations such as environmental standards (considered as part of the context), and on the other hand the capacities of the two main actors who are interacting, primarily through communication and negotiation, during the procedural steps of the EIA- and EIA follow-up phase (Kolhoff et al., 2013; Zhang et al., 2012).

In the EIA literature it is assumed that procedural performance of the EIA phase is a condition for EIA substantive performance (Zhang et al., 2012; Wende, 2002; Arts et al., 2012). This might be true for high income countries but our research in LMCs shows that there is a weak correlation between the level of procedural performance during the EIA phase and substantive performance in terms of achieving the long-term objective of EIA. So we hypothesize from our research, that in LMCs a high procedural performance is not a necessary condition for high substantive performance.

2.3. Capacities of the primary actors

In this section, we describe the selection of the key capacities of the primary actors by using the literature on EIA and capacity development, by hypothesizing that those capacities primarily explain actors' performance. According to Lusthaus et al. (2002) the performance of an organization is explained by its willingness or motivation, the ability to use its resources, and context. Lopez and Theison (2003) and, Baser and Morgan (2008) state that willingness or ownership and leadership (organizational capacities) are essential for good organizational performance and once in place, ensure that the other capacities such as skills and access to funds are developed. Kirchoff (2006) and Van Loon et al. (2010), building upon the work of Hilderbrand and Grindle (1994) and Potter and Brough (2004), have developed a framework to get insight into all the capacities used by the EIA authority in, respectively, Brazil and Yemen. Kirchoff (2006) and Van Loon et al. (2010) conclude that out of the five main capacities they distinguish (see Table 1), organizational capacities are more important than the other four categories of capacities. According to Stoeglehner et al. (2009) *ownership* of the proponent is a key condition and capacity for substantive performance of EIA for plans, and we assume that this is comparable for EIA for projects as well. Stoeglehner et al. (2009) state that proponents should own or adopt EIA as a means to achieve environmental or sustainable development objectives. They distinguish between two main aspects of ownership. Firstly, there is ownership of environmental values or

Table 1
Capacities of the key EIA actors.

Key capacities		Capacities	Sub-capacities
Ownership	Motivation '*the will to*'	Organizational capacity	— Willingness to attain goals and meet incentives — Leadership (e.g. strategy, performance perception of other key actor) — Networking (formal-, informal linkages)
	Means '*the ability to*'	Human capacity	— Number of staff
		Scientific capacity	— Quality of information (e.g. compliance history) — Expertise (e.g. analytical skills) — Adjustability (organizational learning)
		Technical capacity	— Technical means
		Resource capacity	— Access to funds

Source: Based upon Lusthaus et al., 2002; Kirchoff, 2006; Van Loon et al., 2010.

sustainability objectives, which is reflected in environmentally beneficial project design changes and implementation. Secondly, there is ownership of techniques, processes and necessary outcomes. The first aspect is in our view explained by the capacity motivation or willingness, 'the will to' achieve the EIA goal. We defined the second aspect of ownership identified by Stoeglehner et al. (2009) as the capacity 'means' or 'the ability to' achieve the EIA goal. The capacity 'means' is divided into human-, scientific-, technical- and resource capacities and sub-capacities which are briefly described, see Table 1. According to INECE (2009) and Ostrovskaya and Leentvaar (2011) human-, technical- and resource capacities during EIA follow-up are always limited and therefore it depends on the organizational sub-capacities of leadership and strategy as to how they are used most effectively. Leadership is defined as the organization's ability to influence its internal and external actors in terms of determining the goal, by increasing or decreasing the willingness of other actors to achieve that specific goal (Lusthaus et al., 2002). The primary actors do not perform in isolation, both can uphold formal and informal relationships with other actors, such as for example NGOs, the investment board or influential politicians, to strengthen their position in order to achieve their goal (capacity networking) (Pettigrew et al., 1992). Knowledge (scientific capacity) is considered to be essential in EIA as it aims to contribute to 'rationalization' of decision-making, so it therefore needs to be of good quality, relevant, timely and acceptable to stakeholders (Kornov and Thissen, 2000). The number of skilled staff (human capacities) the allocation of budget (resource capacity) and the available technical means (technical capacity) of the EIA actors are often limited (Van Loon et al., 2010 Marara et al.; NCEA, 2014) whilst those capacities differ significantly for the proponents.

The primary actors interact iteratively during all steps of the EIA procedure. Their level of ownership is therefore also influenced by, on the one hand, leadership based upon earlier experiences (e.g. compliance history of the proponent, sub-capacity quality of information) and on the other hand, response to decisions and actions made during the procedure (Ostrovskaya and Leentvaar, 2011).

Summarizing, we define ownership as to what extent the primary actors aim to achieve the EIA objectives. We assume that *ownership*, consists of the dimensions *motivation and means and* are interrelated. And we argue that the level of ownership is influenced by on the one hand '*the will to*' achieve the long-term EIA goal reflected through the capacity *motivation*, and on the other hand '*the ability to*' achieve that goal that is influenced by the capacity *means* that are made available. Therefore, we identify ownership as the most important key capacity that will be used in the analysis to understand and explain the level of performance of the primary actors.

