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Barriers to building and fostering community resilience to the proposed Oil pipeline threats in the Albertine Region, Western Uganda

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Abstract

Development projects like roads, railways and oil pipelines cause various challenges to communities before, during and after full completion. Resilience studies have concentrated on the challenges communities face after full construction of these projects, and less attention has been given to the challenges communities face before and during project implementation. This study therefore examined the barriers communities are facing before the full implementation of the East African Crude Oil Pipeline (EACOP) in Kabaale and Kiziranfumbi sub-counties in Uganda East Africa.

The Social Ecological Systems (SES) framework was used to analyze how interlinked social, political, economic, and environmental components shape community resilience to the East African Crude Oil Pipeline (EACOP) in both sub-counties. A mixed-methods approach was used through the application of surveys, Focus Group Discussions (FGD), observations, and in-depth interviews to gather data from the Project Affected Persons (PAPs). The two sub-counties and the social groups engaged were purposively selected. Analysis revealed a significant association between the location of the respondent and their response to social barriers of women's rights violations ($\chi2 = 23.643$, $p < 0.001\chi2 = 23.643$, $p < 0.001$), exclusion from decision-making ($\chi2 = 8.711$, $p = 0.003\chi2 = 8.711$, $p = 0.003$), and land insecurity ($\chi2 = 7.809$, $p = 0.005\chi2 = 7.809$, $p = 0.005$). These were more pronounced in Kiziranfumbi than in Kabaale. Politically, delayed compensations ($\chi2 = 27.703$, $p < 0.001\chi2 = 27.703$, $p < 0.001$), greatly affected Kiziranfumbi PAPs. Economically, the absence of accessible markets ($\chi2 = 14.202$, $p < 0.001\chi2 = 14.202$, $p < 0.001$) hindered resilience.

Gender norms worsened vulnerabilities and caused a delay in compensation payments, hence undermining gender-based resilience which reduced adaptive capacity to the EACOP. This study recommends full compensation of PAPs before project implementation and consideration of gender-based aspects in ensuring adaptability to development projects to strengthen livelihoods and reduce the risk of impoverishment.

Introduction

The risks of stress, especially infrastructural development projects, affect regions and humanity differently. Globally, development projects associated with oil, gas and mining negatively impact PAPs with women being the most affected as far as the respect of their rights is concerned (Anja, 2024; Hill et al., 2021). Abuse of women’s rights is attributed to gender inequality which greatly leads to their vulnerability, (Imperiale & Vanclay, 2020; Li et al., 2026; Yan, 2025) and this affects the resilience of mostly women to development projects. It is thus imperative to consider the role played by both males and females in building and fostering resilience of any community. Gender inequality in building resilience is evident in the execution of women in decision making (Azad & Pritchard, 2023; Bridges et al., 2023; Clement, 2023; Imperiale & Vanclay, 2020). Imperiale & Vanclay, (2020) argues that inclusion of gender related issues in all areas of resilience programing and policing plays a big part in building resilience of any community.

Houston et al., (2015) and Obani, (2025) argue that there is increased risk to resilience if women's potential towards resilience is not considered in building resilience. Resilience therefore is a collective effort, especially in preparation for infrastructural development projects like the EACOP. This collective effort reduces the risk of food insecurity in the face of (Houston et al., 2015).

In Uganda, the EACOP is feared to disrupt families of PAPs as well as leading to other domestic challenges like sexual violence against women. During the compensation process, many agreements were signed and these favored the men over the women thus leaving the women vulnerable to the EACOP. In their study in the Albertine region, Ogwang & Vanclay, (2019, 2021) noted that female households could not be consulted about the compensation process without the role/ presence of other family and other relatives, an issue that brought with it insecurity and lack of privacy on their side. However, since women engage in farm/crop productivity within the project affected areas, their role towards resilience building cannot be ignored. The income they generate from crop growing is used to pay for the children's education, family health care, and to guarantee food security.

