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Exploring Community of Practice in Uganda's Public Sector: Environmental Impact Assessment Case Study

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Abstract: The utilisation of typological concepts of participation-based research on the community of practice (CoP) examines Uganda's public sector in relation to environmental impact assessment (EIA) of national projects. The re-assessment of participatory knowledge is analysed and incorporated into EIA project planning, design and implementation. A case study within the five divisions of the Kampala District used 250 semi-structured and open-ended survey questionnaires and 20 key informants by way of piecewise random sampling. The findings suggest that the majority of respondents were non-informed, on components of CoP, within the selected EIA projects. The CoP revealed concerns regarding Uganda's security and corruption which intertwined on how the CoP was conducted. We provide original data on the CoP in relation to EIA projects with the intention of facilitating public sector entities a suitable level of knowledge in aiding affected communities.

Keywords: community of practice; stakeholder participation; environmental impact assessment; Uganda

1. Introduction

Knowledge management in the public sector has the potential to influence and deliver services for a wide range of community provisions. Environmental impact assessment (EIA) systems are recognised as anticipatory and participatory planning tools for proactive environmental decision making on proposed development projects, programmes and policy. The combinative usage of these concepts can adversely or beneficially affect the environment and community through systematic evaluation of biophysical, economic and social impacts [1,2]. On a global scale, EIA practices, especially in many developing countries, have undoubtedly failed to reflect these concepts due to perpetual, bedevilled and perennial problems largely related to context specific-attributes, including: political systems, socioeconomics, weak institutional linkages, capacity and perception of key stakeholders, level of stakeholder participation and negative perception of developers [1,3]. This paper analyses the implementation of EIA within Uganda's public sector and is part of a greater three country assessment within Africa (i.e., Uganda, Nigeria and South Africa). Specifically, within Uganda's public sector, EIA is somewhat in a stage of infancy, which reflects largely upon the underprivileged, with an absence of participation from stakeholders. EIA in Uganda occurs in many cases too late to leverage its obvious and substantial benefits in terms of the relevant information stakeholders contribute, including value, impact and alternative options [4].

Enacted in 1970, the US National Environmental Policy Act established the first EIA procedure, which emphasised two major purposes for completing a review: (1) to make better-informed decisions; and (2) to involve potentially affected parties, or stakeholders [5]. Experience from project-based EIA demonstrates that an effective review depends on complete and rigorous stakeholder participation [6,7]. Stakeholder participation simply seeks a timely injection of environmental considerations into decision making by including a wide base of opinions that guarantees acceptability through change in attitude and behaviour. EIA closely resembles a precautionary approach critical to both development and conservation efforts. Through its emphasis on stakeholder participation, it is, moreover, a means to inclusive environmental decision making that promotes environmental awareness and instils public trust in the overall EIA procedure. The EIA procedure in Uganda is operational by virtue of the National Environment Action Plan (NEAP) and has legal authority through the National Environment Act (NEA) Cap. 153 of 1995, National Environment Management Authority (NEMA) and the Environment Impact Assessment Regulations of 1998 [8,9], which stipulate that developers are to seek and consider all relevant measures of the views and ideas of the people in the communities affected by any proposed projects, to understand community perceptions regarding such projects, and to resolve conflicts and arrive at consensus before proceeding with programme or project development [10]. Utilising Ugandan statutory law and its constitution, there are recognised legal frameworks and opportunities for potentially affected parties to participate in the EIA procedure and, more specifically to this study, within public sector channels. Vast challenges in trying to implement and take full advantage of such opportunities, which often are ignored, have resulted in the poor implementation of EIA processes and a reciprocal lack of knowledge management tools and techniques within Uganda's public sector.

2. Stakeholder Participation: Establishing a Premise

Stakeholder participation in the EIA procedure is defined in a number of ways by different studies. We utilise Atlee's definition of stakeholder participation as an interactive process that promotes communication, consultation, participation of and partnership with relevant stakeholders to establish and deliberate on areas of agreement and disagreement with the overall objective of informed decision making [11]. This corresponds largely with the three basic pillars of public participation stipulated in the Aarhus Convention of 1998, which stresses access to information, public participation in decision making and access to environmental justice [5,12]. Respectively, the importance attached to stakeholder participation in the EIA procedure has been oftentimes repeatedly emphasised in scientific literature [2,5]. This reflects EIA as a means to a goal. Ultimately, stakeholder participation in EIA, regarding proposed programmes and projects, primarily facilitates the understanding of stakeholder perception, conflict resolution, consensus-contributions, mediation and quality environmental control. By bringing all stakeholders on board, clear concession and planning should produce sincere intention and purpose-of-thought development [13]. However, the aspects of collaboration and empowerment are not highlighted in this definition, and we address our participation-based research with a low level of empowerment [14].

