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Environmental Impact Assessment Follow-Up in Central Uganda's Processing and Manufacturing Industries: Implications for Achieving Sustainable Development

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Environmental impact assessment (EIA) was introduced in Uganda by the National Environment Act 1995, now repealed by the National Environment Act 2019. EIA was made operational by the EIA Regulations, 1998, which is now replaced by the National Environment (Environmental and Social Assessment) Regulations 2020. It is generally agreed that the EIA follow-up is an essential part of the EIA process, without which EIA becomes a pro-forma exercise seeking plan or project approval. This paper assesses the legal and regulatory provisions for EIA follow-up and the actual practice in central Uganda's processing and manufacturing industries for 24 years (1995-2019) of practice. Data was collected from key categories of EIA stakeholders, including the affected public, the interested public, the developers, and the regulator or its delegated entities. Data was collected between 2018 and 2019 using a review of related literature, documentary analysis, checklists, key informant interviews, and specifically designed questionnaires for the different categories of key EIA stakeholders. Data was analysed using largely descriptive statistics and, to some extent, inferential statistics. Our finding was that there was a wide gap between law and the actual practice of EIA follow-up. Specifically, there was limited monitoring by the regulator, absent post-assessment environmental audit, low to moderate implementation of mitigation measures and poor communication between the developers and the affected public. This was mainly due to poor implementation of the pre-approval phases of the EIA process and other context factors. The paper made several recommendations to improve the design and implementation of the EIA follow-up program.

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INTRODUCTION

The EIA practice was formally introduced in Uganda through section 19 of the National Environment Act (NEA), 1995 (NEMA, 1995), which was repealed by the NEA 2019 (NEMA, 2019). The main objective of the act was to provide sustainable management of the environment and other related matters. Section 107 of the NEA, 1995, gave powers to the minister of the line ministry (Ministry of Water and Environment) to make regulations for giving full effect to the provisions of the Act as such, the EIA Regulations, 1998 (now the Environmental and Social Impact Assessment, Regulations 2020) was enacted. The EIA Regulations 1998 laid down the procedures for conducting EIA and stipulated the roles of the different categories of the EIA stakeholders in the process. In addition, several other environmental and natural resources sector-specific environmental Acts and Regulations were enacted.

The enactment of the NEA 1995, like in many countries, was in response to the United Nations Conference on Environment and Development held in Rio Janeiro, Brazil, from 3 - 14 June 1992, which concluded that sustainable development was an achievable goal for all. It was also recognized that integration and balancing economic, social, and environmental concerns in meeting our needs is vital for sustaining human life on the planet. Consequently, the Rio Declaration principle 17 was dedicated to EIA, and it states, "*EIA, as a national instrument, shall be undertaken for proposed activities that are likely to have adverse impacts on the environment and are subject to the decision of a competent national authority* (UN, 1992). In Uganda, the

NEA 1995, sections 4 and 5 established the National Environment Management Authority (NEMA) as the competent authority with powers to coordinate, monitor and supervise all activities in the field of the environment, including EIA (NEMA, 1995).

In September 2015, the UN General Assembly adopted 17 SDGs with 169 targets to provide a global framework for achieving the 2030 agenda for sustainable development (UN, 2015). The SDGs were to build upon and broaden the scope of the earlier Millennium Development Goals (MDGs), which ended in the same year, to achieve what the MDGs did not achieve. The SDGs seek to realize all human rights and achieve gender equality and empowerment of all women and girls. It is not the scope of this paper to elaborate on all the 17 SDGs. Still, importantly, it notes that they are indivisible and balances the three dimensions of sustainable development: the economy, society, and the environment. For the successful attainment of these goals, there is a need for integration and building of synergies between goals while ensuring the balancing of the three dimensions of sustainable development mentioned earlier. The study (Le Blanc, 2015, p. 3) demonstrates that the SDGs can be seen as a network in which links among goals exist through targets that refer to multiple goals.

According to a related study by Taako et al. (2020, p. 2), the implementation of the SDGs in Uganda is well institutionalized with a fully-fledged national SDGs secretariat in the Office of the Prime Minister and the Uganda President has appointed the minister in charge of general duties as the cabinet focal minister in-charge of SDGs. It is a good practice in Uganda that the SDGs are

mainstreamed into the National Development Plans (NDPs), making her the first country to develop its NDPs in line with the SDGs. In addition, government ministries, departments, agencies, and local governments are expected to align their policies, programs, plans, and projects with the existing NDP. This, therefore, creates an opportunity for the EIA regulator, practitioners, proponents, planners, and researchers to create an EIA – SDGs convergence to achieve sustainable development.

Impact assessment scholars such as Morrison-Saunders et al. (2020) accepted that the SDGs are intended to deliver broader outcomes than impact assessment (IA) in general currently does. Still, there can be substantial convergence between IA, specifically EIA, and the SDGs. The same scholars also concluded that ‘geared up’ IA/EIA may be used as a major vehicle to facilitate the attainment of the SDGs when it is comprehensive (covering all aspects of the environment), strategic (applied to more strategic forms of decision making such as policies, programs, and plans) and integrated (putting together all relevant specialties as input into the process).

Similarly, the author, like Partidario (2020, p. 248), acknowledges the potential role of IA in achieving the SDGs, but this role must go beyond the mechanic measurement of indicators in assessing performances. It should inspire change in practices, behaviors, and efforts to achieve the SDGs. It should also consider the interconnectedness of the 17 SDGs systemically. Literature suggests that EIA is now accepted as an instrument of sustainable development on its own merit but also in convergence with the SDGs. This is especially so when there is a shift in the philosophy underlying current IA/EIA rules and practices to renovate or even re-invent the instrument (IA/EIA) to become more collaborative, constructive and systemic or even driven by learning and co-creation of knowledge to address the current environmental and social challenges such as climate change, poverty, health and pandemic crisis, biodiversity loss, soil

depletion and landscape change among others (Partidario, 2020 p.149).

The EIA process differs across jurisdictions, but the international EIA best practice guides that the elements of the process should include screening, scoping, examination of alternatives, impact analysis, mitigation, impacts management, evaluation of significance, preparation of environmental impact statement (EIS), review of EIS, decision making and follow-up (IAIA & IEA, 2006). One of the basic principles of international EIA best practice is that the process should provide appropriate openings to inform and involve the ‘interested’ and ‘affected’ public. Their concerns should be addressed clearly and transparently in the reporting and decision-making (IEA, 2006). However, EIA literature identified that the practice of public participation and issues of transparency and legitimacy of decision-making are still far from desirable (Partidario, 2020, pg. 148). Similarly, EIA scholars Zhang et al. (2013) found that even the positive values brought to the decision-making process (EIA) by the project-affected persons are not well recognized, accepted or agreed upon. There is, therefore, a need to take stock of country and sector-specific EIA effects through researching legislation or theory and actual practices.

