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Environmental management in Uganda: A reflection on the role of NEMA and its effectiveness in implementing Environment Impact Assessment (EIA) of the Greater Kampala Metropolitan Area (GKMA)

SSALI ISMAIL*

Department of Development Studies, Bandung Institute of Technology, Bandung, Indonesia

Abstract

Aim: This research aimed to examine how effectively the National Environment Management Authority (NEMA) implemented an Environment Impact Assessment (EIA) for the Greater Kampala Metropolitan Area (GKMA).
Method: The study used a qualitative document review approach to learn more about EIA's function and settlement occupant's reactions to its enforcement in GKMA. Actor-Network Theory was employed to investigate the interplay of the factors.
Findings: The results reveal that NEMA took on characteristics of a centralized and decentralized institution during different phases of EIA implementation and enforcement. Internal weaknesses such as a lack of skilled personnel, corruption, and poor implementation tactics were major reasons why the centralized approach to NEMA was less effective than the decentralized approach.
Implications/Novel Contribution: Recent research provides an overview of NEMA's regulatory structure. The study also covered the application of Actor-Network Theory to EIA in entrepreneurship setups.

Keywords: NEMA, GKMA, Actor network theory, Socio techno gram, Environment degradation, Environment management

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INTRODUCTION

Environmental management is any action taken to sustain or enhance the quality of a natural resource that has been altered by human activity (Barrow, 2006; Xiaoyun & Siqi, 2018). Food, water, and shelter are just a few essentials for human survival that come straight from Mother Nature. Humans affect the environment due to natural resource extraction, particularly through the overuse or exploitation of nonrenewable resources and the generation of waste materials and pollution, such as greenhouse gases, which deplete the ozone layer and are hazardous materials. Because of this, the environment upon which human life depends has been deteriorating. Population growth, expansion of human settlements, economic prosperity, and consumer spending amplify human activities' negative effects on the environment.

The Greater Kampala Metropolitan Area (GKMA) is a merged region to Kampala in the central part of Uganda that consists of the districts of Wakiso, Mpigi, and Mukono (The Republic of Uganda, 2015). The GKMA's grand strategic plan for joint development sought to ensure the area is jointly planned and developed with cutting-edge facilities for its occupants. The plan also centered on building a road network connecting Kampala with the three districts for economic and infrastructural growth (https://bit.ly/3eUyuzP).

Uganda's constitution undertakes the National Environment Management Authority (NEMA) to enforce environmental regulations and put environmental policies into effect. To aid in the preservation and protection of the environment, the National Environment Act, Cap. 153 mandated the creation of the semi-autonomous NEMA in May 1995. With its launch in December 1995, NEMA became Uganda's primary agency for environmental management coordination, monitoring, regulation, and supervision. By creating environmental policies, laws, regulations, standards, and guidelines; and advising the Ugandan government on effective environmental management, NEMA is responsible for enforcing these measures throughout the Greater Kampala Metropolitan Area (GKMA) and the

*Corresponding author: Ssali Ismail
†Email: ssaliz.mnzk@gmail.com

country of Uganda.

Nevertheless, natural environment degradation in the GKMA has continued to increase. This has been attributed to various development practices that have taken place under intriguing conditions, despite all government efforts through NEMA to help protect and save the natural environment from environment-degrading human activities through implementing and enforcing EIA. According to World Bank (2015), human settlements and their resulting activities in unplanned areas have strained Kampala's natural environment. They are eroding the vital ecosystem services it provides as the capital city of Uganda continues to experience significant urban and economic growth. Since NEMA is "the principal agency in Uganda charged with the management of the environment," this study aimed to learn more about its function within the GKMA/Uganda.

LITERATURE REVIEW

Human Activities and their Influence on the Environment in GKMA

The GKMA is situated in a stunning natural environment that features lakes like Lake Victoria in the Wakiso district, rivers like the Sezibwa and Musamya in the Mukono district, and a natural vegetation cover that features seasonal and permanent wetlands. For example, according to the NEMA state of the environment report 2006/2007, Mpigi district has an area of 719 sq. km covered by wetland resources, whereby the permanent wetlands lie in the fringes of Lake Victoria. The seasonal wetlands are formed in the forest and grasslands, forming into one major system called the Lake victoria drainage system. According to the Mukono district local government 2019/2020, there are 1162 square kilometers of water bodies in the Mukono district, the largest of which is Lake Victoria. This includes 396.3 square kilometers of open water bodies (rivers and lakes) and 151 square kilometers of wetlands and swamps. Kampala, the capital of Uganda, has a tropical wet and moderate dry climate and is built on 20 low, flat-topped hills surrounded by wetland valleys dotted with informal settlements (Sutthipornphalangkoon, 2016; United Nations Habitate, 2008).