Stakeholder participation in the EIA procedure is encouraged by several levels of Uganda's national legislative statutes (i.e., NEAP, NEA and NEMA) and often regulated by a number of public sector entities [8,9]. In principle, this signals that stakeholder participation is a political agenda and serves as a spring board for EIA implementation which, in practice, is scarcely applied. This lack of practical applicability is one main reason why its purpose is not fully achieved and, in some regards, misunderstood [6,15]. The scope and background of this limitation is manifold. First, present approaches to participation [13] are mostly deficient and ineffective in their application, and are often characterised by specific objectives and socio-political contexts [16]. Second, the focus on stakeholder participation processes and project accessibility often suppresses the overall outcome. Third, the top-down form of decision-making processes are often dominated by governance and low-level environmental awareness, especially in the more poverty-stricken areas [17].

Fourth, the negative perception of EIA proponents toward stakeholder participation and project technicalities is often looked upon as a daunting task [11,18]—largely due to the aforementioned reasons and as outlined by Kakonge [19]. Contrary to these expectations, in reality, existing processes and legislation tend to discourage meaningful stakeholder participation, encourage conflict and foster distrust [20]. These circumstances are often not context-specific and include unfavourable timeframes for stakeholders to respond to, considering that EIA comprises of complex technical and scientific concerns. In addition, equity may induce stakeholder interest, as well as encourage local priorities rarely brought to the table. At the community level, this structural process encompasses early and meaningful stakeholder participation, but eliminates invaluable indigenous knowledge and contributions from the final decision. This process-oriented approach to stakeholder participation essentially urges an EIA conclusion by alienating relevant stakeholders [20], and as a consequence, the need for a shift from a process-oriented to an outcome-oriented approach entails legislative backing that underpin the desired outcome as directly as possible.

Outcome-Oriented Approach: Public Sector Platform

First, we aim to examine how communities, around participation in EIA in conjunction with public sector processes, can in concrete cases develop programmes and projects that are subjected to EIA. This is done using the community of practice (CoP) framework which highlights shared knowledge, joint values, converging interests and shared identities related to the development projects in question [21]. Second, we propose a framework for enhancing participation by qualifying the EIA outcome in relation to the public sector processes using insights from the CoP framework. To contribute to this research gap, in line with the arguments of Johnston [22], Mathur et al. [23], Doelle and Sinclair [24] and many other studies [25,26], this paper seeks to propose an outcome-oriented approach to stakeholder participation in EIA by enabling concepts that facilitate a fundamental change in the participation of stakeholders in Uganda and, to a lesser extent, within a Pan-African context. Within Uganda's public sector, its entities are challenged; due to this fact, no quick or easy fix to improving public involvement in EIA can be achieved due to high rates of illiteracy and poverty in rural communities. We propose the concept of CoP as the basis for an approach to facilitate the involvement of the public and its stakeholders in project-based EIA. Through the progressive stages of O'Faircheallaigh's [27] ladder of participation (O'Faircheallaigh's [27] ladder of participation represents a less ambitious version of Arnstein's classic and empowerment-based ladder of participation, which, after information, consultation and involvement, additional work with collaboration and empowerment is appended) (i.e., information dissemination, consultation and participation), public sector entities focusing on knowledge management tools and techniques in project development, infrastructure and traditional government systems point toward novel delivery and transformation of Uganda's core operations. The latter stage, participation, largely reflects the basis of CoP theory by encouraging members of the affected communities, proponents of the EIA procedure and public sector consultants and regulators to formally or informally interact, deliberate and learn whether a proposed programme or project could in any way contribute (e.g., toward sustainable development planning), and if so, how to leverage it. This line of thinking is an ambitious participatory notion, particularly before a project design phase, since in most development-based projects, key decisions are often made before the EIA. Hence, CoP provides a platform for public sector developers, proponents and regulators to actively engage stakeholders for best practices and knowledge management.

In order to foster public input into decisions taken elsewhere, a central purpose of stakeholder participation, public sector entities should focus on policy learning as a general aim when accepting criteria that identify opportunities and strategies that can substantially benefit an overall EIA [27,28]. That is, with the aim of prompting a variety of public sector platforms for diverse actors relevant for knowledge sharing, management and decision making, and to expand the participatory dimension in Uganda. The CoP and its related concepts are discussed in a novel manner, by examining public participation in EIA processes using an investigative case study by-way-of Uganda's public

sector—a challenging situation that shadows many places throughout the developing world. Specifically, our case study is structured to better understand the present status quo of public participation in EIA within the Kampala District of Uganda, and to better understand the context in which our proposed CoP can promote participation. A discussion of the CoP framework vis-a-vis these results highlights how stakeholder participation can be envisioned for Uganda and beyond. Emphasis is on the pre-EIA stages, including agenda setting, initiation and project formulation and ground preparatory measures (i.e., screening, scoping and identification of alternative options).