2.4. Regulatory framework

The performance of the primary actors is directly influenced through the country-specific EIA regulatory framework and environmental standards, primarily through the influence on procedural performance, see Fig. 1. The country-specific EIA *regulatory framework* determines the height of the ambition of the government concerning environmental protection and accountability, and the autonomy of the EIA authority. The higher the ambition, the larger the potential for environmental and social best practice performance of the project during the EIA- and EIA follow-up phase (see Fig. 2). Legal autonomy of the EIA authority is important to act independently from other authorities in implementing the EIA regulations (El-Fadl and El-Fadel, 2004). Champenois (2011) studied the influence of environmental standards on EIA performance in low income countries in Africa. She concluded that legally established *environmental standards* are a condition for adequate procedural performance and when standards are absent or unclear the environmental permit conditions are negotiated. This makes the EIA authority vulnerable to corruption by the proponent, and as a consequence the procedural performance is generally low, which has a strong negative influence on substantive performance.

2.5. Contextual factors

In the literature, the following contextual factors that influence EIA performance are mentioned: the national and international actors and characteristics of the project (Bansal and Roth, 2000; Kolhoff et al., 2009; Marara et al., 2011; Hansen et al., 2013; Champenois, 2011). Although contextual factors can hardly be changed, they matter, as they may explain the level of ownership of the two primary actors (Kolhoff et al., 2009). Below we will briefly discuss these factors.

2.5.1. International and national actors

National and international actors that might have an influence on substantive performance through one or both of the primary actors are listed in Table 2. International actors involved in funding of the project, such as IFIs like the World Bank, or a bilateral donor such as Sweden in general have a strong positive influence on ownership as they apply high EIA standards. Consultants assigned to execute the EIA on behalf of the proponent, generally have little influence on the ownership of the latter. Marara et al. (2011) found in a study of low income countries that sector authorities can have a strong influence on substantive performance, as for projects of national importance they can approve or reject a given project, regardless of the results from the EIA study. The media, the NGOs, and the judiciary, are institutional actors that hold the EIA authority, the involved sector authorities and the proponent accountable for decisions and actions that are subject to EIA, and might therefore influence the ownership of the primary actors. (Marara et al., 2011). The media, for example, has a role in facilitating a public debate about controversial projects or making corruption public (Fox, 2000) When provisions for appeal are in place, the judiciary can have a role in judging the charges of, for example, an NGO that notices noncompliance with regulations (Marara et al., 2011). The legal rights (e.g. autonomy) of those actors or institutions are crucial to be able to play their role (Fox, 2000; Stapenhorst and O'Brien, 2006). When those rights are not guaranteed the risk of corruption increases.

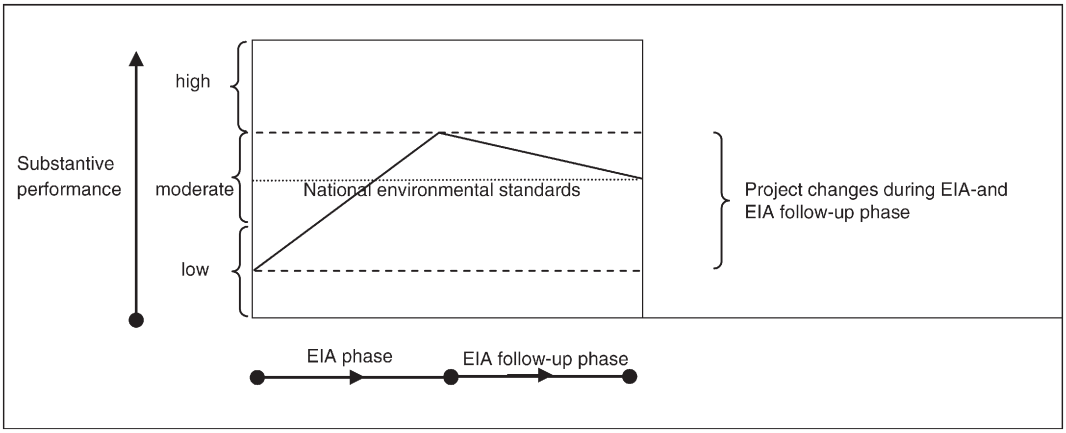

Fig. 2. Substantive performance illustrated for a hypothetical EIA project.

Corruption, the abuse of public power for private gains (Shen and Williamson, 2005) is more common in the administrations of low income countries (Treisman, 2000) and moreover, EIA authorities of low income countries are more than usually vulnerable to this (USAid, 2002). Until the Rose revolution in Georgia in 2003, corruption was widespread in the public sector and one could 'buy' an environmental permit at the EIA authority as their ownership was low (CENN, 2004; World Bank, 2012). When corruption has become common in the EIA authority, such as in Georgia in the period until 2004, EIA becomes a rubber stamp procedure that does not or hardly contributes to substantive performance (CENN, 2004; Kakonge, 2013).

2.5.2. Characteristics of the project

The performance of the primary actors might be influenced by the characteristics of the project, namely, the expected negative impacts on the environment, people that might be affected and the importance of the project for the national economy (Bansal and Roth, 2000; Marara et al., 2011). According to Bansal and Roth (2000) the proponent takes potential environmental effects of their project seriously when they are visible, cause a public emotional response, causality with the project is clear and therefore, for example air pollution is taken less seriously. We assume that the level of ownership by the EIA authority rises when the impacts are more significant or can be avoided or mitigated. And we assume a larger influence by other authorities on the EIA authority concerning environmental approval of a project of national interest, illustrated in Georgia in 2005, where the former head of the EIA authority in Georgia noted that he was forced by the office of the president to approve an EIA for the extension of the international airport that did not meet the standards. In this study we have not further elaborated on the influence of characteristics on performance of the primary actors.