This region is Uganda's industrial and manufacturing center, accounting for over 80% of the country's manufacturing and contributing 60% to GDP (Kampala Capital City Authority, 2014). The Greater Kampala Metropolitan Area (GKMA) is home to many cities whose occupants have traditionally worked in the service sector. There have been a variety of these, including residential communities, industrial parks, and real estate agencies. Small-scale industries in the Greater Kampala metropolitan area engage in production activities like metal fabrication, wood works, wine, soft drinks, brick making, and tiling. In contrast, large-scale industries engage in textile production, manufacturing, brick making, steel rolling mills, soft drinks, beer bottling, hollow ware, and tiling (Nyakaana, Sengendo, & Lwasa, 2007). The Ugandan government has formulated a 10-year industrial policy, with one of its central strategies being the creation of 22 industrial parks across the country to spur economic growth, as part of its effort to achieve the Uganda vision 2040 through the National Development Plans (NDP), NDPI, and NDPII.

Since the majority of Uganda's population relies on the natural environment for both subsistence and economic growth, environmental degradation in the GKMA and across the country has persisted and even worsened. Together with the environmental sectors, agriculture accounts for 90 percent of Uganda's exports and energy needs in terms of firewood and charcoal (Fadwa, 2018; Moyini, Muramira, Emerton, & Shechambo, 2002). In 2000, the natural resources and environmental sectors accounted for 55% of the total GDP, a significant share of Uganda's economy overseen by the Ministry (Ministry of Finance Planning and Economic Development, 2000).

Wetland degradation, which includes pollution of wetlands with both solid and toxic wastes and drainage channels, is a major environmental problem in the GKMA, even though an increase in economic activities that rely more on the natural environment, such as agricultural and industrial activities, is sometimes seen as an indicator of development opportunities. Several wetlands in Kampala, Uganda, have been negatively impacted by economic development activities like residential development. These wetlands include Nsooba, Bulyera, Kiyanja Kansanga, Kyetinda, Mayanja, and Nakivubo. To add insult to injury, all seasonal wetlands have been reclaimed, and now people are degrading important wetlands like Kinawataka, Nakivubo, and Kansanga. Nakivubo wetland, for example, had wetland vegetation primarily composed of papyrus on an area of 4.4 km, but this had been degraded and reduced to 2.8km in 1991, 1.9km in 1995, and 1.3km in 2000. According to the most recent estimates, the wetland's original size of 2 km has been reduced to 1 km. This is due to several factors, including a lack of

recognition of the ecological, hydrological, and economic functions and values associated with wetlands being intact; poorly formulated responses to poverty; and perverse economic subsidies that ignore the link between ecosystem services and the human livelihoods (state of the environment report for Uganda, 20062007).

The rapid growth and disorganization of the informal sector are largely attributable to the influx of migrants into the city beyond its capacity intake, which in turn has been a direct result of industrialization. Because of the increase in available workers, the unplanned housing sector has expanded and become an environmental hazard (Nyakaana et al., 2007). This depletion of land and natural resources is responsible for more than 80% of Uganda's environmental degradation today (Morrison, 2009).

Wetlands, forests, pastures, fields, rivers, lakes, and swamps have all been encroached upon, resulting in a loss of water, food, energy, and, in some cases, even foreign exchange revenue and a worsening of budget deficits. This has put human lives in grave danger.

Literature Gap

Even though environmental degradation is pervasive in the GKMA and Uganda, many researchers have examined the efficacy of environment management policies like EIA that aim to restrict human activities that are harmful to the environment. An example of research into the benefits and drawbacks of EIA as a management tool for the environment is Akello 2007's "Environmental regulation in Uganda." Akello based her conclusion about the success of EIA implementation on compliance from project developers. The challenges she cited were external to the main environment management implementing institution NEMA, such as a lack of political support and a failure to audit industries that existed before the environment law came into existence. While looking into the efficacy of Uganda's environmental policies, EIA included a different study that found that a lack of government financial commitment was the primary reason for the failure of environmental policy in Uganda Morrison (2009). Despite the importance of NEMA as the primary institution responsible for enforcing policies related to environmental management in both the GKMA and Uganda, more broadly, there has been no research into the policies' efficacy from a governance perspective.

Thus, the importance of this study lies in the fact that it focuses on governance practices within NEMA and employs the concept of the Actor-Network Theory Network to do so, which will not only aid NEMA's role as the principal agency but also bring to light and appreciate the role of other actors, both human and non-human, that form a network with NEMA in the implementation and enforcement of EIA in GKMA. This study also looks into the impact that external factors, both human and otherwise, have on EIA's efficiency in the GKMA. This information will be useful in developing comprehensive policies to better manage the environment in the Greater Kampala Metropolitan Area (GKMA) and throughout Uganda.

Hypothesis

The hypothesis being tested in this research includes.

H1: The NEMA plays no significant role in implementing and enforcing EIA in the GKMA.

H2: Theres a low level of settlement occupants responsiveness to EIA implementation and enforcement in the GKMA.