The EIA scholars Joseph et al. (2015 p.242) recommend that one of the requirements to guarantee EIA effectiveness is ensuring that all the key elements of the EIA process, including EIA follow-up, are established in the EIA legal regimes. A related study by Taako et al. (2020, p. 7) describes Uganda’s EIA process, including submission of the project brief, screening, development of terms of reference (ToR), assessment, reporting, review, decision making and follow-up. Like other scholars, our key assumption in this paper is that the effectiveness of the EIA follow-up phase is the most critical in determining the EIA’s effectiveness as an instrument of sustainable development (Pinto et al., 2019). We also recognize, just like other scholars (Angus Morrison-Saunders & Arts,

2004), that the effectiveness of the EIA follow-up program depends on the effectiveness of the implementation of the pre-approval decision phases (screening, scoping, assessment, reporting, and review) with particular attention to public participation and involvement.

Without a prudent design and implementation of the EIA follow-up program and strategies, EIA will remain a pro-forma exercise seeking project approval rather than being an instrument for promoting project sustainability and overall sustainable development. Here is meant EIA follow-up at both the micro-scale level (applied to operational projects) and the macro-scale level (EIA system). It is for this reason that, this study sought to evaluate the implementation of EIA follow-up in the manufacturing sector which literature (Akurut et al., 2017; Kabenge et al., 2016; Luyiga et al., 2015; Paul et al., 2011; Pierre & Wondwosen, 2016) reveal to be the main source of pollution of Lake Victoria, streams, soils and aquifers in the central region of Uganda; a region which is a habitat to more than half of Uganda's population (UBOS 2016) and with fragile ecosystems.

EIA follow-up means the 'monitoring and evaluation of the impacts of a project or plan (that has been subjected to EIA) for management of, and communication about, the environmental performance of that project or plan' (Pinto et al., 2019). International best principles for EIA follow-up (Marshall et al., 2005, p. 176) identified four elements or activities for EIA follow-up, which include monitoring, evaluation or auditing, management, and communication in which the three principal groups of stakeholders: the developer, regulator and the affected public must be involved but in different ways. The benefits of the information generated through EIA follow-up are enormous including learning based on experience, provision of information to guide future decision making, judging the effectiveness of EIA system by comparing the actual impacts against the predictions, developing mitigation measures for unforeseen or unpredicted project impacts, and managing risks and uncertainties

associated with projects. Ultimately, the EIA follow-up information supports the attainment of the overall goal of EIA, that is, to minimize the negative impacts and maximize the positive impacts of development projects or plans.

However, despite the benefits of EIA follow-up as a critical element of the EIA process for achieving sustainable development, global EIA literature (Heaton & Burns, 2014; Jalava et al., 2015; Jones & Fischer, 2016; Khosravi et al., 2019; Zvijáková et al., 2014) reveal that EIA follow-up is a weak or even absent element of the EIA process. Therefore, there was a need to undertake a country and sector-specific evaluation of the practice of EIA follow-up, which has never been undertaken in Uganda for the 24 years (1995 -2019) of EIA practice under the NEA 1995 and its related environmental Acts and Regulations. In response, this paper evaluates the legal and regulatory provisions for EIA follow-up, the process of design and development of EIA follow-up programs, and the actual practice of EIA follow-up focusing on processing and manufacturing industries in the central region of Uganda.

A Practical Framework for EIA Follow-Up and EIA Follow-Up Best Principles

The study evaluated EIA follow-up in light of insights from a practical framework for EIA follow-up (Angus Morrison-Saunders & Arts, 2004) and other subsequent EIA follow-up international best practice principles (Marshall et al., 2005b; Morrison-Saunders et al., 2007; Pinto et al., 2019) which are mainly published or approved by the International Association for Impact Assessment (IAIA) publication committee. It is generally agreed (Angus Morrison-Saunders & Arts, 2004; Marshall et al., 2005a; Morrison-Saunders et al., 2007) that EIA follow-up comprises four elements which include;

- **monitoring** – gathering of data and comparison with standards and predictions or expectations (both baseline monitoring and compliance monitoring). Closely related to monitoring is auditing- the periodic, objective

examination of observations by comparing them with pre-determined criteria (standards, predictions, or expectations);

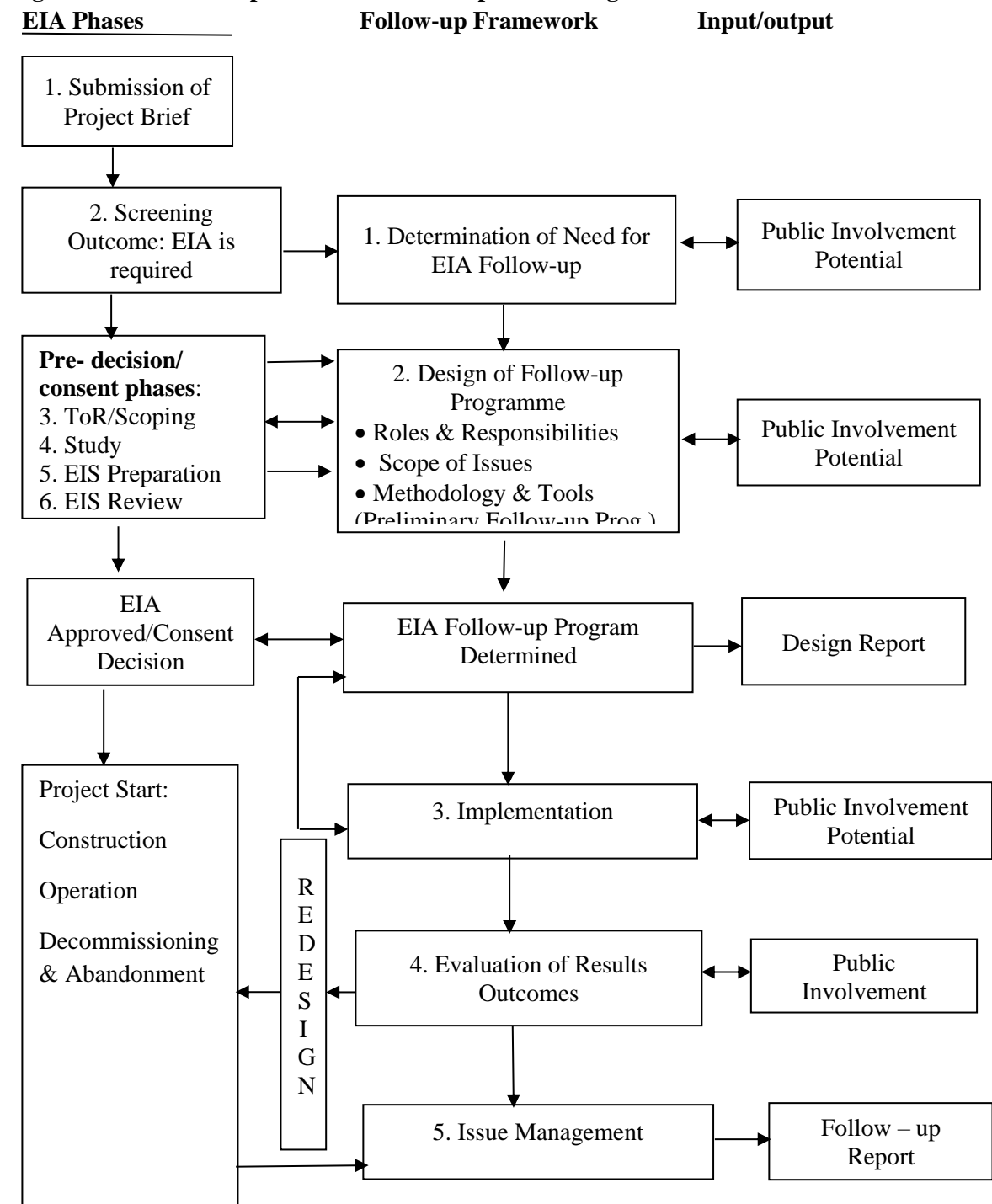
- **evaluation** – the assessment of conformance with standards and predictions and the environmental performance of the policy, program, plan, or project (ex-ante evaluation and post-evaluation).
- **Management** – making decisions in response to issues arising from monitoring and/or auditing and evaluation activities. The management decisions may be made by both the proponent, such as responding to unexpected impacts and by the regulator, such as reviewing consent conditions and management requirements. It is a good practice for the proponent to establish Environment Management System (EMS), such as the ISO 14000 series, as a voluntary self-initiative to operationalize the implementation of its environmental strategy and achieve green profile.
- **Communication-** informing the affected public about the results of the EIA follow-up and feedback on the EIA process. Communication should go beyond mere informing to direct involvement of the affected and general public in all follow-up activities.