(Rosenbloom, 2018) argues that land use laws play a great part in fostering community resilience. In a low-developed country, poor implementation of land policies could hinder resilience. The system of land ownership in Uganda is still unclear especially within the rural communities. The documents that show ownership of land are informal and cannot be used in lawsuits. Agreement involving buying and selling land are usually between the land buyer and the seller. The local Council chairperson (LC1) acts as the government representative. This does not make them legal documents and are subject to manipulation. Sixty percent (60%) of land ownership is customary land tenure system in Uganda (Uganda National Land Use Policy, 2006, UNESCO, 2016). This system is also associated with bureaucratic steps making the compensation process inflexible and leading to delays thus affecting resilience to stresses (Amico & Maboudi, 2025, Leichenko et al., 2015) like the EACOP.

The bureaucracy involved in the compensation process affects planning by the PAPs, thus causing a challenge to people's livelihoods and resilience to the EACOP. In their study, (Ogwang & Vanclay, 2019, 2021) noted that the compensation plan was drawn by NEW PLAN (contractor) and approved by the government of Uganda valuer which process was long and tedious. This further stalled the compensation process for a period of over five years. Land in the neighboring communities had appreciated and the compensation was not enough to help the PAPs resettle in new areas (Lammers, 2020). The resilience of these communities was at risk to the EACOP.

Theoretical Focus

The interest of this study was about what exactly communities do to cope with all the stress related to the proposed construction and operation of the East African Pipeline. The Social-Ecological Systems (SES) framework guided this study. The relationship between the spatial aspects such as political, economic, social, and environmental components were studied within the two communities. The SES

framework helped to explain the link between these aspects and how they shaped resilience (Balali et al., 2026; Currie et al., 2026) of the PAAs within the study communities.

Three dimensions of governance, actor, and resource sub systems were the basis of the assessment of the resilience of the study communities (Currie et al., 2026; Folke, 2006; Liu et al., 2024). Kabaale and Kiziranfumbi communities portrayed an imbalance among the three subsystems whereby both communities had differences in access to the resources subsystem compared to the other sub systems.

The findings of this study therefore showed that the major barriers to resilience building were greatly associated with the resource subsystem, governance challenges, and the spatial distribution of the PAPs.

This study appreciated the role of long-term and short-term drivers of a resilient community. The relationship between the natural and human systems was broken down (Biggs et al., 2022) through this study.

The resources on which the two communities depended for their livelihoods like land, water and other natural resources guided the understanding of the likely vulnerability to shocks and stress in Kabaale and Kiziranfumbi communities. Other aspects of the SES framework, like social norms, livelihood aspects, land for the grazing of animals within the two communities etc., and their relationship to the vulnerability (Ghodsvali et al., 2022) to the EACOP likely disturbances, were assessed during this study.

Methodology

Research Design

The study relies on a pragmatic approach and employs mixed-methods research approach, generating actionable study results that will be specific to project affected communities and their leadership in the Albertine Graben on obstacles to community resilience. Following an inductive approach, the research examines socio-demographic/location factors with respect to resilience. A case study approach was used that involved two purposively selected sub-counties in EACOP; Kabaale (Hoima) and Kiziranfumbi (Kikuube) with key social, economic, political and environmental barriers to the pipeline investigated within each sub-county. A total of 164 PAPs were purposively selected since these were people that were along the proposed route of the EACOP. Stratified sampling was done to ensure proper representation of the direct impacts of the EACOP on the resilience of these communities. The criteria to include respondents in the study included the households that were considered to have been displaced by the EACOP, and the host communities of the displaced persons (Mutegeki et al., 2026). All the other areas that were not affected by the project were considered unimportant for the study.

Location of the study area

According to Ogwang & Vanclay, (2021), the EACOP will pass through ten districts in Uganda (Kikuube, Kyankwanzi, Mubende, Hoima, Sembabule, Kyotera, Lwengo, Kakumiro, Gomba and Mubende). This study divulged into the barriers to resilience to the project in Kikuube and Hoima Districts. These two districts are located in midwestern Uganda within the Albertine region. The selection of the two districts was purposeful because the compensation process was not fully completed and the physical construction of the EACOP had started by the time this study was carried out. The target sub counties were Kabaale in Hoima district and Kiziranfumbi in Kikuube district.

The communities that were directly and indirectly affected by the pipeline disturbances such as displacement and delayed compensation were the target study communities. Respondents of Eighteen (18) years and above were engaged because of their understanding of the community and the impacts the project has had on the community. The proposed route for the EACOP is shown in Fig. 1 below (Drawn using ArcMap program version 10.8).