METHODOLOGY

Research Design

The study relied on a qualitative document review technique to gather information about the responsiveness of settlement occupants to EIA implementation and enforcement in GKMA and the role of an environment management institution. According to Bretschneider et al. (Bretschneider, Cirilli, Jones, Lynch, & Wilson, 2017), document review is a technique used in research for collecting, documenting, interpreting, and organizing data. Internal (from the environment management institution) and external (from other sources) electronic documents were examined.

The concept of Actor-Network theory was used to deduce the role of environmental management institutions from the electronic documents reviewed by determining how, through the process of translation, these institutions relate to other human and non-human actors (in a centralized or decentralized manner) and in what capacity at the

various stages of implementing EIA.

The socio techno gram tool was used to show how the institution for managing the environment works with other groups. An arrow line showed how different actors were connected. When the arrow line was full and unbroken, it showed the flow of power from the environment management institution to other actors within its organizational structures. When the blue arrow line between the environment management institution and other actors was broken, it showed that the environmental management institution was calling on other actors to take action. When there was a black line, it was used to show how other interested parties supported the use and enforcement of EIA, as shown below.

Socio Techno Gram Illustrations

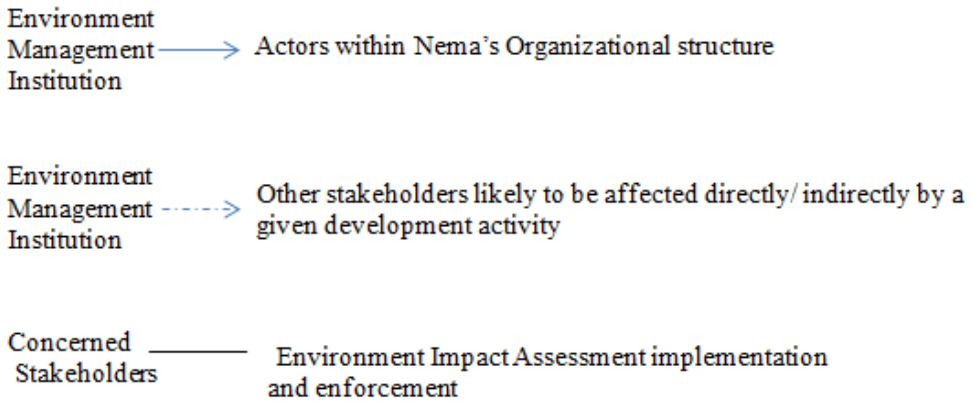

Figure 1. Socio techno gram illustrations

Matrix Framework illustrates the representation of an environment management institution in the implementation and enforcement of a specific role at various EIA implementation stages.

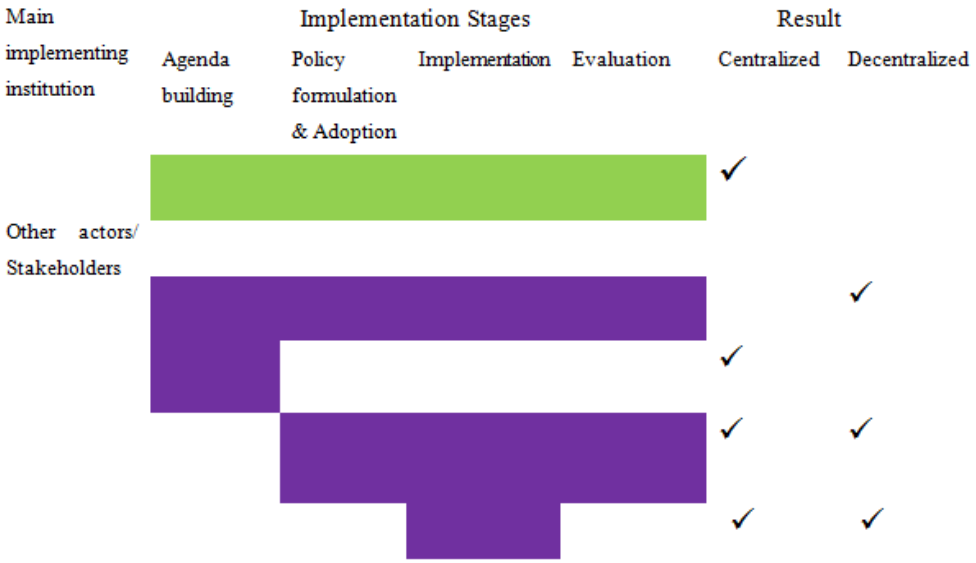

Figure 2. Implememtation stages

- Throughout the policy's development and implementation, the green color denotes the central implementing agency's proactive role in environmental management. When other stakeholders are not involved in a given role's implementation, their respective stages will remain unfilled. Implementing an inclusive policy for environmental management is represented by the color purple. Aspects of NEMA's representation

as a centralized institution, a decentralized institution, or both are shown by the tick symbol. The main environment management implementing agency (NEMA) is just one example of a stakeholder group. Others include organizations and individuals outside of NEMA's organizational structure, such as those who initiate projects, those who stand to benefit or suffer from a particular development activity, indigenous communities, the general public, and those who seek to effect change.