3. Community of Practice: Theoretical Framework

According to Lave and Wenger [29], a CoP consists of a group of people who share a common concern, a set of problems or a passion about a subject matter, who want to deepen their knowledge and expertise by interacting and mixing expert and lay knowledge on an ongoing basis. CoPs have a strong potential to emerge within project-based EIA activities when a common purpose or problem exists (e.g., the impact of proposed development projects for onsite communities). Against this backdrop, we present the CoP as a novel approach to establishing a socially-inclusive project, based on activities, analyses and three fundamental concepts: domain (i.e., common interest), community (i.e., relationships through consultation and participation) and shared practice (i.e., generally accepted consensus) relevant for the structure of social action and relations [22,30]. CoP theory is founded within a social context where relationships advance through vigorous and dynamic interactions based on information dissemination, consultation and participation. Public and stakeholder participation is seen from the perspective of an opportunity for a social process where diverse participants (e.g., government authorities; public sector proponents, consultants and regulators; NGOs and the public) seek a common and unique forum, learn about each other's values and interests and create a real relationship through shared communities, joint problem solving and shared vision and objectives which reflect consensus on final environmental decision making [5,22]. This perspective promotes intake of indigenous and local community knowledge regarding culture, core values and interest and the environment, through robust consultation and participation in project-based EIA processes [5]. The CoP perspective, moreover, suggests an innovative approach to participation which links perspectives of management, ethics and social learning, to bring a greater measure of sustainability assurance to public sector development and sound decision making [22,31]. In terms of theory, our intention is to apply CoP by enriching its employability and theoretical framework.

A COP application can provide a platform for project-based EIA, similar to an arena where different stakeholders possess different values and examine values of proposed programmes or projects in diverse ways [23]. In order to identify and reconcile the wide range of conflicting needs and expectations, public sector entities that utilise stakeholder input better serve their constituency. The central idea is to frame participation of stakeholders in terms of CoP, wherein communication, learning and action are not just linked, but co-evolve during the process of EIA. This kind of community input offers the opportunity for public sector practitioners and stakeholders to share in each other's interests and values, where trust and knowledge are leveraged to resolve conflicting interests. Such community processes allow for different values and interests to blossom, which underscores what Lave and Wenger [29] called CoP mutual learning for members. CoP helps to develop stable and long-term relationships based on formal and informal communication, and uses a platform for accommodating and managing diverse perspectives, as well as conflict when it occurs, thus reflecting solid collaboration. It also facilitates consultation where diverse stakeholders are equally informed and are able to present their own opinions and hear the opinions of others in project-based EIA activities, including enhanced learning [32]; EIA proponents recognising the views of stakeholders and others as being legitimate [33]; and shared values and needs [23] that are essential criteria for meaningful stakeholder participation.

Joint Practices and Shared Identity Building

The ‘domain’ serves as the shared pool of knowledge and information for community members when activities are put forth, developed or carried out [34]. It is these activities that link and add to the domain by helping members identify with CoP programme or project collaboration. During participation in such activities, members of the CoP derive purpose and establish values by developing and promoting a shared pool of knowledge, and by building their identities. Moreover, the domain encourages members to contribute to the dynamic development of the community, through activities that not only give meaning to their actions, but emphasise and reflect their commitment to the domain [35,36]. Thus far, the knowledge pool is contextual and involves interdisciplinary and trans-disciplinary spheres in which participants are expected to define the objectives, tasks and undertakings based upon communal and mutual accountability.

A specific CoP formation will define particular cohesive interactions among members. Communities operate within a social system where healthy relationships are defined and fine-tuned with the interactions [37]. Frequently, these communities are based upon mutual interaction of members within a social space in which activities carried out help to define and deepen collaboration, serve as reference for members’ identities (e.g., professional), and develop the necessary mutual atmosphere of trust. These community activities are largely influenced by quality interactions and relationships that, in the view of several studies [30,36], define interpersonal trust and interconnectedness between members and disseminated information as the frequency of interactions. These activities enable community members to utilise the potential of their community inputs by being able to ascertain the respective competencies and abilities that contribute to developing the domain in full. Notably, a CoP never exists in a vacuum. Multiple relationships and a jointly-negotiated domain are needed for a CoP to be meaningful and structured, as well as for the development of a common framework of interpretation.

The notion of ‘shared practice’ refers to the manner in which a defined common procedure is conducted, as well as the way know-how is advanced—jointly between stakeholders and community affairs [38]. Overtime, the notion of common practice, shared among members, enfolds the physical demonstration of experience and expertise in a reified manner to produce contextual knowledge [35]. Hence, common practice often develops as specific knowledge matures via the interaction of competence and experience which is maintained and shared, mutually, over a period of time [12,39]. For example, a CoP may develop norms in the form of codified procedures, language, well-defined roles, specified criteria, tools, actions and documents. From our perspective, these not only interlace with shared and accepted knowledge (i.e., practice), but also reflect the defined rapport public sector entities can utilise when assaying existing relationships between members. In this way, the utility of CoP grows out of members’ common interest and concern, and develop relationships that interlink core values, interest and objectives—or reifications—through common consensus.