The Authors (Pinto et al., 2019 p. 3) also acknowledge the four elements mentioned above as universally accepted for the conceptualization of EIA follow-up. However, to derive evaluation criteria that would investigate the practice, the authors separated management into governance, which is the arrangements for managing the follow-up process and management which describes the arrangements for managing the impacts themselves (both predicted and unforeseen). Scholars (Angus Morrison-Saunders & Arts, 2004 p.10) identified the interplay of 4 critical factors that affect the successful implementation of the EIA follow-up program, and they include regulations and institutional arrangements that have been put in place,

approaches and techniques used in follow-up practice; resources and capacity to undertake follow-up and the type of activity that is being followed up. Authors (Marshall et al., 2005a; Morrison-Saunders et al., 2007) derived and presented 17 international principles for best practice of EIA follow-up. According to the scholars (Marshall et al., 2005), these principles address four fundamental questions EIA follow-up practice must address. They include: Why should we conduct an EIA follow-up? Who should be involved in EIA follow-up? How should EIA follow-up be conducted? A good EIA follow-up program should be able to answer these questions. It is also important to note that these principles are not intended to be prescriptive but are designed primarily for reference, guidance, and use by practitioners taking part in EIA, post-decision environmental management, and capacity development for EIA follow-up.

The Author Baker (Angus Morrison-Saunders & Arts, 2004, pgs. 42 - 62) consolidated key elements of EIA follow-up into a practical framework to guide the development and implementation of an efficient, realistic, and practical EIA follow-up program. As described by authors (Taako et al., 2020 p.7 & 8), this practical framework and the EIA process in Uganda is adapted and represented in Figure I. The 6 (six) key elements of the framework include the determination of the need for follow-up, determination of the roles and responsibilities, the range of issues to be addressed, the approaches and techniques to be used in the follow-up, follow-up implementation, evaluation of results and outcomes; issue management and stakeholder communication. Process effectiveness and public participation in the EIA pre- approval decision phases is critical for good EIA follow – up program design and actual implementation. Ideally, the two important steps of the framework which are; determining the need for follow-up and designing the follow-up program are accomplished during the pre- EIA approval decision phases. Public involvement is critical at defining the need, program design and evaluation of follow-up results.

Figure 1: EIA follow-up Framework & EIA process in Uganda



Source: (Adapted from: Angus Morrison-Saunders & Arts, 2004; Taako et al., 2020)

METHOD AND MATERIALS

This research used both qualitative and quantitative approaches focusing on a number of categories of EIA stakeholders, including the regulator, the developer, and the public, both affected public and interested public, particularly environmental non-governmental Organizations

(ENGOS). The processing and manufacturing industries were chosen because related studies (Akurut et al., 2017; Kabenge et al., 2016; Luyiga et al., 2015; Paul, Walakira; James, 2011; Pierre & Wondwosen, 2016) reveal them as the major source of pollution of lakes particularly lake Victoria, the world’s second-largest freshwater

lake, rivers, streams aquifers, and soils. Data was collected between 2018 and 2019, the year ending the 24 years of the NEA 1995 regime and its related regulations. Data was collected through a review of related literature, documentary analysis, checklist, archival (EISs or EIA reports) analysis, key informant interview guides, and questionnaires designed for each category of key EIA stakeholders. The questionnaires were designed relative to the key tasks and responsibilities of the different categories of the key EIA stakeholders in EIA follow-up as provided for in the EIA regulations.

In line with the provisions of the national guidelines (UNCST, 2014 pg.18), the research team were guided that, since this was primary research that presented no more than minimal risk to humans as research participants, verbal informed consent be made part of the questionnaires. The questionnaires were pre-tested, revised accordingly, and subjected to reliability tests before being administered in the field.

A total of 16 EIA reports were analyzed and interviews conducted for the respective managers of the processing and manufacturing industries, particularly on issues of implementation of EIA follow-up. The 16 processing and manufacturing industries were systematically selected from a list of 30 EIAs for processing and manufacturing industries issued with operation permits by NEMA between 2000 and 2005. The EIA reports were accessible from the libraries of NEMA, Kampala Capital City Authority (KCCA), and other local governments (LGs) environment department. Anonymity of these industries is maintained here, but in terms of project descriptions, they included a pharmaceutical factory, two plastic manufacturing industries, a plastic cycling factory, a foam mattress manufacturing plant, a water bottling plant, a sheet corrugation, forming and expanded metal plant, a paper manufacturing plant, a foods and beverages factory, a tobacco leave processing plant, warehouse and tobacco products factory, water bottling factory, brake-lining and sizing

factory, glass recycling factory, corrugated boxes manufacturing plant and cheese processing plant. The assumption was that, within the period of more than ten years, a developer who has been in operation should have implemented its EIA follow-up program with the possibility of establishing environmental management system (EMS).

Furthermore, four (4) industries were systematically selected from the list of the 16 processing and manufacturing industries and 100 households from their neighbourhood were administered a specific questionnaire on aspects of public participation in EIA follow-up. The four industries included a pharmaceutical plant, a sheet corrugation, forming and expanded metal factory, plastics recycling factory, and tobacco leaf processing factory. 25 households within a radius of less than 1 kilometer from each of the four industries were selected and interviewed. Because there were no readily available village registers with the village/cell leaders and to ensure systematic sampling, the households were selected at an interval of 2 households to the south, west, north, and east of each of the four selected industries. The household head (the respondent) were asked they were already settled in the area when the industry was being established. The interview only proceeded with the respondents who were affirmative, and if not, the process was repeated to find the next household head for the interview. Five (5) senior staff from NEMA directorates were interviewed, including the directorate of monitoring and compliance; directorate of district support coordination and public education; directorate of policy, planning and information; and directorate of finance and administration. 44 environment officers from local governments in the central and some parts of the eastern region (Busoga region) were also interviewed using a specific questionnaire. The environment officers were systematically selected from the district natural resources officers, district, and municipal environment officers list as of February 2014, which was obtained from NEMA.