- In a centralized institution, all the major decisions about how a policy should be implemented rest with a single entity, and all subordinate actors carry out those decisions as directed. In a decentralized institution, however, the major decisions about how a policy is to be implemented are made by several entities.
- There is no devolution of implementing powers to other stakeholders. The main implementing agency is labeled centralized (all implementation phases are green for the main agency and uncolored for the other stakeholders) when the tick symbol appears in the centralized box. When other stakeholders actively participate in the implementation exercise thanks to the devolution of implementation powers, the main agency is considered decentralized, and the boxes representing implementation phases for the stakeholders are colored purple. Centralized implementation occurs when all phases for the main implementing agency are colored green. Only the agenda-building box for the stakeholders is colored purple, as shown in the table above (no devolution of implementation powers from the main agency to other stakeholders). In a scenario where the main agency's phases of implementation are colored green, and the stakeholders' phases are colored purple, from policy adoption to evaluation, the main agency is seen as both centralized and devolving some of its powers (decentralizing) to the other stakeholders. The same holds in a scenario where the main agency's implementation phases are all colored green, and the stakeholders' phases are all colored purple.

These tools helped in deriving the role of NEMA by creating a clear understanding of how NEMA relates with other actors and in what capacity at the various stages of implementation and enforcement of EIA in GKMA.

Study Area

The research focused on NEMA because of its important role in controlling human activities to protect GKMA's natural resources. To better understand NEMA's role in this network, this study considered NEMA itself and the human and non-human actors that comprise it.

Data Analysis

The analysis of the secondary data collected from the various electronic documents in this study involved breaking down the study topic into two specific parts, which include;

1) Environmental Impact Assessment and the various human and non-human actors involved in its implementation and enforcement. To better understand how and why the environment management institution relates with other actors (human and non-human) and in what capacity (centralized or decentralized) at the various stages of implementing environment impact assessment, the concept of the Actor-network Theory was applied to help in deriving the main institution's role from the various environmental management policies. The goal was to identify the factors contributing to a certain portrayal of a management institution for the environment. The socio techno gram was used to show the interplay between the primary actor (the Environment management institution) and secondary actors. In cases where the arrow line was continuous from the environment management institution to other actors, it indicated the influence flow within the institution's organizational structures. In cases where the arrow line appeared broken, it illustrated the involvement of other actors (stakeholders), such as the general public. When a black line is used, other stakeholders favor enforcing that particular policy for managing the environment.

2) How receptive occupants of the settlement are to EIA and how strictly it is enforced. In this study, the research design called for a thorough review of relevant documents, followed by an interpretive analysis of the resulting body of literature. The findings were used to assess the efficiency of the environment management institution in its role as the primary agent responsible for enforcing EIA. If occupants of a settlement showed a lot of enthusiasm for EIA implementation and enforcement, the implementing environment management institution would get high marks for its success. If the opposite were true, the institution would be deemed ineffective. The findings

from these two sections were integrated into a broader discussion of an environment management institution's function and performance concerning EIA implementation and enforcement.

Ethical Guidelines

The criterion that was used in identifying electronic data resources used in this study and evaluating their reliability and validity was based on the following;

Systematic observation and methodology: Established research methodologies and procedures in the electronic data resources had to be systematically applied to answer the questions of interest.

Objectivity: The authors of the electronic documents used in this study were expected to report the facts as observed, whether or not these facts support the investigator's original hypothesis. Research integrity demands that information be provided objectively, reducing sources of investigator bias to the greatest possible extent.

Transparency and Replicability/reproducibility: The electronic data resources to be used in this study had to have reported findings so that other investigators understand precisely what was done and what was found in a particular research study to the extent that they could replicate the study to determine whether the findings are reproduced when repeated. The outcomes of an original and replication study may differ, but a reader could easily interpret the methods and procedures leading to each studys findings. (Press books Module 2, Chapter 3: What is empirical literature and where can it be found).

RESULTS AND DISCUSSION

Any project or activity that could have a major impact on the environment or the utilization of natural resources is required to conduct an environmental impact assessment (EIA) according to the general principles outlined in the National Environment Act, cap 153 of 1995. Guidelines for The Environment Impact Assessment Regulation (1998) were developed by NEMA, which is authorized by this act to issue guidelines and prescribe the measures and standards that should be followed in managing and conserving the natural environment in consultation with the lead agencies. These guidelines define the responsibilities of all parties involved in conducting an EIA. If a project has negative effects on the environment, the developer must conduct an EIA under section 19 of this act (Ecaat, 2004).

The EIA Process in the Ugandan Context with the Relevant Stakeholders

First stage submission of project brief

In Uganda, the Environmental Impact Assessment (EIA) process begins with a developer preparing a document outlining the scope of the project, potential impacts on the surrounding environment (including water, air, and land), and anticipated societal and economic gains for Uganda as a whole and the surrounding community. Ten hard copies of the developer's project brief are delivered to NEMA's executive director. At this point, the executive director may send a copy of the project brief to the helming organization. Under subsection 1 of regulation 7, the executive director may consider the project brief. The executive director may require the developer to conduct an environmental impact study and shall notify the developer in writing within 21 days of the submission of the project brief if they determine that the project will have significant impacts on the environment and the submitted project brief does not disclose sufficient mitigation measures to counter the anticipated impacts. See below for how we used Actor-Network Theory and a socio techno gram to derive NEMA's function at this stage.

