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Stakeholders' Evaluation of a Farmer-Herder Conflict Research Project in the Ashanti Region of Ghana

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Abstract

There has been growing interest in the evaluation of research projects in Africa because of the quantum of funding devoted to research by governmental and non-governmental organizations. One area that has received a lot of research funding is farmer-herder conflicts due to its high impact on peace, security and development on the continent. This paper evaluates a Danida-funded research project in the Ashanti Region of Ghana dubbed "Access-Authority Nexus in Farmer-Herder Conflicts (AAN Project)". Primary data was collected from 46 project stakeholders during a project review meeting. Each stakeholder responded to a questionnaire distributed to them and later explained for them to have a common understanding of it before providing responses. The OECD DAC Network on Project Development Assessment Framework was adapted to evaluate the project success. Stakeholders' perceived project success was evaluated using Perception Index while project success criteria were assessed using correlation analysis. The results show that stakeholders perceived the AAN project to be effective in achieving its objectives of investigating the formation and erosion of access associated with the conflicts, capacity building and information dissemination to stakeholders. They also perceived it to be relevant to farmer-herder peaceful co-existence, and coherent with other existing interventions in the conflict area. The results further show that stakeholders recognized the project to have impacted positively on the number of conflict cases and their effects on livelihoods and state building Overall, they rated the project's achievements as sustainable. The implication of the findings is that research is still necessary for the effective management of the farmer-herder conflicts despite the numerous research work already done on it.

Keywords: Access-Authority, Ashanti Region, farmer-herder conflicts, agro-pastoralism, peace and security, project evaluation, and stakeholders

1. Introduction

The conflicts between farmers and herders in West Africa are a complex struggle that disrupt the lives and livelihoods of their actors and diminish the productivity and sustainability of agricultural and pastoral production systems (Moritz 2006). Farmer-herder conflicts have social, political and institutional consequences. Several instances of the conflicts have been reported in the region, particularly in Ghana and Nigeria, with some single instances recording more than 80 human deaths in Ghana (Bukari, 2022). Despite efforts by governments and other stakeholders to address the conflict, there are widespread claims of displacements and losses. The conflicts have led to loss of numerous human lives, maiming, destruction of food crops, killing of cattle and insecurity among farming and pastoral communities in Africa (Kuusaana & Bukari, 2015; Moritz, 2006; Turner, 2004). The conflicts, thus, have global, sub-regional, national, and local implications for peace, security and development. Hence, interventions from governments and development partners to ensure peaceful co-existence between farmers and herders over the past decades have intensified (Alhassan et al., 2024; Bukari et al., 2018; FAO, 2021; Gukas, 2019).

One prominent area of attention is support for research aimed at gaining better understanding of the conflict for informed policy decisions and effective conflict management (Kugbega and Aboagye, 2021; Nassef et al., 2023). Existing research on farmer-herder conflicts covers the causes of the conflict (Benjaminsen et al., 2009; Benjaminsen & Ba, 2021; Brottem, 2016; Diogo et al., 2021, Moritz, 2010), and its effects on livelihoods (Adepoju et al., 2018; Soomiyol & Fadairo, 2020). Other research areas of the conflict include political ecology

(Bassert, 1998; Turner 2004), effect on institutions (Yeboah et al, 2024) and crime (Marfo et al, 2022). Despite these and numerous other research efforts the conflicts continue to escalate and may be worsened with a changing climate. This raises the question of whether the research is making the required impact and if further research is indeed necessary as a tool for addressing the needs of the conflict. Following funding support for research from both state and non-state agencies, there has been a growing interest in the evaluation of research projects because of research funders' increasing demand for evidence of the benefits of their investments to project beneficiaries (Reed et al., 2021). Thus, stakeholders' evaluation of the effect of research projects on farmer-herder conflict is necessary to assess the need for the continuous use of research as tool for managing the conflict. This has not been given much attention in the literature. According to PMI (2010), projects are temporal endeavours undertaken to create unique product, service or result with definite beginnings, end times, cost and performance parameters. Eskerod and Jepsen (2013) suggest that carrying out a project as planned is not a guarantee for success and that projects may fail because project managers do not take the requirements, wishes and concerns of stakeholders sufficiently into account. A project is deemed successful when it achieves its objectives and meets its' stakeholders' expectations (Solera, 2009). However, the main concern is who is the project stakeholder and who determines project success? Stakeholders are individuals, groups or organizations who care about or have a vested interest in a project; actively involved in project implementation or have something to either gain or lose as a result of the project (Alhassan et al., 2019; Samarth, 2023; Solera, 2009).