4. Methodology

The concept of the CoP is utilised to demonstrate how the actual CoP framework can succeed, theoretically, in facilitating active participation of public sector regulators, proponents, members of affected communities and NGOs alike, and to what degree or extent participation can be realised. The methodology is broken down into two parts. First, stratification is identified within geographic terms, in which the five divisions of the Kampala District were surveyed, that is, Nakawa, Makindye, Rubaga, Kampala Central and Kawempe (Figure 1). Data was collected in relation to the CoP and the emerging activities within our EIA case study. Survey questionnaires were implemented using a semi-structured and open-ended method; the datasets were collated into a data-encoded questionnaire for data analysis and statistical compilation (Table 1). Questionnaires were administered to 250 local community representatives (i.e., households) within the five divisions of the district (i.e., 50 participants from each of the five divisions) using a piecewise random sampling technique. Sampling identified households, including community leaders, on a voluntary basis. It was conducted

in relation to a developed or proposed programme, or within a 1 to 4 km radius of a project site. Within each division, a list of household representatives was cross-referenced with the head of each local community and participants were selected based upon responsibility and experience with government agencies and higher institutions of learning. Questionnaires were administered to participants by researchers who assisted, in order to include persons with limited literacy skills. The survey questionnaires were conducted between 9 January 2017 and 31 March 2017 (Figure 2). The ideal sample size of 267 was estimated using the following variables and formulation: District population size of 1.5 million inhabitants, standard deviation (StdDev) of 0.5, margin of error of $\pm 6\%$ and confidence level 95%.

$$\text{Target sample size} = (Z\text{-score})^2 \times \text{StdDev} \times (1 - \text{StdDev}) / (\text{margin of error})^2$$

The target sample size was reduced to 250 to be equally comparable among the five divisions of the district.

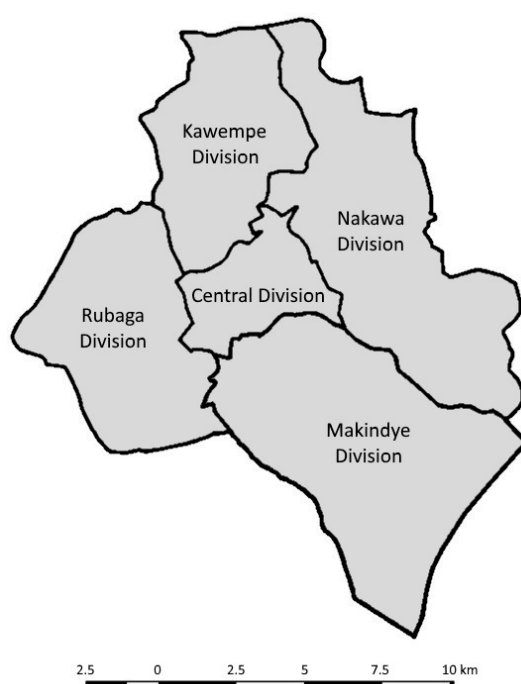


Figure 1. Map of the five divisions of the Kampala District in Uganda.

Second, interviews were conducted in a face-to-face qualitative-oriented manner with 20 key informants who all practice EIA and engage in environmental consultancy [40]. Four were chosen from each of the five divisions in order to corroborate and provide information on issues or developments—including the initial community survey—within the district. These structured interviews were conducted in a systematic manner and served as a guide for developing a more in-depth viewpoint of the district's public sector options and community attitude. Moreover, the questionnaires were pre-tested through three pilot surveys at Kampala International University, Kansanga and Makindye divisions for two weeks at the beginning of the survey period. The pilot surveys helped identify and address problems with the questionnaire, interviewers and interviewees' understanding of the issues being addressed. In addition to datasets, secondary information was collected from academic literature (i.e., scientific journals, textbooks and other related publications); however, a lack of relevant documentation on EIA implementation in Uganda meant we had to rely heavily on feedback and fieldwork.

Table 1. Data encoded survey questionnaire.

Background	Q. 1	Gender	0 = Male	1 = Female			
	2	Education	0 = Primary	1 = Secondary	2 = Tertiary	3 = None	
	3	Age	0 = 18–25	1 = 26–35	2 = 36–45	3 = 46+	
	4	Location/Division	0 = Nakawa	1 = Makindye	2 = Rubaga	3 = Kampala Central	4 = Kawempe
	5	Occupation	0 = Employed	1 = Unemployed	2 = Peasant	3 = Other	
Project Information	6	Was there a developmental project in your community recently?	0 = No	1 = Yes			
	6.2	Also, was the public consulted or involved in the environmental impact assess process for the project(s)?	0 = No	1 = Yes			
	6.3	At what stage were the public involved?	0 = During the planning and design	1 = Implementation and/or conception stage of the project cycle			
	7	What are the issues, problems and challenges faced as a result of the new projects in your local community?	0 = Air pollution	1 = Water pollution	2 = Land pollution	3 = Socioeconomic	4 = Other
	8	Have the developers assisted affected communities in any way?	0 = No	1 = Yes			
	9	Have you been consulted or involved individually in a community-oriented environment impact assessment?	0 = No	1 = Yes			
	9.1	If YES, at what stage of the process did this occur?	0 = No	1 = Yes			
	10	That you are aware of, what methods have developers used in local community consultation or participation?	0 = Focus group discussion	1 = Formal Consultation organised by NEMA	2 = Community contact or through community heads	3 = Other	
	11	What are the key issues, problems and challenges hindering local community consultation or participation during the design and implementation stages in an environmental impact assessment process?	0 = Lack of communication between government and local people	1 = Lack of transparency	2 = Other		
	12	Do local communities see themselves as stakeholders in developmental projects during the consultation process?	0 = No	1 = Yes			
	13	Are their incentives for local communities to participate in the environmental impact assessment process?	0 = No	1 = Yes			
	14	What is your perception of the attitude of your local community toward developmental projects and environmental impact assessment processes?	0 = Negative perception	1 = Positive perception			
	15	As a community leader/consultant/regulator, you clearly have a central role in the decision-making process, especially, as regards the new development project for the local community. Can you describe your involvement in EIA processes?	0 = Not involved	1 = Low level involvement	2 = Medium level involvement	3 = High level involvement	

Note: Q = Question number.