Actors involved in these three phases include; Human actors (Executive director, developers) Non-human actors (Uganda Legal Information Institute, 1995) project brief, EIA guidelines, Lead agency).

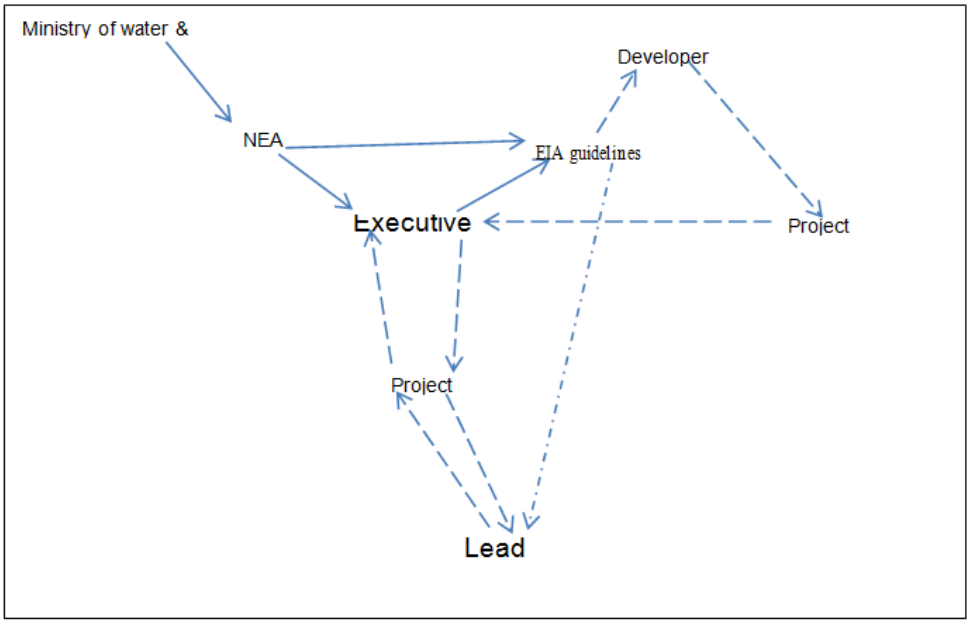

Figure 3. Socio techno gram for stage one

As shown above, using the idea of a socio techno gram, EIA is implemented in a centralized and decentralized fashion during the first stage. However, NEMA's Executive Director is responsible for making all final decisions. NEMA's responsibilities at this stage included reviewing the developer's submitted project brief and drafting the EIA guidelines from 1997 that are still in use today. At this point, the Executive Director of NEMA can either approve the project brief or refer it for an Environmental Impact Study in accordance with subsection 1 of regulation 7. (EIS).

Second stage: Environment impact study

In collaboration with the responsible authority and the lead agency, the developer establishes the parameters for the environmental impact study. The terms of reference cover everything that must be included in the EIS per regulation 14 and anything else the Executive director may specify in writing. Additionally, the developer must submit the names and qualifications of the individuals who will carry out the EIS to the Executive director for approval per regulation 10.