Since the EIA follow-up should involve the public, both the affected and the interested public, the participation of environmental non-governmental organizations (ENGOS) in EIA follow-up was explored. Through examining the EIA reports, it was established that 30 ENGOS participated in the EIAs for the processing and manufacturing industries between 2000 and 2005. 30 staff members of 17 ENGOS were purposefully selected with the help of the management of the ENGOS and they were interviewed, particularly asking them about their level of satisfaction with undertaking various aspects of the EIA follow-up. They were asked to rate their satisfaction levels with their participation and involvement in the EIA follow-up activities on a Likert-like scale ranging from 1 to 5 where 1 = extremely dissatisfied, 2 = very dissatisfied, 3 = dissatisfied, 4 = satisfied and 5 = very satisfied. Participation and involvement of the ENGOS in EIA follow-up (the dependent variable) was defined by twelve (12) potential activities the ENGOS engage in EIA in general and EIA follow-up in particular which were derived through review of related literature.

It was assumed that, participation and involvement of the ENGOS in EIA - follow is influenced by various capacity variables and the institutional and regulatory framework for EIA. The capacity variables included; information capacity (X_1) which in this study is defined (attributes) by access to communication technologies, ability to use digital platforms to disseminate EIA information, and ability to access EIA information and related documents; measurement capacity (X_2) which is defined by general knowledge of EIA procedures, specific skills in EIA, knowledge of the national environmental laws and regulations, knowledge of the national environmental standards, availability of measurement equipment, access to measurement equipment and skills to use measurement equipment; collaboration capacity (X_3) which in this study is defined by ability to collaborate with the regulator/NEMA, lead agencies, local governments and other national and international ENGOS. The institutional and regulatory framework for EIA (X_4) in this study is

defined by the national laws regulating the operations of NGOs, implementation of regulations regarding public participation and involvement in EIA, implementation of mitigation measures, the institutional arrangement for EIA and the extent of decentralization of EIA decision making. The staff of the ENGOS were asked to rate their level of satisfaction with the attributes of these different capacity variables using the Likert-like scale above. The 'overall mean' for the different capacity categories (the independent variables) and the participation and involvement of the ENGOS in EIA follow-up (dependent variable) were obtained and linear multiple regression analysis was used to estimate the effect of the independent variable on the dependent variable.

The data analysis tools included Microsoft Excel, Statistical Package for Social Science (SPSS) and STATA. Descriptive statistics was mainly used to analyze the data, and the results were reported using frequencies, percentage scores and mean and presented using bar graphs and tables for easy interpretation. Inferential statistics, particularly linear multiple regression analysis, was used to test for the significance of the factors that impacted the participation and involvement of the interested public (the ENGOS) in EIA follow-up activities including the pre-approval decision stage activities.

RESULTS AND DISCUSSION

Legal and Regulatory Provisions for EIA Follow-Up in Uganda

Global EIA follow-up literature (Angus Morrison-Saunders & Arts, 2004; Morrison-Saunders et al., 2007; Pinto et al., 2019) acknowledges that the EIA follow-up activities include monitoring, audit/evaluation, management, and communication. These EIA follow-up activities are legal requirements in Uganda's EIA legislations, regulations, and other natural resources sector-specific legislations. Section 21, subsection 2 of the NEA 1995 provided that, in executing the project, the developer shall take all feasible measures to

ensure that the EIA report or EIS requirements after the post-decision phase are conformed to. Section 23 of the same Act provided for environmental monitoring by the regulator in consultation with a lead agency of the operations of any industry, project, or activity subjected to EIA and approved. On the other hand, section 22 of the NEA 1995 provided that the regulatory authority (NEMA) shall, in consultation with the lead agency, be responsible for carrying out environmental audit of all projects or activities that are likely to affect the environment significantly.

Within the framework of section 107 of the NEA 1995, natural resources sector-specific Acts and regulations were enacted to give more effect to the NEA 1995. The EIA Regulations, 1998, and the National Environment (Audit) Regulations, 2006, were enacted to that effect. Regulation 31 of the EIA Regulations 1998 provided for self-audit by the developer which must be conducted within three years or less from the year of commissioning the project. Regulation 32 provided for audit by the regulator (NEMA). In line with the submitted audit report, regulation 33 of the EIA Regulations 1998 required the regulator to recommend mitigation measures to the developer to be implemented within a specified period. However, there was no provision for sharing the audit reports and the recommended mitigation measures arising from the audit exercise with the affected public as the EIA follow-up framework guided (Angus Morrison-Saunders & Arts, 2004). An opportunity was created by regulation 32 (3) of the EIA Regulations 1998 for the affected public after showing reasonable cause to petition the Executive Director (ED), NEMA to cause environmental audit to be conducted on a facility (third-party EIA follow-up).

Regulation 19 of the National Environment (Audit) Regulations, 1998 provided for voluntary environmental audit by an operator or owner of a facility subjected to EIA. Regulation 16 provided for an environmental inspector designated by the regulator (NEMA) and following the provisions of the National Environment (Conduct,

Certification of Environmental Practitioners) Regulations, 2003, to conduct or cause an enforcement environmental audit to be conducted. Regulation 8 provided that every owner or operator of a facility whose activities are likely to impact the environment significantly shall establish an EMS. Such facilities required to establish EMSs were expected to be published by the regulator (NEMA) in the Uganda Gazette or a newspaper with a national circulation. Sub-regulation 4 of regulation 8 specified the penalties for not establishing EMS by a developer. However, none of the 16 processing and manufacturing industries surveyed had voluntarily or mandatorily established EMS and none was penalized. Two manufacturing industries (a multilateral corporation and an indigenous industrial plant) had established quality assurance committees that also partly handles environmental issues in the facility, and one other had an environmental policy statement displayed at the premise.

Regulation 12 of the National Environment (Audit) Regulations 2006 provided for enforcement environmental audit. Within this framework, one of the processing industries (tobacco leave processing factory) was subjected to an enforcement environmental audit and eventually forced to change location due to petition of the ED, NEMA by the affected public. This demonstrated the power of third-party EIA follow-up, which the affected public, the general public, and the civil society can promote as a last resort.

Regulations 14 and 6 provided for public involvement, particularly the affected public, when conducting environmental audits. In addition to the requirement for the establishment of EMS by the National Environment (Audit) Regulations 2006, the Petroleum (EDP) Act, 2013 section 125 requires that, prospective Ugandan companies planning to supply goods and services meets the health, safety and environmental standards of the sector. This means ISO 14000 certification (establishment of EMS) becomes an important exercise for Ugandan companies

intending to supply goods and services in the oil and gas sector. This creates an opportunity to use EIA outputs to enhance EMS or generally create synergies between EIA and EMS, as suggested by other authors (Hollands & Palframan, 2014). From the above, it is clear that Uganda is among countries such as Portugal, Canada, the U.S.A, Australia, Netherlands, and China (Hong Kong) with follow-up requirements in their EIA legal regimes.

It was established that none of the 16 industries consulted their EIA specialist or consultants after obtaining the EIA approval certificates. This meant that EIA was just used as a linear process to obtain project approval, as reported in other studies (Kahangirwe & Vanclay, 2022 pg.82). It also meant that EIA follow-up was largely a legal requirement. There was little perceived added value of EIA follow-up by the developers. However, mechanisms to achieve the need for follow-up were provided, including improvement notice (section 80 of the NEA 1995), criminal and legal proceedings, restoration orders, and fines for breach of the EIA follow-up provisions and other provisions of the Act.