QUESTIONNAIRE

KAMPALA INTERNATIONAL UNIVERSITY
BIOLOGICAL AND ENVIRONMENTAL SCIENCE DEPARTMENT
BOX 20000, SIGABA ROAD, KANSANGA, KAMPALA

This questionnaire is designed for the assessment of public participation in environmental impact assessment procedures in the Kampala District of Uganda and is strictly research oriented. The information will be used only for research purposes.

Background Information

1. Gender Male ☐ Female ☐

2. Education Primary ☐ Secondary ☐ Tertiary ☐ None ☐

3. Age 18-25 ☐ 26-35 ☐ 36-45 ☐ 46+ ☐

4. Location/Division Nakawa ☐ Makindye ☐ Rubaga ☐ Kampala Central ☐ Kawempe ☐

5. Occupation Employed ☐ Unemployed ☐ Peasant ☐ Other (Specify)

A. Project Information

6. Was there a developmental project in your community recently? YES ☐ NO ☐

6.1 If YES, please kindly mention the project(s)

6.2 Also, was the public consulted or involved in the environmental impact assess process for the project(s)? YES ☐ NO ☐

If YES, please kindly explain:

6.3 At what stage were the public involved?
During the planning and design ☐ Implementation and/or conception stage of the project cycle ☐

7. What are the issues, problems and challenges faced as a result of the new projects in your local community?
Air pollution ☐ Water pollution ☐ Land pollution ☐ Socioeconomic ☐ Others (Specify)

8. Have the developers assisted affected communities in any way? YES ☐ NO ☐

8.1 If YES, please explain how:

9. Have you been consulted or involved individually in a community-oriented environment impact assessment? YES ☐ NO ☐

9.1 If YES, at what stage of the process did this occur?
During the planning and design ☐ Implementation and/or conception stage of the project cycle ☐

10. That you are aware of, what methods have developers used in local community consultation or participation?
☐ Focus group discussion ☐ Community contact or through community heads
☐ Formal Consultation organised by NEMA ☐ Others (Specify)

11. What are the key issues, problems and challenges hindering local community consultation or participation during the design and implementation stages in an environmental impact assessment process?
☐ Lack of communication between government and local people
☐ Lack of transparency
☐ Others (Specify)

12. Do local communities see themselves as stakeholders in developmental projects during the consultation process? YES ☐ NO ☐

13. Are their incentives for local communities to participate in the environmental impact assessment process? YES ☐ NO ☐

13.1 If YES, please what were they:

14. What is your perception of the attitude of your local community toward developmental projects and environmental impact assessment processes?

15. As a community leader/consultant/regulator, you clearly have a central role in the decision-making process, especially, as regards the new development project for the local community. Can you describe your involvement in EIA processes?

Thank you very much!

Figure 2. Sample CoP questionnaire for EIA processes.

The two datasets are presented separately to give a broad picture of CoP within the district. First, the questionnaires are primarily illustrated with tables and percentiles (i.e., quantitative data) while the key informants' interviews are interpreted commentary (i.e., qualitative data). The results and analysis then explore CoP usage and its utility to public sector entities and their participation in EIA.

5. Results and Analysis

Our objective included the collection of germane information on present EIA practices within the five divisions of the Kampala District in Uganda. Within the district, a number of public sector entities drew upon inputs from the compiled questionnaires, face-to-face interviews and scientific literature; this allowed them to apply a detailed application of our proposed CoP concepts, usage and feasibility. Altogether, the community questionnaire targeted 250 respondents throughout the district (i.e., 50 within each of the five divisions), made up of 62.4% male and 37.6% female. The majority of the respondents were between the ages of 36 and 45 with tertiary education (74.0%), while the rest had at least secondary schooling (26.0%). Most respondents were employed (72.0%), while unemployed (4.8%), peasantry (21.6%) and other (1.6%) form of occupation made up the rest (Table 2).

Table 2. Total percentage (%) of respondents to the administered survey questionnaires.