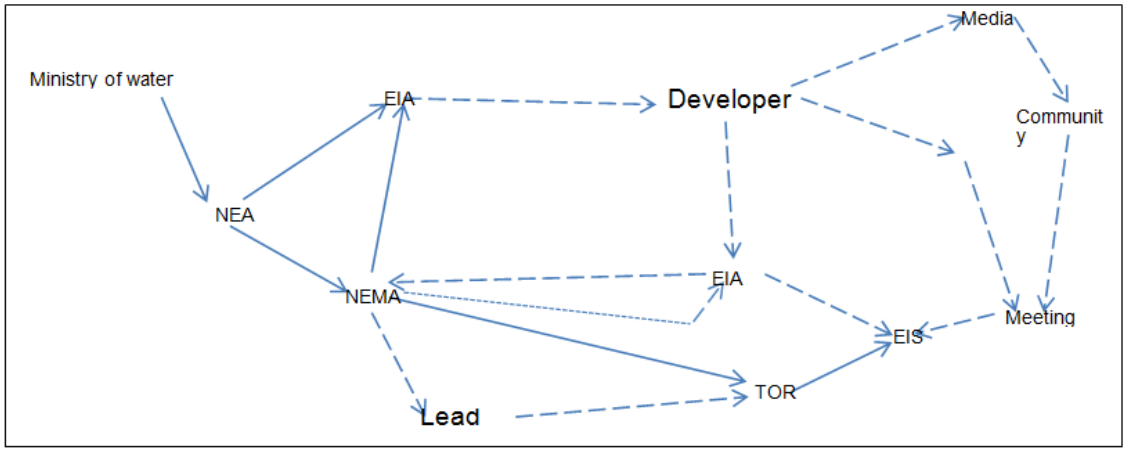

Figure 4. Socio techno gram for stage two

During the study, as can be seen in the subsequent regulations, the developer is obligated to do everything in their power to solicit feedback from occupants of communities that stand to be affected by the project, including making public announcements about the nature of the project and the anticipated effects and benefits via appropriate channels. In addition to complying with legal requirements, the developer must coordinate meeting locations and schedules with the appropriate municipal officials. The socio techno gram was used to depict and deduce NEMA's part in EIA's fourth implementation phase. Human actors include the Developers, the Executive Director, the local council, and the local communities; non-human actors (Uganda Legal Information Institute, 1995) include media outlets, public meetings, EIA guidelines, NEMA, Terms of Reference (TOR), and EIS.

Based on the socio techno gram, the current EIA implementation effort is a hybrid of centralized and decentralized approaches. While the EIA implementation exercise is still in its early stages, it has been negatively impacted to a minor extent by the devolution of power from NEMA to other stakeholders. At this time, the Executive Director of NEMA still heavily influenced the EIA process. In addition to authorizing the developer to conduct an EIS before approving the project proposal (brief), providing consultancy services to the developer in terms of what is needed in the TOR (which may involve advice from the lead agency), and authorizing the executive director to review, approve, or disapprove EIA experts proposed by the developer, NEMA's role at this stage also includes authorizing the developer to carry out an EIS.

Stage three: Environment impact statement

Whenever a developer is mandated to conduct an EIS, they are also expected to produce an EIS after the EIS is complete. The developer must provide NEMA's executive director with 20 copies of the environmental impact statement; NEMA must then forward the document to the lead agency for comments; and the lead agency, in light of the technical committee's review of the EIS, may undertake any additional procedures deemed appropriate. The executive director of NEMA is required to invite the public to submit written comments on the EIS within ten days of receiving the comments of the lead agency, and this group includes those most likely to be affected by the proposed project. The Executive Director may give final approval to the project or just a portion of it at this point. The socio techno gram below illustrated the role of NEMA and its influence during stages 5, 6 & 7 of EIA implementation. Actors involved in these stages include;

Human actors (executive director, Developer, local community, technical committee) Non-human actors (Uganda Legal Information Institute, 1995).

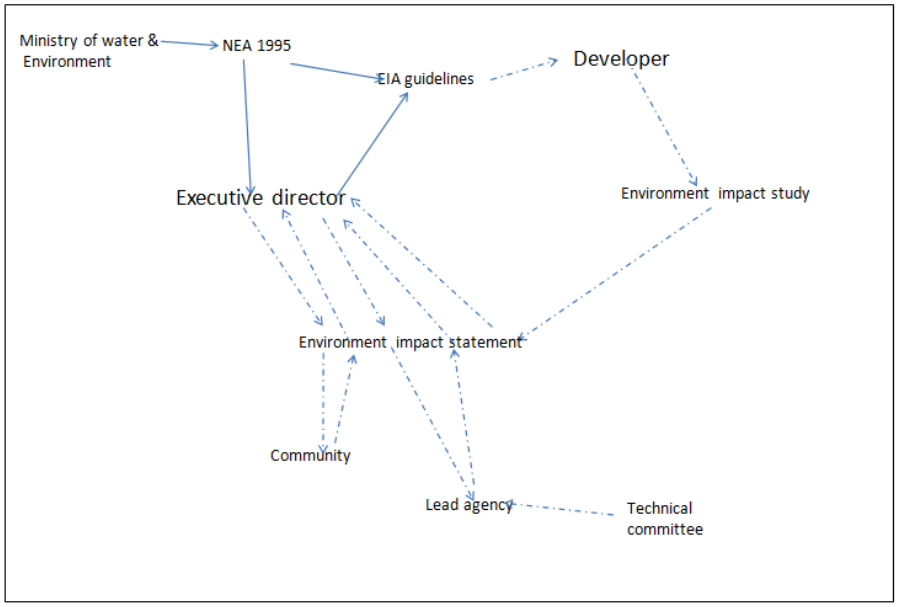

Figure 5. Socio techno gram for stage three socio techno gram for stage three

The above socio techno gram depicts the third stage of EIA implementation, which is a hybrid of centralization and decentralization. As in previous steps, the Executive Director of NEMA retains authority over influential powers that can affect the process. At this juncture, the executive director of NEMA is responsible for receiving and reviewing the Developer's Environment Impact statement and soliciting feedback from members of the public who are likely to be impacted by the project. The executive director is responsible for deciding whether or not to proceed with the project.

Stage four: Post EIA monitoring

Developers are responsible for monitoring, record keeping, and reporting; any data gleaned from such efforts must be kept and made available during inspections. In consultation with NEMA, the responsible lead agencies should monitor the compliance levels concerning the implementation of activities (The Environment Impact Assessment Regulation, 1998).