The parties involved in EIA follow-up in Uganda included the regulator (NEMA) or its delegated agents, such as the environment officers at local governments, ministries, directorates and specialized agencies such as the Ministry of Gender, Labour and Social Development (MGL & SD) directorate of safety and health, Ministry of Water and Environment (MWE) directorate of water development, directorate of government analytical laboratory (Ministry of Internal Affairs), Uganda National Bureau of Standards (UNBS), National Drug Authority (NDA), Environment Protection Force of the Uganda Police among others. Most environment officers and specialist individuals from the MDAs were designated as environment inspectors or auditors according to the National Environment (Certification and Professional Conduct of Environmental Practitioners) Regulations (NEMA, 2003). Other parties to the EIA follow-

up were the developers and the public (affected and interested public).

Actual Practice of EIA Follow-Up in the Industries in Central Uganda

According to the EIA follow-up framework (Angus Morrison-Saunders & Arts, 2004, pg.49) adapted and represented in Figure 1, there must be public involvement in the determination of the need for EIA follow-up, designing the EIA follow-up program, which are activities to be undertaken during the EIA pre-approval phases. Public participation and involvement are also expected to occur during the implementation of the EIA follow-up program and the evaluation of the results and outcomes of the EIA follow-up. However, the same authors (Taako et al., 2023) reveal low participation level of the affected public in EIA in central Uganda's processing and manufacturing industries. This was attributed to lack of community cooperation, difficulty in accessing information from the processing and manufacturing industries and lack of community environmental stewardship. This was a major constraint to the effective design and implementation of EIA follow-up programs by the processing and manufacturing industries.

It was established that all 16 (100%) industries had at least a monitoring visit by the regulator (NEMA) or its delegated entities. In terms of the frequency of the monitoring visits, five respondents (13.3%) reported that, it was rarely done, the majority 10(62.5%) reported it was sometimes done, and only 1(6.3%) reported it was often done. The majority 9(56.3%) reported that the visit was by NEMA staff, 5(31.3%) reported that the monitoring was by KCCA staff, 1(6.3%) reported it was by UNBS, and 1(6.3%) reported it was by MGL & SD directorate of safety and health. This means that monitoring visits to facilities were more infrequent by the specialized agencies, the MGL&SD directorate of safety and health responsible for, occupational safety and health of workers. This is a constraint to efforts to attain SDG 8 (decent work and economic growth), which, according to study (Le Blanc, 2015 pg.6), is ranked number four (4) in terms of linkage to

the other 10 SDGs through targets. Secondly, the infrequency of monitoring visits to facilities by UNBS will result to manufacturing of sub-standard products that will put the health of citizens and other consumers at risk. Hence, a constraint to national efforts to achieve SDG 8 (ensure healthy lives and promote well-being for all at all ages), which is ranked number 6 in terms of linkage to other 8 SDGs through targets (Le Blanc, 2015 pg.6). A key informant in NEMA directorate of monitoring and compliance said;

'Much as they are highly motivated to undertake monitoring visits to facilities, they are logistically constrained in facilitation, including tools and equipment at both the centre (NEMA) and local governments.'

The majority, 31(70.5%) of the 44 environment officers (also designated as environment inspectors) interviewed in local governments, reported having no pollution monitoring equipment in their departments. 30(68.2%) received no comprehensive practical skills training on using pollution monitoring equipment. This logistical and capacity constraint to EIA follow-up is also reported by other Authors (Akello, 2007; Kahangirwe & Vancley, 2022). Similarly, the third NDP (NPA, 2020, p. 105) also acknowledge this low national capacity to enforce environmental and resource regulations, leading to environmental degradation. It is also observed (Kolhoff et al., 2016) that in lower-middle-income countries (Ghana and Georgia), because of the limited capacity of EIA actors, the level of substantive performance increases during the EIA assessment phase and declines during the EIA follow-up phase.

Regarding the participation of civil society organizations in EIA follow-up, the interview with the 30 staff of the ENGOs revealed dissatisfaction with their participation and

involvement in EIA process in general and EIA follow-up activities particularly monitoring and post environmental audit (mean = 2.87), direct action such as public interest litigation (mean =2.97), grievances handling between developers and affected community (mean =2.87), collaboration with other EIA follow-up stakeholders (mean =2.77) and involvement in decision making (mean = 3). The multiple regression model results in Table 1 show that, at 5% significance level, the model fits the data ($p = 0.015$). Measurement capacity of the ENGOs positively and significantly impacts on the participation and involvement of the ENGOs in EIA ($p = 0.003$). Particularly the ENGOs staff do not have specific skills in EIA, do not have pollution monitoring equipment neither do they have adequate access to pollution monitoring equipment and skills to use pollution monitoring equipment. As such, they cannot adequately get involved in monitoring, post-environmental assessment, evaluation/audit and communication. Subsequently, they cannot adequately play their broad roles of being 'watch dog', 'information providers' and 'pressure group' as described by scholars (Khan et al., 2020 pg.3). This finding is similar to the finding of other authors (Fagan & Sircar, 2010) who reveal that, ENGOs seem to rarely get involved in EIA in general because they lack the required technical and scientific capacity to engage in the process.