Table 2
Overview of possible actors involved in the EIA procedure.

Private sector	Government sector	Public sector/Civil society
Key EIA actors		
Proponent:	Proponent:	
— Private company	— Government authority	
	Competent authority:	
	— EIA authority	
National actors		
— Consultancy firm	— Sector -, regional- and local authority	— Affected people
— Individual business leaders	— Judiciary (judges and assistants)	— Traditional leaders
— Business associations	— Office of the president/prime-minister	— National (environmental) NGOs
— Elites	— Sector ministers and advisors	— Media (journalists, press & TV)
— Chamber of commerce	— Depts or agencies of sector ministries.	— Knowledge organizations (universities and think tanks
	— Investment board	— Compliance organizations (e.g. ombudsman)
	— Political representative bodies (parliament, council etc.)	— Religious institutions
— Commercial banks	— Parliamentary environmental committee	— Social movements
	— Military	
		— Individual (EIA) experts
	— Elites	
International actors		
— International business associations	— Donors (bilateral and multilateral)	— International (environmental) NGOs
— International commercial banks	— Political representative bodies of donors e.g. (parliament)	— Int. EIA review– and compliance organ. (e.g. Netherlands Commission for EA)
	— Intern. organizations (e.g. UN, OECD)	— International & regional impact assessment associations
— International financial institutes		
	— Secretariats of international conventions	

3. Main concepts operationalized

3.1. Substantive performance

In this paper we measure substantive performance by focusing on projects that have been subject to EIA and that are approved and also implemented, because we wanted to measure the project changes made during the EIA phases. Substantive performance is measured through the project changes that have been made and are implemented voluntarily by the proponent during the EIA- and EIA follow-up phase, or changes that have been made at the request of, or are enforced by the EIA authority during the latter two phases, see Fig. 2. These project changes contribute towards environmental protection by avoiding, mitigating or compensating negative environmental effects or contributing towards positive environmental effects. An important threshold in measuring those changes is to what extent the environmental standards are met. If social effects are also addressed, these changes contribute towards the more ambitious EIA objective of sustainable development.

Three measuring points have been identified to determine the level of substantive performance for the two EIA phases. The first measuring point is the start of the EIA phase when the proponent applies for a permit, the level of performance is determined by using the project proposal and scoping report prepared by the proponent, and the response to the scoping report prepared by the EIA authority and the EIA review report prepared by the EIA authority. The second measuring point is where the EIA phase ends and a decision is taken to provide a permit, and the EIA follow-up phase starts in case of permit approval. The third measuring point is during the EIA-follow up phase when the project is operational, to determine whether project design changes that were decided upon during the EIA and EIA follow-up phase were implemented, by assessing the environmental permit and the compliance monitoring or inspection report. We have identified six sub-categories to measure the overall score on substantive performance and categorized these into three main categories: low, moderate and high, see Fig. 2. When a project meets the national environmental standards a moderate score is given.

3.2. Procedural performance

To be able to measure procedural performance it is necessary to identify the legal tasks of the two main actors in the EIA procedure. The EIA procedural steps are quite standard worldwide, but the legal tasks of the primary actors differ between countries (Petts, 1999). For example, scoping is legally required in Ghana, but not in Georgia, and in Georgia public participation is mainly the task of the proponent, whilst in Ghana it is the EIA authorities' task. The legal tasks of the primary actors in both countries are listed and a distinct set of indicators, derived from Kolhoff et al. (2009) and Van Loon et al. (2010) is selected, see Table 3. Six possible levels of procedural performance are determined: low, low+, moderate, moderate+, high and high+.

Table 3
Indicators to measure ownership, procedural performance and substantive performance.

EIA objectives	— Informed and accountable decision-making (short term) — Environmental protection or more ambitious sustainable development when social effects are considered (long term)						
Procedure Phases	EIA phase →				EIA follow-up phase →		
Steps	**Screening**	**Scoping***	**EIA preparation & reviewing**	**Public participation**	**Permitting**	**Compliance monitoring**	**Compliance enforcement**
Legal task of:							
— Proponent	— Timely start/-starting report	— Scoping report	— EIA report — Decision	— Organisat. of pp./-report — Organis. of pp./decision	— None — Decision	— Possibly project changes — Decision	— None — Decision
— EIA authority	— Decision	— Decision				— Compliance monitoring	— Compliance enforcement
Indicators							
	— Timely start EIA procedure		a. Quality EIA report b. Quality review	— Quality of public particip. process.	a. Quality of permitting b. Compliance permit condit.		
— Procedural Performance	+	-	*a.* +	+	-	+	+
— Ownership EIA authority	-	-	*b.* +	-	*a.* +	+	+
— Ownership Proponent	+	-	*a.* +	-	*b.* +	-	-
	— Willingness to meet environmental standards through making project changes voluntarily, on request or enforced.				— Willingness to meet environmental standards (permit conditions) and make additional changes voluntarily, on request or enforced and implementation of changes made during the EIA- and EIA follow-up phase		
— Substantive performance	To what extent national or international environmental standards have been met: Low: None Low+: Some national standards Moderate: All national standards Moderate+: National standards-plus High: International good practice standards High+: International best practice standards				To what extent national or international environmental standards have been met: Low: None Low+: Some national standards Moderate: All national standards Moderate+: National standards-plus High: International good practice standards High+: International best practice standards		

* Scoping is not a formal procedural step in Georgia and therefore, a scoping decision is not made.