		Nakawa	Makindye	Rubaga	Kampala Central	Kawempe	Total
Gender	Male	62	76	54	56	64	62.4
	Female	38	24	46	44	36	37.6
Education	Primary	0	0	0	0	0	0.0
	Secondary	30	24	38	18	20	26.0
	Tertiary	70	76	62	82	80	74.0
	None	0	0	0	0	0	0.0
Age	18–25	12	16	14	18	14	14.8
	26–35	30	34	30	20	24	27.6
	36–45	34	30	48	36	42	38.0
	46+	24	20	8	26	20	19.6
Occupation	Employed	78	62	66	82	72	72.0
	Unemployed	8	4	4	6	2	4.8
	Peasant	12	34	28	10	24	21.6
	Other	2	0	2	2	2	1.6

The role of the CoP in project-based EIA is examined using the conceptual categories of the CoP framework (i.e., the utilisation of domain, community and shared practice), in the analysis of datasets from the survey questionnaires and key informants. The analysis presented a formal review of the EIA procedure and its use in conjunction with a CoP application. The respondents affirmed there were a variety of proposed programmes and projects in their communities lacking community consultation. The majority of programmes included initiatives organised by local and national government agencies, explicit to public sector entities of education, health, water and sanitation, transportation, agriculture and legislative roles (i.e., political leadership, electoral monitoring and committees of councils). The EIA-based projects itemised for development came from those already initiated, communally-oriented and NGO-funded. The four key project groupings included: petrol or fuel station development; construction of roads; construction of tall buildings, stores, residential areas and markets; and chemical industrial development. On whether the public were consulted on a component of CoP, the majority of respondents had knowledge of the 207 selected programmes and projects planned throughout the district; however, only 71 respondents (i.e., 28.4%) lay claim to affirmative CoP networking (Table 3).

A detailed breakdown on the question of public consultation reveals a whopping 71.6% of the public to be non-informed (Figure 3). This is critical to better understanding aspects of the public sector entities and pitfall-relationship with CoP within an EIA process. It is evident the construction of tall buildings, stores, residential areas and markets are of greatest concern—most likely due to their immediate impact on community life and livelihood.

Of these 71 respondents, it was also found that only 16 respondents (i.e., 6.4%) affirmed that the public were consulted during the planning and design stages. The respondents highlighted that consultation or participation during most of the planning and design stages took place through community contact via community heads and focus group discussions, which were spearheaded by NEMA's public sector consultants and representatives. While the other 55 respondents (i.e., 93.6%) lay claim that the public were consulted informally at the implementation stage of the project. The respondents and key informants stressed the challenges of limited local community consultation and participation during design and implementation stages in the EIA procedure. In particular, the questionnaires, in corroboration with the key informants, revealed essential difficulties, including: lack of communication between government and local people, lack of sensitisation of the public on stakeholder involvement or participation in project development of their communities, lack of transparency by developers, lack of public information about programmes and projects, lack of trust on the role of public institutions in project development and lack of understanding of the concepts of EIA by the public. These challenges elucidate key concerns the public sector entities within the district are faced with.

Table 3. A division breakdown of informed respondents to the four development projects (Note: EIA projects = knowledge of EIA projects; Consulted = public was consulted or informed of EIA process).

Project Developments	Nakawa		Makindye		Rubaga		Kampala Central		Kawempe		Total	
	EIA Projects	Consulted	EIA Projects	Consulted	EIA Projects	Consulted	EIA Projects	Consulted	EIA Projects	Consulted	EIA Projects	Consulted
Petrol or fuel station development	8	4	8	6	3	2	9	4	4	2	32	18
Construction of roads	7	3	10	2	10	4	7	2	8	3	42	14
Construction of tall buildings, stores, residential areas and markets	18	3	16	5	19	7	24	9	20	2	97	26
Chemical industrial development	8	3	4	1	9	4	7	2	8	3	36	13
District Sub Totals	41	13	38	14	41	17	47	17	40	10	207	71

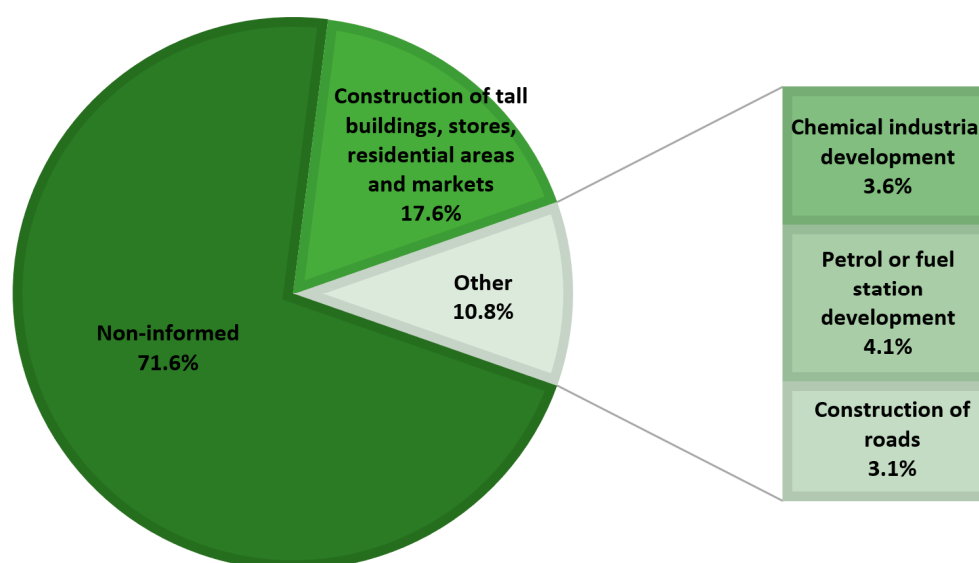


Figure 3. Percentage of the informed public on a component of CoP, within the Kampala District, regarding the EIA project groupings.