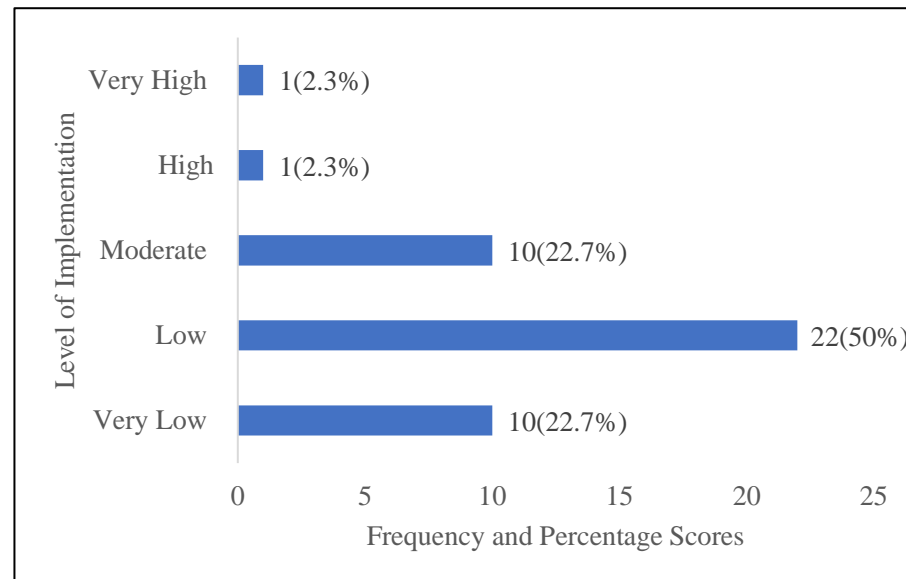
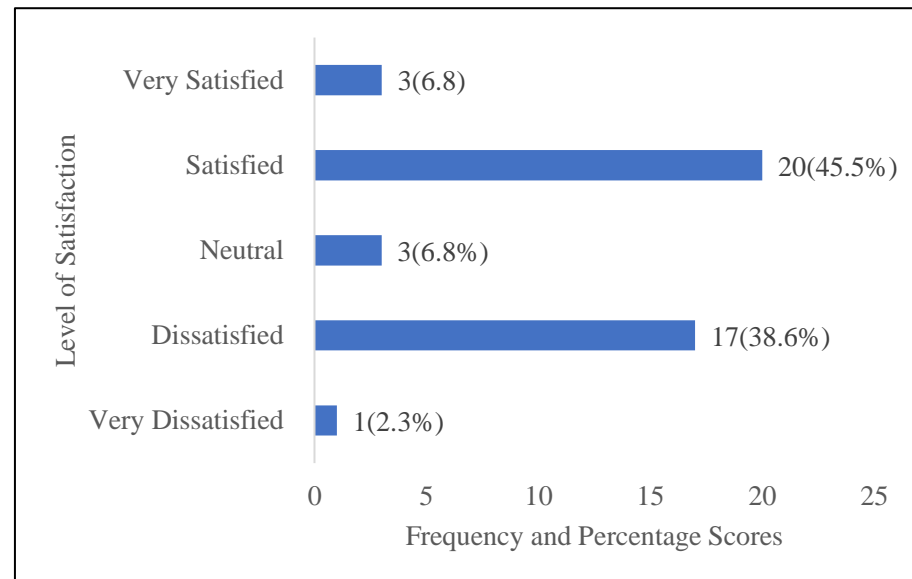
Interestingly, the results reveal that, the information capacity, the collaboration capacity and the institutional and regulatory framework for EIA do not significantly affect the participation and involvement of the ENGOs in EIA follow-up. However, they together with the measurement capacity contribute 27.8% (adjusted R square = 0.278) to the participation and involvement of the ENGOs in EIA follow-up.

Table 1: Estimating the Effect of the Independent Variables on the Participation and Involvement of ENGOs in EIA Follow-UP .

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R ²	Adjusted R ²	F	Sig
	B	Std. Error	Beta						
(Constant)	1.57	1.119		1.402	0.173	0.377	0.278	3.785	.015 ^b
Information Capacity (X ₁)	-0.095	0.201	-0.11	-0.473	0.64				
Measurement Capacity (X ₂)	0.645	0.192	0.592	3.355	0.003				
Collaboration Capacity (X ₃)	-0.254	0.299	-0.159	-0.849	0.404				
Institutional and regulatory framework (X ₄)	0.354	0.25	0.307	1.414	0.17				

a. Dependent Variable: Participation and Involvement of ENGOs in EIA.

b. Level of significance is 0.01 and 0.05.

Figure 2: EO's Perception of the level of implementation of mitigation measures by processing and manufacturing industries in central Uganda.**Figure 3: The EOs level of satisfaction with the existing national EIA laws and regulations**

None of the developers interviewed had their EIA reports at their disposal, nor could they easily remember the mitigation measures proposed during the EIA. They can only remember the obvious mitigation measures such as firefighting equipment, noise control measures, occupational safety, workers' health, etc. This finding is related to the finding of the Authors (Kahangirwe & Vanclay, 2022 p. 82), who revealed that during project implementation, some developers did not even know the location of the ESIA reports for their projects. Relatedly, the 16 EIA reports for the processing and manufacturing industries were poor, with no clearly identified need for EIA follow-up, poorly written Environmental and Social Management Plans (ESMPs) with poorly defined roles and responsibilities, no time constraints, and no monitoring indicators. The poor reporting with no well-developed ESMPs affected the subsequent implementation of EIA follow-up.

As presented in *Figure 2*, 10(22.7%) of the 44 environment officers interviewed in the local governments reported that the implementation of mitigation measures by developers was very low, majority, 22(50%) reported low, another 10(22.7%) reported moderate, 1(2.3%) reported high and another 1(2.3%) reported very high. This generally mean that the implementation mitigation measures (management) by the processing and manufacturing industries was low. Many developers attributed this to low technology, high related costs, and lack of complementary facilities, such as erratic power supply and inefficient or inaccessible sewerage systems.

Furthermore, only 1(6.3%) of the 16 manufacturing industries had conducted post-EIA environmental audit and 15(93.8%) did not conduct post-EIA environmental audit. The one which conducted the post-EIA audit reported the results to NEMA and not to other stakeholders, including the affected public, contrary to the EIA follow-up framework and other international best principle EIA follow-up (Angus Morrison-Saunders & Arts, 2004 p. 49; Morrison-Saunders

et al., 2007; Pinto et al., 2019 p. 14). One developer reported *we wish to conduct self-audit but lack internal expertise on how to do it and cannot afford external consultants*.

The good practice was that the annual environmental audit was made part of most of the EIA approval conditions by the ED, NEMA. However, the bad practice was that most EIA approval certificates did not state the period for which the approval shall remain valid, though required under Regulation 26 (b) of the EIA Regulations, 1998. This lack of time constraint for the EIA approval certificates motivated the processing and manufacturing industries not to undertake environmental audits. However, the provisions for revoking the EIA approval certificate were provided under regulation 28(1) of the EIA Regulations, 1998.

This inadequate implementation of mitigation measures, lack of monitoring and environmental audit by manufacturing industries, and the general very low level of compliance to environmental and natural resource regulations are also reported in the Uganda Vision 2040 (GoU, 2007 p. 98). This has resulted to misuse of natural resources and environmental degradation through increased pollution, wetland degradation, deforestation, extreme natural disasters such flooding and landslides. There is increased pollution of Lake Victoria, the second largest freshwater lake in the world and the principal reservoir of River Nile, the longest river in the world. This is evidenced by the increasing incidences of eutrophication in Murchison Bay on the northern shores of Lake Victoria and bordering the eastern part of Kampala Capital City, according to studies (Akurut et al., 2017; Kabenge et al., 2016; Luyiga et al., 2015). This area is also the main source of water for Kampala Capital City with Ggaba II and Ggaba III biggest National Water and Sewerage Cooperation (NWSC) water treatment plants. Water pollution lowers the water quality and increases the treatment cost which is often transferred to the water users through relatively high water tariffs. This threatens efforts to achieve

SDG 6 (ensure availability and sustainable management of water and sanitation for all).

The majority of the management of the processing and manufacturing industries, 10(62.5%), perceived that the impacts associated with their activities that have occurred are different from those identified during EIA, while 6(37.5%) perceived that the effects that have occurred are the same as these predicted during the EIA study. This generally meant there was a low level of accuracy in predicting impacts during EIA, which indicates EIA's ineffectiveness. Without post-EIA audits, additional mitigation measures could not be developed and implemented to mitigate the unforeseen effects, such as flooding of the Kinawataka area in the Nakawa industrial area in KCCA. In this circumstance, the EIA becomes a weak instrument for achieving the SDGs as it is not flexible and adaptable.