3.3. Key capacities of the proponent and EIA authority

In Section 2 we identified that 'ownership' consisting of 'motivation' and 'means' is the key capacity of the primary actors. Ownership is the result of the capacity motivation and means and the interaction between the latter two capacities is complex. And it is difficult to measure the influence of motivation and means on ownership separately. Therefore, we decided to measure only the capacity ownership of the proponent and EIA authority. Due to the interaction of the primary actors we assume that the level of ownership might differ during the EIA procedure and therefore we have decided to distinguish three levels of ownership separately for the two EIA phases, see Table 4. Ownership of the proponent is determined by measuring, for the EIA phase: the EIA report quality, to what extent the environmental standards are met and whether project changes are made voluntarily or are enforced, and for the EIA follow-up phase: willingness to comply with the permit conditions and whether project changes are made voluntarily, on request or are enforced). Ownership of the EIA authority is determined by measuring, for the EIA phase: quality of review of the EIA report, and for the EIA follow-up phase: permit approval, execution of compliance monitoring (frequency and quality) and enforcement (effectiveness) in case of non-compliance. The level of ownership is measured qualitatively.

3.4. Justification of the case study approach and selection of case studies

A case study approach was chosen in order to verify and refine our conceptual framework. Case studies have various advantages compared to the use of more quantitative methods, as they allow both testing of hypotheses and the further development of theory, have the potential of achieving high conceptual validity, and allow for in-depth examination of the hypothesized role of causal mechanisms in the context of individual cases (George and Bennett, 2004). The limitations of case studies are that they can make only tentative conclusions on how much the contribution to the outcomes mattered (George and Bennett, 2004).

We studied cases in two LMCs, to have some variety in institutional context. The selection of countries is the result of the involvement of the first author in his position as advisor, in several EIA capacity development activities in Ghana (2007–2012) and Georgia (2004–2013). The advisory work was financially supported by a western donor country that had a bilateral development co-operation relationship amongst others with those two countries. Georgia was selected because the donor country was representing it on the board of the World Bank. Ghana was selected because of long-lasting historical relations. The first author became involved in those countries as English is the working language. The directors of the respective EIA authorities in Ghana and Georgia asked the first author to conduct an analysis of EIA performance, aiming to identify shortcomings and subsequently improve performance.

In consultation with the respective EIA authorities a selection of case studies was made that were already approved and implemented. In Ghana, four (two private mining and two public water) cases were studied in 2012. The director of the EIA authority was asked to select for those two sectors, a case with a relatively high and low level of substantive performance. The differences noticed between the cases on substantive performance and ownership of the proponent and EIA authority were larger than assumed. Therefore, we decided to study a larger number of eight cases in Georgia in 2013, assuming that we would get a sample that is (almost) representative for the group of selected cases. Cases were selected that in the period 2008–2012 have been subject to EIA, approved and are under construction or completed, and for which a complete portfolio of reports exists.

For each case study a desk research was conducted. During the desk research the documents and reports produced in each of the procedural steps by the proponent and EIA authority have been studied and compared to identify the project changes that have been made and the decisions that have been taken during these steps. For the Ghana cases we studied the starting document, the scoping report, response to the scoping report, the EIA report, the review report, the environmental permit, and inspection report(s). For the Georgia cases, we studied the starting document, the EIA report, the review report, the environmental permit and inspection report(s). As stated in the paper in Georgia there is no formal scoping phase and therefore a scoping report is not prepared and has therefore not been studied during the desk research. All the documents studied have been made available by the EIA authority in respectively Ghana and Georgia and have been studied on site in the office of these respective authorities.

In addition to the desk research, for the case studies in Ghana site visits were conducted as well. The joint site visit with the environmental inspection in Ghana enabled us to conclude that the inspection reports

Table 4
Operationalizing the capacity ownership.

Ownership by the proponent	Ownership by the EIA authority
During EIA phase	During the EIA phase
• Low: Late start of EIA procedure. EIA of low quality. The will to meet the environmental standards and make project changes is absent or low. • Moderate: Sub-optimal start of EIA procedure. EIA quality ranges from low to moderate. The will to meet environmental standards, and make major project design changes are made on request or are enforced by the EIA authority, minor changes are made voluntarily. • High: Timely start of EIA procedure. EIA quality ranges from moderate to high. The will to apply environmental-plus standards by making voluntary project design changes.	• Low: The EIA report is hardly reviewed and supplementary information is never asked for. • Moderate: The EIA report is reviewed and supplementary information might be asked for. • High: The EIA report is well reviewed and supplementary information is asked for when necessary.
During the EIA follow-up phase	During the EIA follow-up phase
• Low: No comply with the environmental standards/permit conditions. Changes decided upon during EIA phase and EIA follow-up phase are not implemented. • Moderate: Compliance with the environmental standards/permit conditions, additional changes, minor ones are made voluntarily, major ones are made on request of or enforced by the EIA authority. Changes decided upon during the EIA- and EIA follow-up phase are implemented on request of or are enforced by the EIA authority. • High: Compliance with environmental-plus standards and additional changes are made voluntarily. Changes decided upon during the EIA- and EIA follow-up phase are implemented voluntarily.	• Low: The environmental permit is (always) approved. Permit is not enforced. • Moderate: The environmental permit only approved when requirements are met. Permit is enforced due to public complaints. • High: The environmental permit only approved when requirements are met. Permit is enforced due to complaints and routine inspection, fining or (temporarily) closing.