In deriving the role of NEMA and illustrating its influence at this stage, the concept of socio techno gram was applied Actors involved at this stage include;

Human actors (Executive director, Developer)

Human actors (Uganda Legal Information Institute, 1995) EIA guidelines, lead agency, post-EIA monitoring).

Figure 6. Socio techno gram for stage four

The executive director of NEMA retains ultimate authority over the post-EIA monitoring phase, just as he or she did over the preceding phases. However, some implementation responsibilities are delegated to other stakeholders like the developer and lead agency. By way of its Executive Director, NEMA is now tasked with advising the helming agency during post-EIA monitoring, inspecting the project's progress to ensure it is being carried out in accordance with the finalized project brief.

Discussion

According to the study results, NEMA has been largely successful in its various roles aimed at implementing and enforcing EIA in the GKMA. This is reflected in the fact that EIA is now widely recognized and considered a good basis for making crucial decisions regarding development activities likely to negatively affect the environment in the greater Kampala Metropolitan area. Many projects have been saved from financial losses that they might have incurred if implementation had not been done with conducting EIA in time, and EIA has also acted as a savior when it comes to improving the sitting of projects that would have otherwise been poorly located in sensitive areas, such as fragile ecosystems like wetlands or even industrial projects being proposed in urban areas. According to the NEMA annual corporate report FY 2017/2018, the organization performed 1,518 compliance and audit verification inspections, 108 percent more than its original target of 1,400 inspections. Industries such as manufacturing and processing, waste management and healthcare, infrastructural projects like roads, and mining and quarrying that affect the natural environment were all inspected across the country.

Significant hydropower projects like Nalubale and Bujagali were audited to ensure they complied with EIA regulations. Environmental audit reports, the project's location and compliance history, and the risk classification of the facilities were all taken into account during the inspection process. According to NEMA's annual corporate report for FY 2017/2018, the top five project types in terms of EIA approval and certificates issued to developers were as follows: fuel stations (total number of EIA approvals: 200; percentage of projects approved: 24.8%); infrastructure (roads, housing, renovations) (194; percentage of projects approved: 24.2%); information communications technology (123; percentage of projects approved: 15%); and hotels (total number of EIA approvals: 123; percentage of projects.

However, despite the success registered by NEMA in its various roles during the implementation and enforcement of EIA from its infancy stage in 1995, where it wasn't largely understood to the stage where it is being widely used in evaluating environmental aspects of various development activities that might have significant negative impacts on the environment in the greater Kampala Metropolitan area as discussed above, several weaknesses arising from a lack of a unified definition of EIA, a lack of a unified approach to EIA, and Only 1469 of the 1688 EIA-related documents (including TORs, Project briefs, and Environment Social Impact statements) submitted to NEMA during the 2016/2017 fiscal year were reviewed, falling short of the 2500 goal.

Based on developer/investor submission history and EIA reforms implemented by NEMA, the agency anticipated reviewing 2,500 applications. However, the failure to meet the expected target was two-pronged, with flaws on both the part of settlement occupants and the authority itselfthe former because the expected number wasn't received from the developers, and the latter because the authority's recruitment of more staff was done in the middle of the financial year, rather than at the beginning.

According to the research, during the fiscal year 2017/2018, NEMA conducted 1518 compliance and audit inspections, exceeding its target of 1400 by 108 percent. These inspections were conducted at facilities and activities across the country, including major hydropower projects in the Kampala metropolitan area, such as the Nalubale dam located between the town of Jinja in Jigawa. Because biomass and heavy fuel oil are typically used to power boilers, there have also been reports of emissions from industrial boilers and waste burning. Kampala's spinners, Lugazi's Tembo Steel, and Iganga's Mayuge Sugar (steel division) all have compliance agreements.

The current trend among EIA-hired experts to emphasize financial gains, thereby undermining their role in guiding and advising the project developers, is another weakness cited in the exercise of EIA implementation. Because of this, EIA has lost some of its credibility and effectiveness. Ecaat 2004 also reports that some EIA practitioners have gone as far as advising some developers, particularly those whose projects would not have been approved due to their negative impact on the environment, to continue and start project development even though they would not have been approved. Due to this, companies have suffered significant financial losses whenever NEMA conducts compliance inspections on their projects, and the quality of their EIA has suffered as a result.

Some EIA professionals have advised developers, especially those whose projects would not have been approved due to their negative impact on the environment, to move forward with project development, as reported by Ecaat (2004). Because of this, the quality of EIA suffered, and the companies' finances when NEMA conducted compliance inspections on their projects. Kampala Parents' School spent 700,000,000 shillings to relocate a multi-story classroom block it had built beneath a 132kV hydroelectric power transmission line. The construction of a car showroom in Seeta Kampala, Uganda, was halted even though the concrete slab for the building was already poured. This was due to the site's wetland location.