It is generally agreed (Angus Morrison-Saunders & Arts, 2004; Marshall et al., 2005a; Morrison-Saunders et al., 2007) that communication is one of the essential elements of the EIA follow-up. The developer should be able to communicate the EIA follow-up results to all stakeholders, particularly the affected public and the general public. The communication should inform the affected public and involve the affected public directly in EIA follow-up activities, particularly management. The interview of the 100 households within the four processing and manufacturing revealed that the majority (87%) of the respondents did not receive any communication from the management of the processing and manufacturing industries regarding their activities. Only 13% revealed they received communication despite the majority, 63% reporting that it was easy to access communicated information in their community through their village leaders and local radio stations. A related study (Taako et al., 2023, pgs 441 & 442) also reports this finding. This lack of communication between developers and the affected public is a constraint to the sustainability of operational projects and overall sustainable

development. Integration of indigenous knowledge is critical to decision-making for sustainable development to be achieved. Author (Partidario, 2020 pg. 149) shares the same opinion that EIA can be a good vehicle for achieving the SDGs when it is driven by learning and co-creation of knowledge.

Authors (Angus Morrison-Saunders & Arts, 2004 p.10) identified that the successful implementation of the EIA follow-up program is dependent on the interplay of 4 critical factors, which include regulations and institutional arrangements that have been put in place, approaches and techniques used in follow-up practice; resources and capacity to undertake follow-up and the type of activity that is being followed up. 16 developers and 44 environmental officers who represent the regulator at the local government levels were interviewed on the aforementioned aspects. The majority, 11(68.8%) of the developers, reported that the environment inspectors used coercive approaches in undertaking their work of monitoring and enforcement, 3(18.8%) reported that they were facilitative, and 2(12.5%) reported that they used mentorship. One developer commented;

“NEMA is reactionary in its work method; they should first clean their house and then use mentoring approach because we don't know some of these things. We need to learn”.

In relation to the EIA regulations, including provisions for EIA follow-up as presented in Figure 3, the majority, 27(61.4%) of the 44 EOs from the local governments, were satisfied with the existing national EIA laws and regulations. Similarly, the 44 EOs, were asked to rate the current level of implementation of EIA laws and regulations in the country basing on their personal experience and opinion. 21(47.7%) reported a low level of implementation, another 21(47.7%) reported a medium level of implementation, and only 2(4.5%) reported a high level of implementation of the EIA laws and regulations in the country.

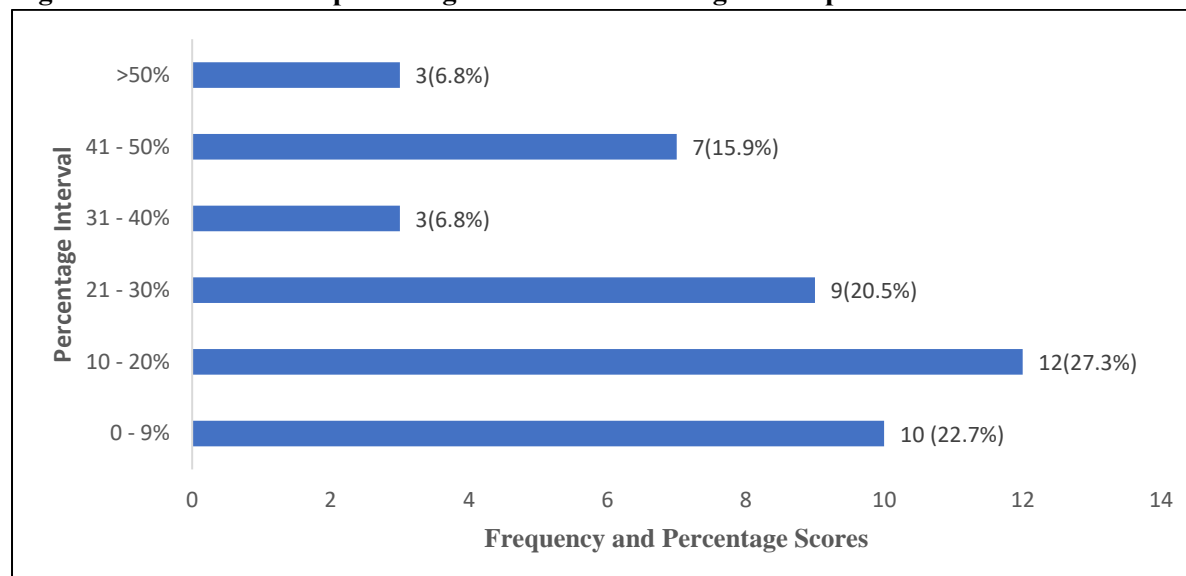
This means despite the good EIA laws and regulations, including the provisions for EIA follow-up, the actual implementation of the law provisions remains a challenge to achieving the purpose of the regulations, which is to provide for sustainable management of the environment. This low to medium level of implementation of the EIA laws and regulations, including the provisions for EIA follow-up, is also identified by authors (Pinto et al., 2019) as a constraint to achieving sustainability of operational projects and overall sustainable development in low developing countries.

The EO's level of satisfaction with the institutional arrangement for EIA in general was also investigated, which scholars (Angus Morrison-Saunders & Arts, 2004) identified as a key context factor in influencing the success of the EIA follow-up program. The majority 20 (45.5%) of the EOs were satisfied with the institutional arrangement for implementing EIA in general, including EIA follow-up. 17 (38.6%) were dissatisfied, 3(6.8%) were very satisfied, another 3(6.8%) were neutral and 1(2.3%) were very dissatisfied. With these good EIA legislations and regulations and the institutional arrangement, if the key EIA follow-up stakeholders had the resources and capacity, used the right techniques and approaches, EIA follow-up programs would have been successfully implemented. This would have promoted the sustainability of operational projects and overall sustainable development thereby reducing the current high level of pollution of water sources and soils, as reported in the literature (Akurut et al., 2017; Kabenge et al., 2016; Luyiga et al., 2015; Namuhani, 2015; Pierre & Wondwosen, 2016).

Related to capacity, the findings also revealed that the majority, 19(43.2%) of the EOs who are responsible for monitoring and compliance enforcement at the local government levels had master's degrees in related fields, 11(25%) had post-graduate diplomas, 13(29.5%) had bachelor's degrees and 1(2.3%) had Ph.D. qualification. Therefore, the EOs have high academic qualifications with high potential to

execute EIA follow-up activities in their respective jurisdictions. However, only 4(9.1%) had EIA professional capacity-building training conducted by Makerere University and NEMA. Similarly, only 13(29.5%) of the 44 EOs reported that they had pollution monitoring equipment in their department, while the majority 31(70.5%) reported that they did not have pollution monitoring equipment in their department. Furthermore, the majority 30 (68.2%) did not receive any training on the use of pollution monitoring equipment, while only 14(31.8%) reported they received training on the use of pollution monitoring equipment. This is a constraint to EOs conducting EIA follow-up activities particularly monitoring and environmental auditing.