we used for data analysis are an accurate reflection of the visits made by the environmental inspection team. In Georgia, we were not able to execute such a joint site inspection and as a consequence the validity of the inspection reports is unknown. Moreover, in Ghana 53 semi-structured interviews were conducted, divided over the following main groups, government 17, proponent and consultant 12, NGOs and affected people 23. In Georgia 66 semi-structured interviews were conducted, divided over the following main groups, 51 government, 11 proponent and consultant, 1 NGO. In both countries a validation workshop was held, primarily attended by government people and some consultants, where the preliminary case study findings were presented, validated and the people were asked to what extent those cases were representative for the performance of the EIA system. In both countries, about 40 EIAs per year are conducted. The results of this analysis are not considered to be representative for the performance of the EIA system but illustrative due to the limited number of cases that have been studied and the specific characteristics of this cases namely, that they were subject to EIA, approved and implemented. It was also concluded that those cases are representative for projects with comparable project characteristics. Moreover, during the validation workshop in Georgia we have asked the participants to what extent the absence of site visits have influenced the validity of the case study findings. They stated that this has not influenced the validity. We have no reason to contest their opinion but we have not been able to check ourselves.

4. Results and analysis

4.1. Substantive performance

4.1.1. What is the level of substantive performance during the EIA phases?

The analysis of substantive performance of the cases shows the following results that are presented in Table 5. For each of the three points measured (start, end of EIA phase and during EIA follow-up phase) the scores on substantive performance are distributed unevenly over the six identified categories and the distribution changes between the three points. At the start of the EIA phase six projects meet the environmental standards (category 3 moderate) and six don't (category 1 low and 2 low+). At the end of the EIA phase the number of projects that meet the environmental standards have increased to nine out of twelve. In the EIA follow-up phase this number drops to five, one less than at the start. So, one can conclude that during the EIA phase substantive performance increases but this positive effect is mainly lost during the EIA follow-up phase and as a result it seems that EIA overall did not contribute to an increase of substantive performance. In the following sections we will explain and refine this conclusion.

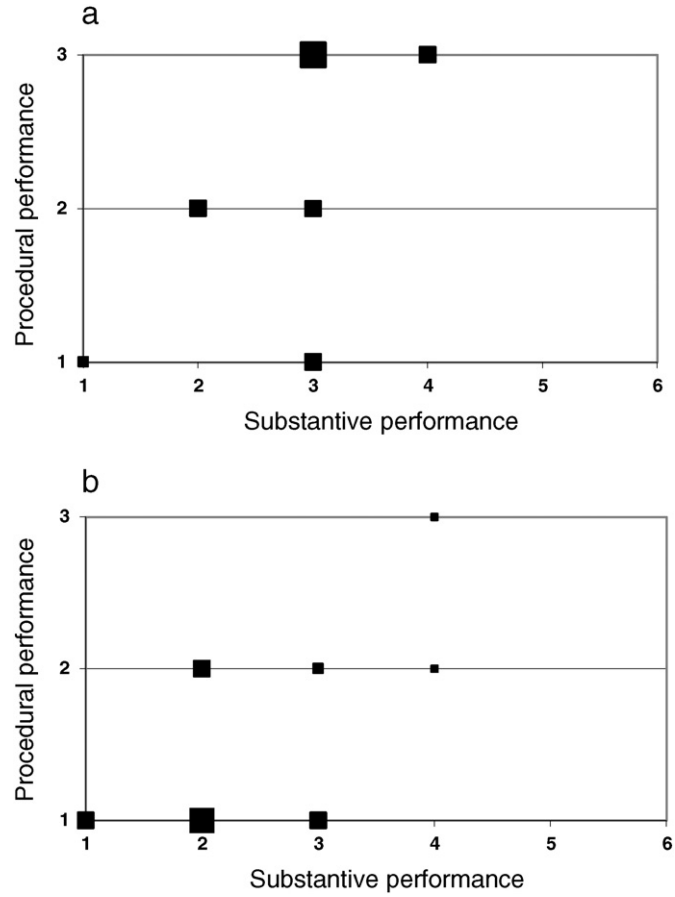

Fig. 3. a: Correlation for EIA phase. b: Correlation for EIA follow-up phase. ■ = 1 case ■ = 2 cases ■ = 3 cases ■ = 4 cases.

4.2. Procedural performance influencing substantive performance

4.2.1. Is procedural performance a condition for substantive performance?

In Section 2.3 we argued that procedural performance is a precondition for substantive performance. The findings of our study show

Table 5
Substantive performance; level and change during EIA phases (N = 12).