Description of Variables

The study analyzed various social, political, economic, environmental, demographic and outcome variables of 164 project affected people in Kabaale and Kiziranfumbi. Social factors encompassed low-income, illiteracy, violations of women's rights, lack of participation in decision-making, lack of land security, and cultural norms (Alur gender hierarchy and property exclusion). Political and governance issues included slow compensation, ineffective land policies, and low government involvement. Economic problems were widespread: unemployment, lack of markets, increasing transport expenses and coping mechanisms like roadside sales. Some environmental and livelihood effects were the avoidance of crop production and health effects. Two sub-counties (Kabaale and Kiziranfumbi) were differentiated based on demographic/location variables while outcome measures included loan defaults, domestic conflict, uncertainty regarding compensation, and livelihood disruptions more broadly.

Participant and Case Selection

The EACOP is a linear venture. This study therefore engaged PAPs along its pathway within the two sub-counties, thus making it a purposive sampling strategy. Different social groups including men, women, children, the elderly and the youth were selected to represent the diversity of the study population. The participants of this study were PAPs on whose land the EACOP will pass as well as those that to be totally displaced to other areas.

At the beginning of this study, 502 respondents were the expected population size with a margin of error of 5% for a 95% confidence level of PAPs. A sample size of 223 respondents was produced using the Yamane sample size formula as explained below;

$$n = \frac{N}{1 + N \times (e)^2}$$

Where n is the minimum sample size of households, N is the population size, and e is the level of precision for the statistical inference (Kainyande, 2024).

However, it was impossible to gather data from all 223 respondents. This study achieved a 74% (164 respondents) target of the sample size because some of the targeted respondents had migrated to other districts. Some of the respondents were unwilling to participate in the study, mistaking the researchers as government agents (Aboda et al., 2023) or scammers. There were also cases of respondent unavailability during the data collection phase.

Data Collection Methods

Kobo toolbox software was used to collect quantitative data. The survey comprised of responses based on a five-point Likert scale that ranged from Strongly Agree to Strongly Disagree.

Structured questionnaires were used to collect primary data. These were administered on a face-to-face interaction with the PAPs. Brief qualitative probes complemented the structured questionnaires to capture information on the challenges that the two communities were facing as a result of the proposed construction of the EACOP. Focus Group Discussions and in-depth interviews were carried out to gather data on people's perceptions towards the barriers amongst the different social groups within the study communities. The in-depth interviews provided flexibility in understanding the emergent views (Boyce & Neale, 2006; Eppich et al., 2019; Mears, 2012) so as to establish the magnitude of the barriers to building and fostering community resilience in the two study communities. Focus Group Discussions were used to stimulate the experiences and collective perspectives (Chand, 2025; Souza et al., 2024) of the PAPs towards the EACOP. The composition of the groups was two women's groups, two men's groups and one consisting of the youth. The degree of the impact of the EACOP on the affected areas and households within the two communities was ascertained through observations along the pipeline pathway. In agreement with Monique et al., (2020); Mutegeki et al., (2026), observations helped to understand the living conditions of the PAPs within the two communities.

Data Analysis

The dataset was cleaned to remove the responses of the respondents who quit the interviews midway and those that avoided responding to some of the questions within the questionnaire. Descriptive statistics in SPSS were used to determine quantitative outcomes through extensive data evaluation. Narratives were developed from the qualitative data obtained from the FGDs, KII, and individual interviews. Key notes from these narratives were included to have a view of the barriers to building and fostering community resilience to the EACOP.

A chi-square test was used to test the association between the socio demographic characteristics (sex, marital status, age groups, occupation and education levels of the respondents) and the reported barriers to resilience. It was also used to assess the association between the barriers to building resilience and the respondents' location (Kabaale and Kiziranfumbi).

Results

Social Barriers limiting building and fostering resilience to the EACOP

The findings of this study reveal significant social barriers to resilience in both Kabaale and Kiziranfumbi sub counties. These range from low household incomes, limited critical infrastructure like health centers, high illiteracy rates, insecurity amongst landowners, and unregulated developments on private land. The exclusion of women from decision-making processes and women's rights violations were the noticeable gender-related challenges. These challenges were more pronounced in Kiziranfumbi community depicting a higher level of social vulnerability to the EACOP than Kabaale community.