The EOs at LGs perform a multiplicity of functions, which include environmental awareness; liaison of NEMA at the LGs; review of EISs for projects in their jurisdiction (only if the LG is not the developer); monitoring and compliance enforcement; supporting local and district environment committees; environment and natural use information collection, dissemination, and management; preparation of the district state of the environment report; and other functions that the district council may assign. Most the EOs have been assigned planning functions at the district planning units and appointed as environment inspectors by the regulator (NEMA). Majority 27(61.4%) reported inadequate staffing level, 5(11.4%) reported very inadequate staffing level, 1(2.3%) was neutral, 8(18.2%) reported adequate staffing level and 3(6.8%) reported very adequate staffing level. Similarly, we also investigated the EO's estimated percentage of the one-week working hours spent on EIA- follow-up activities. The details of the results are represented in Figure 4, but in summary, the majority, 31(70.5%), spent only 0 to 30% of their one-week working hours (approximately 40 hours per week) on EIA-related activities particularly, monitoring and environmental audit.

Figure 4: EO's estimated percentage of a week's working hours spent on EIA-related activities.

The Uganda Government Intergovernmental Fiscal Transfer (UGIFT) program introduced the Local Government Assessment (LGPA) system to improve the efficiency of LGs in service delivery (GoU, 2017 pg. 1). One of the performance assessment areas is social and environmental safeguards. The social and environmental safeguard performance measures are twofold: whether the LG has mainstreamed gender into their activities to strengthen women's roles. Secondly, whether the LG has established and maintains a functional system and staff for ESIA and land acquisition (GoU, 2017). It is now mandatory for the LGs to undertake environmental and social impact assessment for all development projects at the LG level. In addition, the EOs, as representatives of the regulator at LG, are required to participate in EIAs conducted under the National Environment Act, 1995 (now NEA 2019) for projects listed in the third (3) schedule and now in the NEA 2019 fifth (5) schedule in their area of jurisdiction. Therefore, dedicating only 30% of the week's working hours to the various EIA related activities was not sufficient to ensure effective EIA follow-up implementation.

National Environment Fund (NEF) was established under Section 88 of the NEA 1995 and managed by NEMA. Sources of the fund to the NEF comprised central government disbursements, fees charged under the act, fines

and fees agreed upon for any service offered by NEMA, donations, gifts, and other voluntary contributions. Uganda operates a decentralized governance system based on cities and district LGs. Literature (Lewis, 2014 pg. 580) reveals that 90-95% of district LGs' revenue comes from central transfers. Locally generated LG revenues, which were the major source of local revenue, have drastically declined after the abolition of the graduated tax in 2005. The majority, 36(81.8%) of the 44 EOs, reported that they did not receive any funding from NEMA for specifically EIA follow-up activities, while only 8(18.2) reported that they received funding from NEMA for EIA follow-up activities. Similarly, (Grossman & Lewis, 2014) reveal that administrative unit proliferation results in central government control over the state's fiscal apparatus, power to levy, collect taxes, and spend these funds and is often the most rancorous issue in intergovernmental struggles for power.

Despite the declining central transfers to the district and locally generated government revenue, the majority 24(54.6%) of the EOs in the LGs reported that they were able to achieve 10 to 44% of their annual budget expenditure estimates approved by their councils and another 8(18.2%) of the EOs reported that they were able to achieve above 75% of their annual budget expenditure estimates appropriated by their respective councils. The majority, 25(56.8%), identified political interference as the key factor negatively

affecting the implementation of EIA legislations and regulations, including the provision for EIA follow-up. This implies that there was a good level of environmental stewardship among LGs but faced with inadequate staffing, inadequate practical skills in EIA, lack of pollution monitoring equipment, underfunding, and political interference in undertaking EIA follow-up.

CONCLUSION AND RECOMMENDATIONS.

Uganda is among the countries that have legislated EIA follow-up activities in their environmental law regimes. However, the good legislation of the EIA follow-up does not guarantee that an EIA follow-up will actually be undertaken. There is a wide gap between legal and regulatory provisions for EIA follow-up activities and the actual practice because of many context factors. One broad context factor is the ineffective implementation of the EIA pre-approval phases. This affected the quality of the EIA follow-up program and stakeholders' understanding and knowledge of the EIA program. Other context factors included the lack of enforcement capacity of the regulator at both the centre (NEMA) and LG levels. In addition, the developers (the processing and manufacturing industries) cannot implement EIA follow-up activities due to the lack of complementary utilities and infrastructure, such as adequate and stable power supply and efficient and accessible sewerage systems in industrial parks.

For effective and successful EIA follow-up that guarantees the sustainability of operational projects as well as achieves an overall sustainable development within the framework of the SDGs, there should not only be highly academically qualified staff, good institutional arrangement, good provisions for EIA follow-up but an effective and diligent EIA process particularly the pre-approval decision phases while ensuring the participation of the affected public, respecting and integrating indigenous knowledge, effective communication with the affected public and all other EIA follow-up stakeholders, adequate

resources (staffing, skills, funding, tools and equipment) for the environment officers at the local governments level who bear the greatest responsibility of executing and ensuring EIA follow-up is undertaken by the developers.

The central government should incentivize the LGs to increase their level of monitoring and compliance enforcement. This can be done by introducing environmental performance or environmental quality as a requirement for the promotion of local government managers. Blacklist of the most polluted LG units every financial year. Transfer a certain percentage of the fines, fees, and charges collected by NEMA for violation of environmental laws to the best environmentally performing LG units. This will motivate the LGs to increase monitoring and compliance and increase the percentage of one week's time dedicated to EIA follow-up in their jurisdictions.

There should be investment in Research and Development by both the private sector and government in the area of waste treatment and recycling technologies to facilitate the implementation of mitigation measures related to waste management. In addition, the government should provide complementary utilities and infrastructure such as increased supply and reliability of electricity and efficient and accessible sewerage systems, particularly in industrial parks.

Civil society organizations, particularly ENGOs, should build their scientific and technical capacity to conduct independent monitoring, environmental auditing, and evaluation to mine independent environmental information for vulnerable communities. Improved ENGOs' scientific and technical capacity will improve the effectiveness of their participation in EIA follow-up and act as 'watchdogs' over non-compliant developers and 'information providers' to vulnerable communities. Sensitization and information provision by the ENGOs to the vulnerable communities will promote third-party EIA follow-up in circumstances of lack of EIA follow-up by the regulator, the developer (first-

party EIA follow-up), and the regulator (second-party EIA follow-up).

To increase the motivation for EIA follow-up activities, particularly monitoring, environmental monitoring, audit, and management, the ED, NEMA should clearly spell out the duration for which an EIA approval certificate is valid and the period required for renewal. The renewal of the EIA approval certificate should be contingent on the facility's environmental performance, as revealed by the periodic monitoring and environmental audit reports. In addition, there should be sensitization of consumers of goods and services in the market about product labeling. This will drive the consumption of products and services of firms with good green profiles, likely encouraging industries to undertake EIA follow-up and establish EMSs.

In the face of growing deregulation, the regulator should refocus reliance on market-based and command-and-control approaches to enforce compliance with EIA approval conditions and environmental regulations since the latter is increasingly becoming unpopular. The regulator should also change the methods of enforcing compliance to more facilitating and mentoring sessions in their monitoring visits to industrial establishments. However, it is also important to strengthen the penalties for non-compliance and generally make compliance benefits higher than the cost of compliance. This will increase the motivation for compliance with EIA approval conditions and the incentive to undertake EIA follow-up in general.

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Disclosure of Interest Statement

The authors report that there are no competing interests to declare.

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