Phases	Level of substantive performance						Total
	Low		Moderate		High		
	Low (1)	Low+ (2)	Moderate (3)	Moder + (4)	High (5)	High+ (6)	
Start EIA phase	2	4	6	–	–	–	12
End of EIA phase	1	2	7	2	–	–	12
EIA follow–up phase	2	5	3	2	–	–	12

Legend: = 1 case; = 2 cases; = 3 cases; = 4 cases

Legend: = 1 case; = 2 cases; = 3 cases; = 4 cases.

for the EIA phase that, firstly there is a positive and moderate correlation between the level of procedural performance and the level of substantive performance, see Fig. 3a. Two cases deviate from this pattern as they have a low score on procedural performance due to low scores on quality of the EIA report, public participation and compliance monitoring, and a constant moderate score on substantive performance during both EIA phases. Those two cases already met environmental standards at the start of the EIA process and therefore the EIA authority has shown low to moderate ownership. This means that a moderate score on substantive performance is not only the result of a timely start of the EIA procedure, a high quality EIA report and a high quality public participation but other factors are important as well. Secondly, during the EIA phase we notice a relatively high score on procedural performance, nine out of 12 cases have a moderate to high score during the EIA phase. This is most likely because the proponent needs in principle to meet the environmental standards (meaning a moderate score on substantive performance) to get an environmental permit. However, that does not always explain the level of substantive performance, as the two deviating cases have shown.

For the EIA follow-up phase our study shows a negative moderate correlation between the level of procedural performance and the level of substantive performance, see Fig. 3b. Procedural performance drops strongly from three cases having a low score during the EIA phase, to eight cases during the EIA follow-up phase. Substantive performance drops strongly as well from three cases during the EIA phase that did not meet the environmental standards to eight cases during the EIA follow-up phase. The drop in substantive performance is not only explained by the drop of procedural performance because in two cases substantive performance is moderate whilst procedural performance is low.

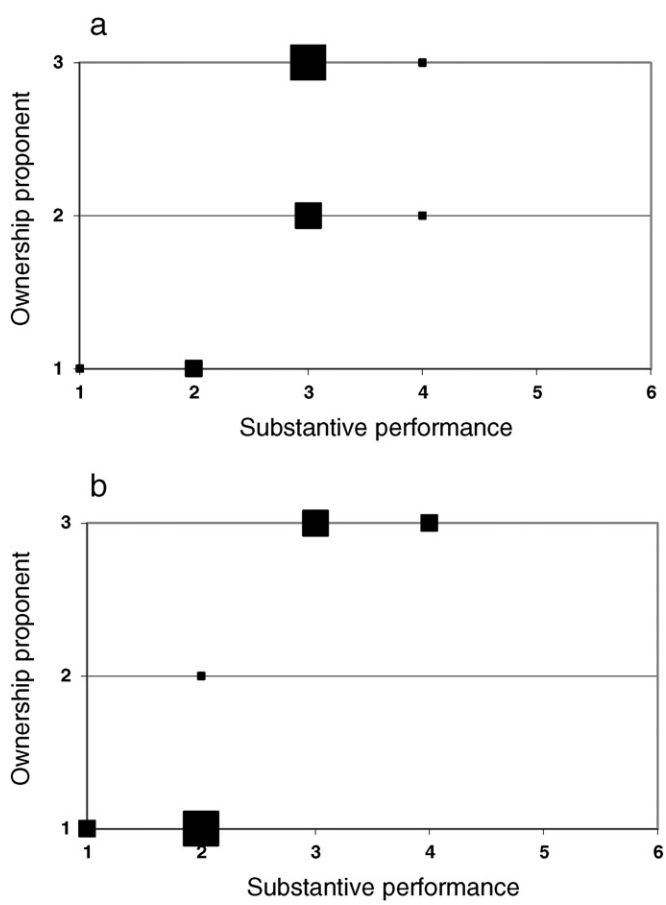

Fig. 4. a: Correlation for EIA phase b: Correlation for EIA follow-up phase ■ = 1 case ■ = 2 cases ■ = 3 cases ■ = 4 cases.

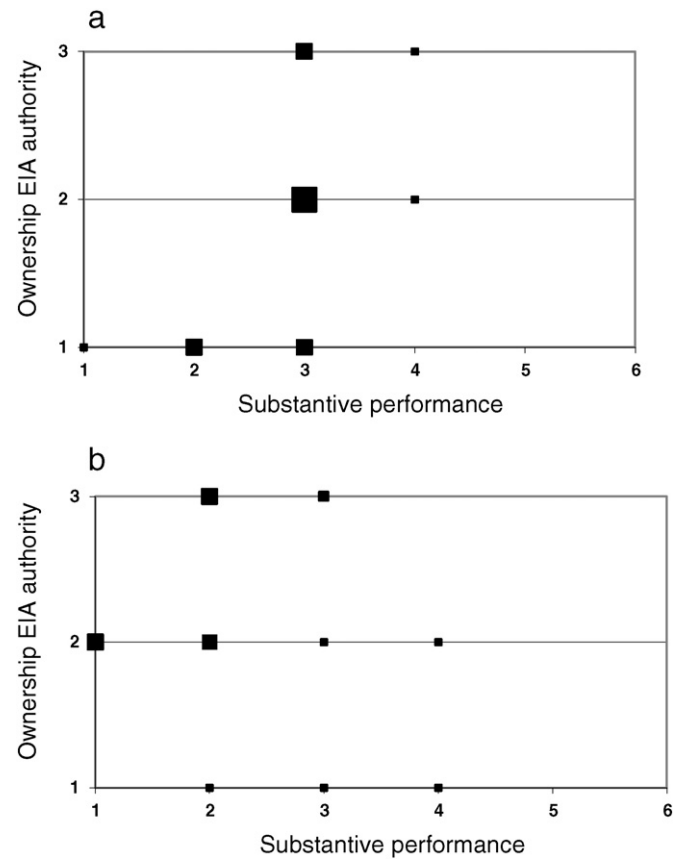

Fig. 5. a: Correlation for EIA phase b: Correlation for EIA phase ■ = 1 case ■ = 2 cases ■ = 3 cases ■ = 4 cases.