There was a significant association between the location of the respondents and the response of violation of women's rights as a barrier to building and fostering community resilience. Women exclusion and violation of women rights were mostly mentioned in Kiziranfumbi compared to Kabaale (as referred in Table 1).

Table 1
Social barriers to building and fostering resilience to the EACOP in Kabaale and Kiziranfumbi communities.

Social Barriers	**Response (%)**		**df = 1,**	
	Kabaale	**Kiziranfumbi**	**X**	**P-Value**
Illiteracy	93.8	98.0	2.000[a]	0.157
Lack of critical infrastructure like hospitals	90.6	97.0	3.058[a]	0.080
Violation of women's rights	42.9	80.0	23.643[a]	**0.001**
Women exclusion from decision-making	56.3	78.0	8.711[a]	**0.003**
Insecurity to landowners	81.3	94.9	7.809[a]	**0.005**
Unregulated infrastructure on private land	73.4	76.0	0.137[a]	0.712
Lack of understanding of the environment	68.8	82.0	3.849[a]	0.050
Low-income levels within the community	98.4	98.0	0.042[a]	0.838
a.2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.34.				

It is a common custom amongst the Alur that women are not to access education according to one of the elderly respondents in Nzorobi parish; Kataaba village (Kabaale sub county-Hoima district). The girl child in these communities is marginalized in school. Increased marriage breakups in this community

are rampant due to the beating of women by the men as well as rape in some homes. Men are considered superior and a dominant gender among the Alur in Uganda. The women amongst the Alur take the responsibility of fending for their families as the men gather at drinking places daily. Women have resorted to being cash laborers in such a community.

It is also a cultural belief among the Alur that women do not inherit property.

This has somewhat delayed the settling of some compensation agreements since it is a requirement for the men to sign for the compensation with their spouses.

In Kiziranfumbi sub-county, a Local Council 1 chairperson of one of the affected villages in Kiziranfumbi sub county was quoted to have remarked that;

some men went with their wives to withdraw the money, but the men went ahead to use the money without their wives' consent. The increased extravagance by the men in the different homes has led to increased misunderstandings between the married couples.

Women themselves feel marginalized in the community. It is understood that about 20% of the women in Kabaale and Kiziranfumbi sub counties attend village meetings and rarely express their views in such gatherings. This in one way or the other leaves them marginalized since their voices cannot be heard specially to do with the effects of the EACOP on their well-being.

Results of the chi square test also indicated that the Kiziranfumbi community were also affected by the insecurity over their land compared to those in Kabaale, X^2 (1, N = 164) = 7.809, p= .005 (as referred to in Table 1).

There has also been increased fear by the locals over the increased land insecurity or theft whereby 57% and 31% of the respondents in Kiziranfumbi and Kabaale sub counties respectively expressed concern to this fear especially with the increased population of newcomers into the community.

"There are increasing fears over theft of land due to the increasing number of rich people into the areas where the EACOP will pass to grab local people's land. The land tenure system in the area is not clear in that approximately 95% of the local people do not have land titles but undocumented agreements (customary)", said the Community Liaisons officer (CLO) of Kikuube district.

The local community has also had cases of land wrangles amongst family members which has resulted in murders and other vices such as witchcraft in Kabaale sub-county. For the case of Kiziranfumbi (Kihigwa village), it was noted that a rich man processed a land title that went beyond the land he had bought hence encroaching on someone else's land. For cases of family wrangles, one family in Butimba East (village) in Kiziranfumbi is still in court settling a land dispute. This was as a result of selling and buying land between two brothers which was not documented during the process, and this has delayed the compensation process of the true landowner.

Political barriers to building and fostering resilience to the EACOP

The data collected and analyzed revealed that delayed compensation was the major political barrier to building and fostering community resilience. There was a statistically significant association between the location of the respondent and his/her response to delayed compensation as a barrier to resilience. This was pronounced in Kiziranfumbi community with 100% of the respondents agreeing to it compared to 75% in Kabaale sub county (X^2= 27.703, P = 0.000). (As referred to in Table 2).