As another example, a developer who built an abattoir in a wetland at Kajjansi at the cost of about 26 million was not permitted to keep running the facility because he had not complied with a preliminary assessment showing that such a facility was illegal. There have been corruption scandals within NEMA at various points during the EIA rollout in the GKMA. There was criticism of NEMA officials after they allowed a Chinese plywood company to set up shop in the Katonga wetland. This prompted an investigation by the Ministry of Environment, which revealed that the designated area was a wetland.

CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS

This research aimed to examine how well NEMA plays a part in EIA implementation in the Kampala Metropolitan Area. The study gathered information about the NEMA's function and the efficiency with which it implements the Environment Impact Assessment of GKMA through a qualitative document review approach. This is because no fieldwork was performed for the study. Both internal (from NEMA) and external (from other sources) electronic documents were analyzed.

The concept of Actor-Network theory was used to deduce NEMA's role from the various electronic documents reviewed by determining how and why NEMA relates with other actors (both human and non-human) through the process of translation and in what capacity (either centralized or decentralized) at the various stages of implementing EIA. The socio techno gram was used to show the interplay between NEMA and other players. In cases where the connecting blue arrow line appeared broken between NEMA and other actors, it showed NEMA involving other actors (stakeholders) likely to be affected directly or indirectly by the implementation process. In contrast, in cases where the arrow line was full and uninterrupted, it indicated the influence flow between NEMA and actors within its legal and organizational structures. When a black line is present, it shows that other stakeholders are interested in and supportive of EIA's implementation.

A matrix framework was constructed to analyze the role of NEMA in implementing and enforcing EIA, with the major policy implementation stages as the axes. These methods assisted in deducing NEMA's function by clarifying the nature of NEMA's interactions with other actors and the roles they play throughout the EIA process. NEMA was the primary actor in the implementation and enforcement of EIA, and its efficacy was measured by its responsiveness. For instance, NEMA was deemed successful when occupants of the settlement showed a high degree of receptivity to EIA but were deemed unsuccessful when occupants showed a low degree of receptivity.

The study found mixed patterns of centralization and decentralization in NEMA's representation of EIA implementation. Despite some elements of devolution of powers from NEMA to other stakeholders outside its organizational structures, the study found that the most influential powers that can cause an impact on the process remain vested within the authority of the Executive Director of NEMA. NEMA's duties in enforcing and implementing EIA include, but are not limited to, the following: reviewing and approving the project brief; Giving the go-ahead for the developer to conduct an EIS, going over the EIS, Inviting the public for review of the EIS, consulting with the lead agency during post-EIS monitoring, and conducting inspections of the project's implementation to guarantee EIS compliance.

This study's findings demonstrated that NEMA, as the primary environment management agency, has been largely successful in its various roles aimed at implementing and enforcing EIA in the GKMA, as evidenced by the widespread acceptance of EIA as a solid foundation on which to build important decisions about development projects with the potential to harm the environment. Many projects have been saved from financial losses that they might have incurred if implementation had not been done with conducting EIA in time, and EIA has also acted as a savior when it comes to improving the sitting of projects that would have otherwise been poorly located in sensitive areas, such as fragile ecosystems like wetlands or even industrial projects being proposed in urban areas.

The study also found that despite the success, several weaknesses, both internal to NEMA and external to NEMA, were cited as having affected the effectiveness of the EIA exercise. These included the following: a failure to recruit staff promptly, internal corruption, unprofessional and incompetent EIA practitioners whose focus is primarily on financial gains, and an unwillingness on the part of small-scale project developers to respond to EIA regulations. Even though the devolution of implementation powers from NEMA to other stakeholders outside its organizational structures did register success, the key decisive powers at all stages of EIA implementation, which remained centered around the Executive Director of NEMA, were associated with a number of weaknesses as discussed above, thereby affecting the progress of EIA implementation in the GKMA and causing huge financial losses to the developers of various projects. Based on the study's most key results, NEMA still faces major challenges in the twenty-first century when it comes to meeting the needs of the people, particularly in the GKMA, in terms of providing environmental

management services that are both relevant and of high-quality, addressing local concerns from a regional and international perspective, and thereby helping to sustain the environment so that it can continue to meet the needs of both the present and future generations.

LIMITATIONS TO THE STUDY

The lack of access to current or up-to-date electronic data files was the researcher's greatest difficulty, given that the study did not involve carrying out field visits but relied on electronic documents as a source of information. Since current electronic files were unavailable, the researcher resorted to using older ones (preference was given to files that were no more than ten years old).

Future Research

The researcher concludes that more research is needed into NEMA as the primary agency charged with environment management and its effectiveness in implementing other environment management policies besides EIA, as environmental degradation continues to occur in the GKMA despite the government of Uganda's best efforts to stop it through NEMA. But this research must be carried out in accordance with the Actor-Network Theory. This will aid in comprehending NEMA's position as the lead agency and understanding the various human and non-human actors collaborating with NEMA to ensure that GKMA's environmental policies are effectively implemented and enforced. This approach will also allow for research into the impact of non-human actors on the success of environmental management policy implementation and enforcement in the GKMA.

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