We conclude that the level of procedural performance does give an indication of the level of substantive performance but is not a condition. This correlation is stronger for the EIA follow-up phase compared with the EIA phase. In addition, it seems that a relatively high score of procedural performance in the EIA phase compared with the EIA follow-up phase is explained because the proponent in principle needs to meet the environmental standards to get a permit.

4.3. Substantive performance influenced by ownership of proponent and the EIA authority

4.3.1. Which of the two primary actors have the strongest influence on substantive performance?

The correlation between substantive performance and the level of ownership by the proponent is positive strong for the EIA- and the EIA follow-up phase, see Fig. 4a and b. This means the higher the level of ownership by the proponent, the higher the level of substantive performance.

The correlation between substantive performance and the level of ownership by the EIA authority is positive moderate for the EIA phase but weak for the EIA follow-up phase, see Fig. 5a and b. This means that during the EIA phase the performance of the proponent has been changed positively, resulting in design changes of the project. However, during the EIA follow-up phase the influence of the EIA authority on substantive performance is limited and the level of substantive performance decreases.

This suggests that the ownership of the proponent has a strong and larger influence on substantive performance than ownership of the EIA authority.

4.3.2. Which factors explain the level of ownership of the proponent during the EIA phases?

We want to better understand the influence of the EIA authority (level of ownership) and the identified contextual actors (IFIs, sector authorities, affected public, NGOs, media, judiciary) on the level of the proponent's ownership during the EIA- and EIA follow-up phase. Therefore, the cases are divided into the main categories of substantive performance that have been identified. The latter two categories have been combined because hardly any difference between them was noticed, see also Table 5.

4.3.2.1. Low substantive performance (N = 2). The proponent's ownership is low during the EIA- and EIA follow-up phase. IFIs are not involved. Ownership of the Georgian EIA authority is low during the EIA phase and moderate during the EIA follow-up phase. The moderate level during the EIA follow-up phase is the direct result of the public complaints due to environmental pollution caused by the installations that are operational. However, the moderate level of ownership by the EIA authority did not result in a change of ownership by the proponent. The EIA authority of Georgia stated that higher ownership is not effective because the proponent is perceived as having good relations with powerful sector authorities. As a result substantive performance is low.

4.3.2.2. Low + substantive performance (N = 5). In this category, the proponent's ownership is characterized by an increase during the EIA phase at the level that environmental standards are achieved, in most cases, and a decrease during the EIA follow-up. In the cases where IFIs are involved (N = 3) they are an important factor influencing ownership of the proponent, during the EIA phase, because their EIA safeguards need to be met as a condition for funding and two cases have a moderate + score. However, during the EIA follow-up phase IFIs are less or not involved and as a consequence the level of ownership by the proponent drops, resulting in a decreasing level of substantive performance. An NGO in Georgia stated that they primarily invest in those cases because in general, IFIs, in contrast to the EIA authority respond positively to their complaints. Despite the moderate to high level of ownership by the EIA authority during the EIA follow-up phase, in most of the cases this does not avoid the decrease of the level substantive performance to low +.

4.3.2.3. Moderate (N = 3) and moderate + (N = 2) substantive performance (N = 5). In this category the proponent's ownership is high and stable during the EIA- and the EIA follow-up phase. In three cases, the projects already meet the environmental standards at the start of the EIA phase. In two cases the proponent voluntarily responds positively to the influence of IFIs (N = 1), EIA authority, the affected public and NGOs, resulting in a moderate + score. Ownership by the EIA authority in Georgia ranges from low to moderate, low as they state that they prefer to use their limited resources for other projects and moderate when they receive complaints from affected people. Ownership by the Ghanaian EIA authority ranges from moderate to high as they consider it necessary to avoid or mitigate environmental and social impacts. In those cases the project results in moderate to moderate + substantive performance.

For all above-mentioned categories the influence of the EIA authority on proponents' ownership is in general limited in Ghana as well as in Georgia. However, the influence of the Ghana EIA authority is slightly larger in comparison to Georgia and that seems to be related to a different strategy for compliance monitoring and enforcement. A strategy of the EIA authority provides guidance for their staff in the selection of cases that will be subject to compliance monitoring and enforcement and the appropriate use of their limited means. One can distinguish between a pro-active- and a reactive strategy (*strategy is part of the sub-capacity leadership*, *key capacity motivation*). The Ghana EIA authority applies a proactive strategy and selects those cases that might cause significant negative environmental or social impacts, aiming to prevent people becoming affected. In those cases they show moderate to high ownership. The Georgia EIA authority applies a reactive strategy; they primarily execute compliance monitoring and enforcement of those cases where people affected start complaining, showing moderate to high ownership. And they do not execute compliance monitoring of cases funded by IFIs as it is assumed that those cases will have a better performance, resulting in low ownership.

The influence of the contextual actors, affected people and NGOs, the media and the judiciary, on ownership of the proponent directly or indirectly through the EIA authority, is in general limited for all categories. NGOs in Georgia state that they do not go to court any more for EIA cases, as they have found that the judiciary is subject to political influence. In high profile EIA cases the relatively free media supports affected people in both countries, but the influence on proponents' ownership directly or through the EIA authority remains limited, and no difference in influence of these contextual factors is noticed between the countries.