Table 2
Political barriers to building resilience to the EACOP in Kabaale and Kiziranfumbi communities

Political barriers	**Response (%)**		**df = 1,**	
	Kabaale	**Kiziranfumbi**	**X**	**P-Value**
Inflexible laws and policies	75.0	78.0	.197[a]	0.657
Delayed compensations	75.0	100.0	27.703[a]	**0.001**
Limited government funding	89.1	91.9	.380[a]	0.538
Laxly enforced regulations	76.6	82.8	.967[a]	0.325
Poor implementation of existing land policies	75.0	86.9	3.744[a]	0.153
Disconnection from the central government	87.5	89.9	.228[a]	0.633
a.2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.34.				

The largest population in Kabaale Sub County was fully compensated, unlike that in Kiziranfumbi Sub County. However, the community that was compensated is living in fear of falling into abject poverty. Properties that were to be affected by the EACOP were valued over 5 years ago, and it has become hard to acquire land with the new land values. Land rates in these areas have since then been appreciated.

One respondent from the FGD in Kyakatemba (Kiziranfumbi) echoed that;

The community was encouraged to grow seasonal crops (this was in 2018) because the EACOP project was to commence soon after the valuation and compensation of the land for those that were to be affected by the pipeline.

This was backed up by the LC1 chairperson who noted that the coming of the 2019 COVID pandemic made the situation worse since the information disseminators; NEWPLAN (contractor to Total-Uganda) and Industrial Compressor Services Limited (ICS ltd) evacuated the field putting the affected communities in fear and uncertainty. The PAPs that opted to be resettled have also raised concerns

about the nature of the houses that were built to accommodate them. The new houses were smaller than their former houses, and this affected those PAPs with large family sizes.

It is now over three years, and the compensation exercise is not completed in this sub-county, yet all signs show that the construction of the pipeline is in its takeoff stage.

In one of the FGD, the respondents noted that the discussions about the valuation process were conducted in vernacular, yet the paperwork was in English. In addition to this, the PAPs were not allowed to have access to the paperwork of the agreements which raised more fears in case they were to go to courts of law to claim their compensation. In this same group, one member remarked that;

We were given forms to fill but were told to fill them in pencil so that we do not make mistakes, yet they also asked us to append our signatures in ink. This is worrying because they might change our details.

Plate 1

Seasonal crops like Maize have been planted along the EACOP pathway. (Source; Author).

The majority of the respondents in Kikuube district (Kiziranfumbi community) noted that they cannot afford to buy land in other villages due to the high rates. A plot of land was valued at three million (3 M) five years ago and currently; it costs almost thrice that value. In addition to that, the costs of acquiring a land title have equally increased which has left the lay man in a dire state of uncertainty. It is hard for those who lost their land to the project to acquire land in the new environments with the little they will have gotten from the compensations. Other assets such as fruit trees (mango and jack fruit) affected were valued between Uganda Shillings 45,000-200,000. According to the owners of these assets, it was lower-than-expected because they were seasonal crops that could produce much more benefits than a single lump sum amount at which they were valued. At some point in their lives, the locals now believe that the EACOP project's coming has no good intentions to the locals and seen as a source of impoverishment.

The delay in the compensation of the PAPs in Kiziranfumbi Sub County has affected planning on the part of those who felt the need to relocate to new environments. Some local people have been reported to have passed on before they received their property worth compensation. Others have noted deteriorating health conditions because they could not treat themselves due to limited finances. There is increased fear of growing food crops over fears of sudden evacuation from the land leading to losses. This scared the locals into failing to sustain their families, thereby leading to hunger within the community.

The delayed compensation also led to increased domestic violence. The women in Kabaale Sub County accused the men of having received the cash compensations and keeping them (women) in the dark since they were rarely involved in decision-making as far as this matter was concerned.

In Kiziranfumbi Sub County, men have taken loans from different institutions like banks and other formal and informal saving groups in anticipation of timely compensations but ended up losing their remaining

properties due to failure to pay up these loans.

Notably, the disconnection of communities from the central government and limited funding by the government were the most prevalent political barrier amongst the PAPs in both Kabaale and Kiziranfumbi communities in building and fostering community resilience. (As referred to in Table 1).