In addition, the questionnaire addressed environmental issues that local communities experienced as problematic, linking particular projects within each division, and offering an overall portrayal from the citizenry to public sector entities. The respondents stressed issues, problems and challenges that the public and communities face as a result of the implementation of the EIA projects (Table 4).

Table 4. A division percentage (%) breakdown of informed respondents to pollution and challenges for the aforementioned EIA projects.

	Air Pollution	Water Pollution	Soil Pollution	Socioeconomics
Nakawa	58	54	90	94
Makindye	48	54	28	62
Rubaga	36	46	22	64
Kampala Central	14	40	30	60
Kawempe	12	22	18	50
Total Respondents	33.6	43.2	37.6	66.0

Issues concerning air (33.6%), water (43.2%) and soil pollution (37.6%), as well as implications relating to socioeconomics problems (66.0%), form a foundation of issues and challenges for the aforementioned EIA projects. On top of these concerns, security threats continue to play a vital role in Ugandan society and introduce another facet to EIA development, planning and practice. The research indicates that the majority of key informants affirmed that public and stakeholder participation in the EIA procedure is a process that bonds them together. This fact relates to an overwhelming concern and need for local communities to consult stakeholders on current and future programmes and projects, and to demonstrate incentives to participate in the overall EIA process. In conjunction with the qualitative data gathered from the interviews with the key informants, the extrapolation of data from Table 5 supports our arguments within the following two sub-sections. (1) opportunities to enhance participation and its outcome and (2) strengthening processes and participation of local stakeholders.

Table 5. A division percentage (%) breakdown of project information responses from the questionnaire.

Question	Response	Nakawa	Makindye	Rubaga	Kampala Central	Kawempe	Total (%)
Developers assist affected communities	Yes	40	38	26	34	28	33.2
	No	60	62	74	66	72	66.8
Individual community-oriented EIA involvement	(Planning and design) Yes	12	18	24	26	22	20.4
	(Implementation) Yes	10	8	6	18	14	11.2
	No	78	74	70	56	64	68.4
All methods developers use in local CoP	Focus group discussion	37.2	30.2	25.7	34.7	34.0	32.4
	NEMA organised	32.6	28.1	37.6	25.6	31.1	31.0
	Community heads	22.1	29.2	31.7	31.2	31.1	29.1
	Other	8.1	12.5	5.0	8.5	3.8	7.6
All key issues and problems of CoP during EIA process	Lack of communication	43.6	43.4	40.5	42.0	43.1	42.5
	Lack of transparency	41.8	36.8	38.8	36.6	41.4	39.1
	Other	14.6	19.8	20.7	21.4	15.5	18.4
Community stakeholders in development projects	Yes	26	30	20	22	30	25.6
	No	74	70	80	78	70	74.4
Community incentives for CoP in EIA process	Yes	34	36	44	34	32	36.0
	No	66	64	56	66	68	64.0

5.1. Opportunities to Enhance Participation and Its Outcome

The opportunities learnt by using the CoP approach to design and qualify participatory processes of an EIA builds a strong potential for the emergence and maintenance of EIA project-based activities. This is especially the case when the aim of EIA activities addresses existing common interests, related to developing projects, within the context of decision making and improved environmental quality and standards. For example, in our case study, it was found that CoP tends to emerge when there is active dialogue between public sector proponents, consultants and regulators, as they prepare guidelines and criteria for screening, scoping and alternative identification. In particular, in practice, our findings indicate that when members of a local community are provided a platform for engagement on equal footing with development project professionals, open shared values converge toward cooperation. This is, however, still in an early testing stage, according to our data, which found that shared values and interests converge when parties, public sector entities and community stakeholders participate in initial forecasting. For example, a water pollution remediation project in the Kawempe Division found that local community values largely reflected the priorities of public sector representatives when it came to project type and location. More significantly, the findings interconnected respondent experience to shared knowledge of the emerging CoP—providing information about indigenous and, often, tacit, expertise. The key informants were demonstrated to have an assortment of local know-how (i.e., knowledge of local environmentalism, cultural history and traditional practice and norms), which added to the shared learning of projects. This added knowledge, however, is unclear in terms of whether or not it can be regularly implemented, since a number of societal concerns stem from these interactions and relations. According to O’Faircheallaigh [27], such interactions and relations are set around information and action that evolves into core CoP activities. These emerging CoP activities involve both actors from affected communities as well as public sector regulators and EIA proponents as vital members of the community in question. EIA proponents and consultants may, for example, experience problems beyond their competences, which could move them to interact with local community members in developing design and planning—often demanded or required by a proposed project [5].

Moreover, we found evidence of problems with socioeconomic projects in which limitations of competencies was less significant in comparison to a number of different kinds of pollution (e.g., air pollution from the building of chemical factories within the Nakawa Division and Central Division). Equally, in the pursuit of solving a particular problem, public sector regulators and EIA proponents may engage in CoP, where they can deepen their knowledge and experience toward a particular proposed project. We found the exchange of local and professional knowledge was coupled with the development of shared values and a platform for mutual learning—rooted in local community norms and accepted among the local people. This has been verified, and supports the notion that affected indigenous people (e.g., community elders) view the world and their place in it quite differently, and are likely to provide alternative sources of indigenous knowledge or types of information within the context of understanding the same information differently [27,41].