Summarizing, the proponent's ownership is the result of the following four main inter-related factors: a. IFIs; b. sector authorities; c. EIA authority (level of ownership); d. affected public and NGOs. When ownership of the proponent is low, IFIs are not involved, sector authorities are probably involved in supporting the proponent, and this level can hardly be influenced by the EIA authority. A moderate level of ownership by the proponent can be maintained or increased due to the influence of IFIs and to a lesser extent by the EIA authority. Proponents with high ownership are willing to improve their project and respond voluntarily to the response of the EIA authority, IFIs or affected people.

During the validation workshops it was stated that in general, these findings are illustrative for Ghana and Georgia.

5. Conclusions and reflections

5.1. Conclusions

In this paper we aim to better understand the factors influencing long-term substantive performance of EIA systems in LMCs. We have therefore studied the influence of the key capacities ownership (motivation and means) of the proponent and the EIA authority, the importance of procedural performance and the influence of contextual factors such as IFIs and NGOs.

5.1.1. Ownership of the proponent; the most important capacity explaining substantive performance

Our study shows that the proponents' ownership is more important in determining substantive performance than the EIA authorities' ownership. IFIs that financially support proponents seem to have a considerable influence on proponents' ownership and therefore on substantive performance because international good practice EIA standards need to be met. A condition for this influence seems to be the involvement of those IFIs during the EIA and EIA follow-up phase. Potentially national and international NGOs can have a large influence but in these cases only had a relative small influence compared to the IFIs. In comparison to the proponent, the EIA authority generally has less influence on substantive performance than expected and this is possibly overestimated for LMCs. The influence of the EIA authority is strongly linked to the proponent's ownership. When ownership of the proponent is high environmental standards are met voluntarily and the EIA authority can stimulate optimization of the project. When ownership of the proponent is moderate we agree with Khadka and Shrestha (2011) that continuous high ownership by the EIA authority during EIA follow-up phase is required to ensure that the project changes agreed during the EIA phase are implemented in practice. In this situation, the actual influence of the EIA authority depends on leadership and a proactive strategy to make effective use of always limited means in LMCs. When the proponent's ownership is low our study shows that the EIA authority has no influence on substantive performance.

5.1.2. Procedural performance during EIA follow-up phase is more important than during the EIA phase

In the EIA literature it is assumed that procedural performance of the EIA phase is a condition for EIA substantive performance (Zhang et al., 2012; Wende, 2002; Arts et al., 2012). This might be true for high income countries but our research in LMCs shows that there is a weak correlation between the level of procedural performance during the EIA phase and substantive performance in terms of achieving the long-term objective. So we hypothesize form our research, that a high procedural performance is perhaps a necessary but not a sufficient condition for high substantive performance in LMCs. Our research also studied the influence of procedural performance during the EIA follow-up phase on substantive performance and showed that there is a stronger correlation between EIA follow-up procedural performance and substantive performance. However, to explain substantive performance, our research showed that the capacities of the primary actors and especially the proponent, and some contextual factors, are more important in explaining long-term substantive performance. This means that the value of evaluations that focus on procedural performance in the EIA phase in LMCs to explain long-term substantive performance is limited if they only focus on the EIA phase. The value increases when procedural performance of the EIA follow-up phase is studied as well but this still does not explain long-term substantive performance.

5.2. Reflection on results

5.2.1. Validity of the study for EIA system performance

In this paper we developed a conceptual framework that specifies actor capacities and connected these to the substantive performance of EIA systems. The cases selected in this study have been subject to EIA, were approved and implemented. However, in our study we did not include cases requiring EIA that were withdrawn by the proponent, not approved, or implemented without an environmental permit. The EIA authority in Georgia estimates that about one third of all installations are functioning without an environmental permit, the latter category. Therefore, this study is not representative for measuring substantive performance of the EIA system in the two countries studied. Therefore, we suggest the performance of the EIA system in the countries studied should be validated.

5.2.2. Validity of the study for LMCs

The question is raised as to what extent the selection of the two countries studied was sufficient to test and refine the conceptual framework. We conclude that this is the case but it is recommended that the results of our study should be validated with a larger number of LMCs.

5.3. Lessons learned

We can learn two lessons from the aforementioned conclusions for capacity development of the primary actors in the EIA system. Firstly, increasing the proponents' level of ownership seems to be the most effective way to improve substantive performance. However, for private sector proponents this is probably difficult to achieve through external capacity development; it is most likely more feasible for public sector proponents. IFIs and the EIA authority have respectively a larger and a smaller influence on the ownership of the proponent. IFIs apply their own policy of EIA good practice but they are increasingly willing to adopt country EIA systems. This means that there is an opportunity for the EIA authority to optimize the influence of IFIs on the proponents' ownership through a proactive consultation with IFIs. Moreover, the EIA authority as an organization can learn from these experiences (*sub-capacity organizational learning*). Secondly, to improve their performance and make more effective use of the limited 'means', the EIA authority can apply a pro-active strategy in the selection of projects requiring high ownership, especially during the EIA follow-up phase. We assume that the limited means of the EIA authority can better be invested in a relatively small and effective unit responsible for compliance monitoring and enforcement instead of a country-wide coverage by less effective units. We suggest to further explore this assumption in further research.

Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.eiar.2015.11.011.

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