Economic barriers to building and fostering community resilience

The results of the Chi-square test have indicated a significant association between the location of the respondent and their response to the absence of accessible markers as a barrier to building and fostering community resilience within the two study communities. This was significant in Kiziranfumbi community with 96% of the respondents compared to 76.6% in Kabaale (X^2 = 14.202, p = 0.000). (as referred in Table 3)

Table 3
Economic barriers to building and fostering resilience within Kabaale and Kiziranfumbi communities

Economic Barriers	**Response (%)**		**df = 1,**	
	Kabaale	**Kiziranfumbi**	**X**	**P-Value**
Unemployment	100.0	98.0	1.296[a]	0.255
Absence of accessible markets	76.6	96.0	14.202[a]	0.001
Increased costs of agricultural production	93.8	93.0	.035[a]	0.851
a.2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.34.				

The locals in Kidoma, Bulimya and Kyakatemba parishes in Kiziranfumbi sub-county are a little bit distant from the major market in Kiziranfumbi town council and have thus resorted to selling their agricultural products from their homes, gardens or even along the roads so as to reduce the would-be transport costs to the distant markets.

One of the local farmers who was affected by the routing of the EACOP in Kiziranfumbi Sub County remarked that;

It has now become expensive to transport our farm products to the markets since the nearby market was in the pipeline pathway. The closest market right now is in Kiziranfumbi trading center. I would rather parade my goods at the roadside for customers to buy because going to the market means incurring higher fees through transport costs. There is also a decline in the weekly markets since some of the customers were displaced by the proposed route for Pipeline.

Discussion

Globally, the construction of oil pipelines is associated with developments that in most cases attract more people in the quest for employment and other benefits. However, such developments are associated with safety issues that requires considerable attention. These developments result into competition for the few jobs in the area, and this reduces the adaptive capacity of the PAPs, hence leading to reduced community resilience due to increased vulnerability.

Increased insecurity to the landowners was mentioned by the PAPs in Kabaale and Kiziranfumbi communities. This is attributed to the influx of migrants into these communities as a result of the envisaged benefits due to construction and operation of the EACOP. The security around the mining areas becomes fragile, especially with the coming of new members. This is in agreement with Madueke, (2026) who noted that irregular migrations are a cause of worry in areas blessed with oil and other forms of energy. This land insecurity is these two sub counties is also attributed to the increased coercion by the rich of the poor into selling their land to them. In their study, Tumusiime et al.(2016), noted that the rise in the fraudulent buying of land to set-up projects related to the oil industry led to the increased insecurity to the true landowners within the Albertine region. In other cases, the rich have resorted to legal coercion of the locals (Dean, 2021) to sale their land, and this rendered them vulnerable to the EACOP. There were threats to the PAPs from some project implementers in some villages such as Bulimya West where the PAPs were being accused of sabotaging government development projects and forced into signing the sale off of their properties. However, in contrast to Dean, (2021), Madueke, (2026), Tumusiime et al., (2016), other scholars like (Jatto, 2024b, 2024a) argue that the insecurity around the mining areas is not a threat to only the people but to the infrastructure as well. He further contends that the infrastructure itself is subject to vandalism by the communities around it thus the need to vacate these people to other localities.

The unclear land tenure system (which majorly is communal customary) in these areas is also to blame for the insecurity to the landowners in the PAAs. The women within these communities also noted that this was a hinderance to their resilience. This can be attributed to the weak land rights for the women, and these rights are rarely guaranteed in such communities (Lammers, 2020). These findings confirm the earlier studies that indicated that women in PAA are less likely to have formal land tittles especially household heads like the males and this weakens their power to bargain with authorities of government for the lucrative land deals in their communities and this affects their resilience (Behrman et al., 2012; Buss et al., 2021; Guzmán, 2023; Ibrahim et al., 2022; Lanzano & Arnaldi di Balme, 2021). Contrary to the above assertion Usamah, (2013) and Wainiqolo et al., (2026) note that customary land ownership remains secure and keeps communities intact especially communities that rely on agriculture for survival despite the hardships it faces despite the integration of digital tools in land management issues. UN-Habitat report, (2019), agrees with the findings of this study as far as the resilience and the land tenure system is concerned. Daniel et al., (2019), appreciates the need for proper documentation as far as land ownership is concerned because it aids in accessing loans and state agricultural incentives.

Therefore, proper documentation is a long-lasting solution to land insecurity in areas where infrastructural development projects are to take place.