5.2. Strengthening Processes and Participation of Local Stakeholders

We envision CoP within interaction groups—consisting of community residents and farmers, community spokespersons, representatives of affected communities, community organisation heads and facilitators from lead agencies (i.e., from public sector entities and project development)—when setting priorities for proposed projects, including obligations for stakeholder participation and project initiation. Periodic and regular interaction will help strengthen initial proposals and contemporary project activities based on informal relationships anchored on trust. Informal or formal relationships establish the brick for unique participation that guarantees adequate information sharing and involves affected communities at an early stage of the EIA procedure [27,42]. Moreover, such relationships ensure access to local community knowledge, broadening the considered range of solutions, act as an individual vehicle for affected community empowerment and social learning [33]. Through social learning and sharing affected communities can offer a pool of knowledge

and networking that corresponds to a socially acceptable alternative—via the identification of problems or measures to optimise management.

We suggest that CoP can enhance the first three stages of stakeholder involvement (i.e., information dissemination, consultation and stakeholder participation) of the EIA procedure. The central concept of CoP will enhance the quality of performed EIA, mostly, due to large demands for robust dialogue between public sector regulators, project developers and the affected community. Defining thresholds and criteria checklists for project design and implementation are key to providing a viable service to the community at large. In addition, the CoP framework can qualify considered inputs from local community members and assess the following: rural and urban conditions, relationships and local initiatives, as well as the involvement in multi-disciplinary expertise (i.e., from environmentalists, ecologists, legal practitioners, members of the local environmental committee, community development specialists, politicians and community heads and delegates who understand the local language and culture). In CoP, multi-disciplinary participants can enhance formal and informal interaction, as well as participation in EIA and boost social learning for innovation and creation of consensus criteria for sound decision making.

6. Conclusions

There is an ever-increasing need for alternative mechanisms to achieve the substantial benefits of public sector and stakeholder participation, which is often regarded as a *sine qua non* for effective project-based EIA. Ideally, stakeholder participation would include a wide range of opinions that guaranteed acceptability through changes in attitude, behaviour and informed decision making. However, in much of the developing world operational project-based EIA processes have undoubtedly failed to reflect this, thereby resulting in decisions that further highlight the failure of EIA processes and endanger potentially affected communities. Within the context of Uganda, we explored stakeholder participation in project-based EIA processes within the Kampala District, utilising a survey and key informants. The research posited stakeholder participation as a socially-constructed relational practice that leveraged on the exchange of knowledge through mutual trust. We proposed a typology of participation based on the CoP approach, which informs how participation of stakeholders in project-based EIA can be strengthened by the very concepts that govern CoP. Research implications underpin activities by way of a social and relational context by focusing on stakeholder activities and knowledge-based models. We examined how communities, in theory, could operate using a CoP within an EIA procedure. It is shown that the CoP framework highlights shared knowledge, joint values, converging interests and shared identities relating to proposed programmes or projects. This is supported by survey data that stresses a real lack of participation in local EIA processes and that, reciprocally, is lacking in Uganda's legal framework for recognition and development for qualifying nationwide projects.

The concepts governing the CoP framework are organised by gathering participatory information for analysis and incorporation into project planning, design and implementation. We categorised CoP into four parts: (1) shared knowledge and information; (2) a platform for developing shared interests and values; (3) joint learning and (4) shared identities. Where vital views and ideas are collectively shared, the identification of effective and socially accepted strategies mitigates the prospect of significant impacts and identifies opportunities for alternative options. In effect, this can be a source of creativity and innovation for stakeholders to identify projects that merit the EIA procedure, while determining the significance of identified impacts in relation to proposed projects. The striking feature here is that the participation of stakeholders in the CoP is based upon the actual interaction that refers to both relationships and mutual trust, built and sustained, for EIA processes through active consultation, information dissemination and participation with the aim of resolving conflicting views and achieve a generally accepted consensus. This reflects a socially inclusive form of decision making that is founded on the basis of engaging affected community members in proposed projects in order to better inform decisions and social outcomes [22]. We envision stakeholder participation in

project-based EIA between public sector regulators, developers, EIA proponents and members of the affected community.

With the aim of promoting a platform for the diverse actors, theoretically, public sector entities in Uganda could utilise this knowledge management tool to better serve their communities and public service. Social strengthening will create cohesion among stakeholders, but may break down due to concerns of security and corruption, which appear to intertwine in the way local CoP is established. Nonetheless, considering the substantial benefits of stakeholder participation in project-based EIA, it should be stressed that CoP can contribute to improving the quality and utilisation of environmental resources based on fair, community-oriented impact assessment of the environment, people, economics and issues and concerns of affected local communities. We suggest Uganda's public sector entities promote the usage of CoP for optimal EIA know-how and decision making, and envision an expansive participatory-based model nation- and Pan-African-wide.

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