Cultural beliefs within the study communities explain the attitude towards women and the violations that women face in both the study communities. In most rural communities in Uganda, women rarely access education and are subjected to garden work as well as looking after children. This was common amongst the Alur in Kabaale. Women in such communities were denied the chance to own or even inherit property, (Dahal et al., 2022; Omer et al., 2021; Yewande & Olawunmi, 2023) and this has affected their resilience in such societies. Earlier studies have further indicated that although women have the capacity to make decisions to do with household resilience building on both food and health issues, the final decisions are always made by their husbands (Gash and Gray, 2016). According to a study conducted by Shean and Alnouri, (2014) it was noted that the exclusion of both women and girls from decision-making leads to unbalanced control and access to financial resources within the community and this limits their ability from coping to stresses within the community. This is in agreement with the study conducted by Du et al., (2021) who argued that unless the gender roles are clearly stated, education of the women and girls has little impact on the sustainability of the community.

Delayed compensation was echoed as one of the other major barriers to building resilience, and this was significantly associated with Kiziranfumbi community which has not been fully compensated at the time of carrying out this study. Delayed compensation is attributed to the long bureaucracy in Uganda. This finding supports earlier studies by Aboda et al., (2023), who noted that cash compensations are often associated with controversy given the unclear land ownership policies. In situations where compensation has been given, it is often not adequate to restore people's livelihoods and hence cannot reduce socio-economic vulnerability of PAPs (Aboda et al., 2021, 2023; Atahar, 2019). However, in his earlier studies, Atahar, (2014), noted that compensation-based resettlement helps build resilience of households. The degree of resilience of people to a development project highly depends on compensation of the PAPs before project implementation.

The construction of the pipeline led to shifting of weekly markers, especially those that were along its proposed route. The communities therefore cited the impact the absence of accessible markets has on their building and fostering resilience to the EACOP. The markets were shifted to the neighboring towns so as to pave the way for the pipeline. The shifting of the markets affected the purchasing patterns due to the decrease in consumption of perishable goods.

Conclusion

The EACOP has increased socio-economic and institutional vulnerabilities. This further sets the resilience of PAPs into a dire state. The PAPs' capacity to adapt to the project and sustain their livelihoods was affected by the project.

Legal and physical coercion, fraudulent activities while dealing with land matters and violation of women's rights undermine the resilience of the PAPs within the two communities. Gender inequalities

also affect the critical social groups of women who play a great role towards resilience building within Kabaale and Kiziranfumbi communities.

Additionally, to these systematic shocks, operational issues like delayed compensation by the government and decline in weekly markets have affected the communities' safety and consumption habits.

Therefore, community resilience and sustainability within the study villages depends on the restoration of local markets, strengthening land documentation policies and a strong advocacy for gender-inclusive development to a top-down infrastructural development.

Recommendations

The respective authorities such as government and other organizations should ensure that all project affected persons are compensated before any activity is done as far as construction and operation of development projects is concerned. Findings of this study show that delayed compensation leads to uncertainty, decline in crop production due to fear of growing crops on land that might be taken up any time. People who have been asked to vacate the land before full compensation risk impoverishment since these are communities that depend solely on farming on their land. Article 26(2) of the Constitution of Uganda which states, *"no person can be compulsorily deprived of property without prompt payment of fair and adequate compensation prior to the taking of possession or acquisition of the property"* should be seen to be respected towards land acquisition for development projects.

Declarations

Hereby, I, Arnold Paul Mutegeki, with conscience assure that the manuscript titled. *"Barriers to building and fostering community resilience to the proposed Oil pipeline threats in the Albertine Region, Western Uganda*," follows ethical standards.

Ethical approval

Ethical approval was granted from *Makerere University, School of Forestry and Environmental Sciences, Department of Geography, Geo-informatics and Climatic Sciences* and all activities concerning this research were performed under ethical guidelines since the study involved human participants.

Informed consent

Informed consent was obtained from all the study participants who were of consent age (18 years and above) according to the constitution of the country where the study was carried out. Participants were encouraged to opt out of the interviews as well as not to respond to questions that they were not comfortable responding to.

Conflict of interest

The author has no competing/conflicts of interest to disclose as far as this research was concerned.

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Author Contribution

The research ideas, collection of data and analysis, and the writing of the manuscript was done by APM. Authors PB and AC, guided the first author in determining the analysis methods and helped improve the discussion of results section during manuscript writing. All authors participated in the review of the manuscript.

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Data Availability

Data supporting this study has not been made available because this is sensitive data discussing participants' sentiments towards a government-speed project. The participants of this study did not give written consent for their data to be shared publicly.

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Plates

Plate 1 is available in the Supplementary Files section.

Figures

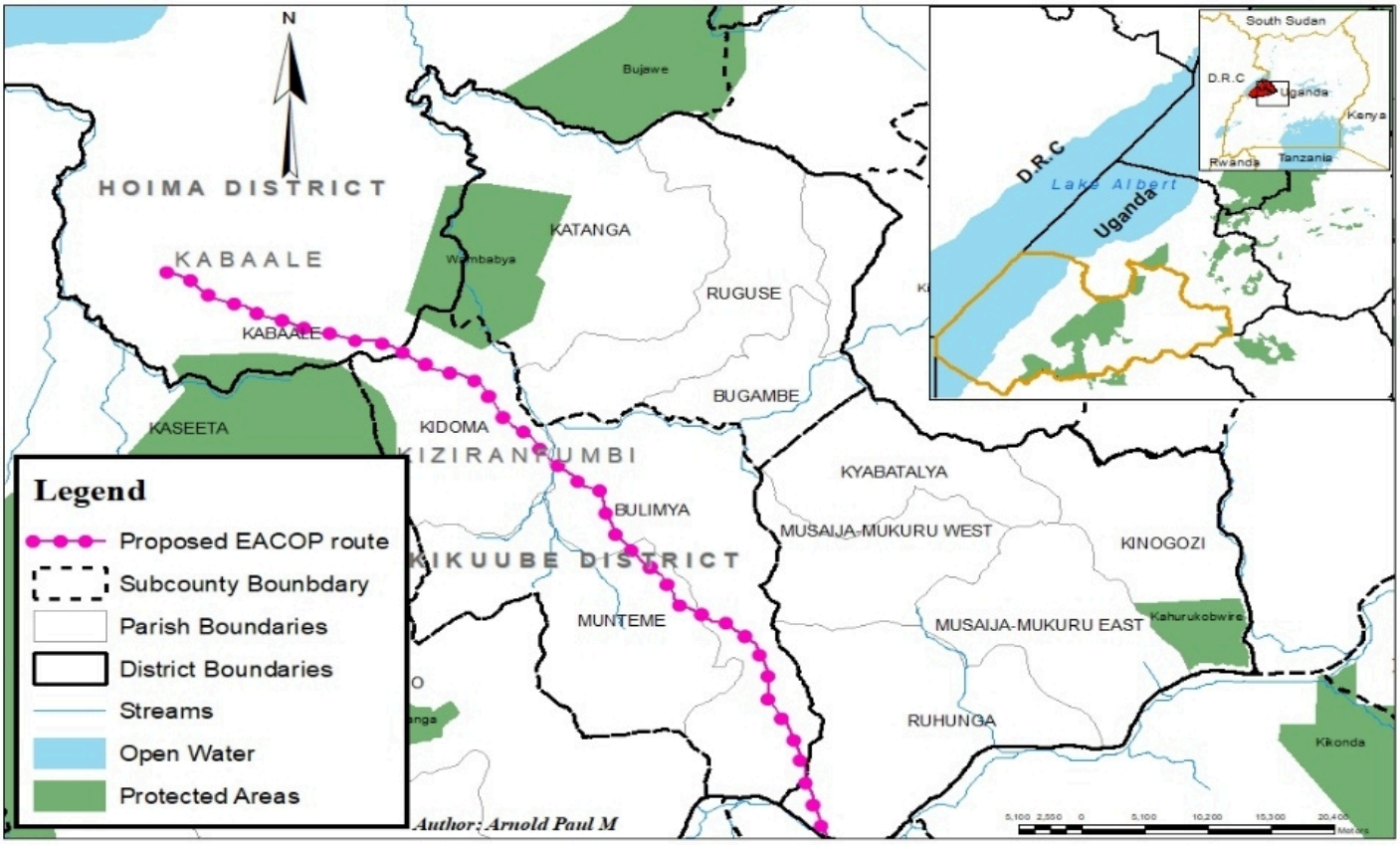

Figure 1

Study Area

Supplementary Files

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