Research evaluation by local stakeholders does not often happen. In the literature, studies on stakeholders' evaluation of projects tend to focus on physical projects, especially construction projects (Eyiah-Botwe, 2015; Sarhadi et al., 2021; Sulemana et al., 2018). Thus, not much is known about stakeholders' evaluation of research projects. The few studies on evaluation of research interventions, especially on farmer-herder conflicts were not driven by stakeholders or evaluated by them (Dary et al., 2017; Nassef et al., 2023; Kugbega and Aboagye, 2021;). The few existing studies on project evaluation assess either the relevance of the intervention to peace and development (Rogers, 2012), impact on livelihoods (Reed et al., 2021; Pentang, 2021), effectiveness in achieving project objectives (Silungwe, 2020), compatibility with other interventions (OECD, 2012), or sustainability of project achievements (Cheng et al., 2022) but not all these criteria at the same time. For instance, the Independent Office of Evaluation (2022) evaluated the effectiveness, efficiency, relevance, and coherence of IFAD interventions in West and Central Africa countries with fragile situations. Yet, this study did not assess the sustainability and impact of these assistances in promoting peace and development.

This paper presents stakeholders' evaluation of a Danida- funded research project on farmer-herder conflicts dubbed "Access-Authority Nexus in Farmer-Herder Conflicts". It was implemented in two conflict hotspot areas in the Ashanti Region of Ghana between 2019 and 2024. The project aimed at investigating the dynamic processes of formation and erosion of access and authority in spatial and historical perspectives associated with the conflicts (Alhassan et al., 2024). The objective of this study was to assess stakeholders' evaluation of the projects' success in contributing towards the management of, and solutions to, the farmer-herder conflicts in the two hotspot areas and by extension other parts of Ghana. This paper provides a detail guide for evaluating similar research projects in future to know how research projects contribute to peace and development. Similar to the work of Silungwe (2020), we rely on a mixed research method, using both quantitative and qualitative data to evaluate the success of the project based on the OECD DAC Network on Development Assessment (2019) project evaluation framework. We also stress the importance of involving all relevant stakeholders at all stages of research project planning, design and implementation as crucial requirement in ensuring project success. This paper contributes to the empirical evidence of evaluating research projects on farmer-herder conflicts based on five evaluation criteria.

The paper is relevant to peace and development at national, regional and global levels. At the global level, farmer-herder conflicts directly hinder the achievement of some sustainable development goals such as ending poverty (which includes the target on rights to access resources and land); decent work and economic growth (which includes the target on sustaining per capita economic growth); and promoting peace and justice (which includes the targets on reducing all forms of violence and related deaths; developing effective, accountable, and transparent institutions at all levels; and helping to develop non-discriminatory laws and policies for sustainable development). The findings will serve as inputs into policy formulation targeted at achieving these SDGs. For example, this study will not only guide future research projects but will help attract further funding from donors to achieve the UN declaration of 2026 as the year for international rangelands and pastoralists toward ensuring global biodiversity, climate change resilience and socio-economic development (Nassef et al., 2022). At the continental level, farmer-herder conflicts constitute a set-back to the achievement of regional goals such as the Comprehensive Africa Agricultural Development Program of the African Union's Agenda 2063, and the

ECOWAS's agenda on Regional Integration, Peace and Security. Findings of this study are expected to provide feedback on programmes tailored towards the achievement of these continental/regional goals.

At the national level, this study is relevant to the Ghana Government's development priorities on peace and security, food security, private sector development and regional integration. Also, with the Government of Ghana's quest to improve livelihood of people engaged in agriculture through its flagship programmes of Planting for Food and Jobs and Rearing for Food and Jobs, the findings of this study will be relevant in providing policy directives in implementing these two antagonizing programs to achieve the objectives enshrined in the programmes. Finally, to the academia, our findings will provide inputs to the body of literature on how research projects could be evaluated to ensure value for funders' investments.

1.1 Approaches to Research Project Evaluation: A Brief Review

Literature on research project evaluation by stakeholders is scanty, especially farmer-herder conflict research projects. Nonetheless, there exist few studies as Gukas (2019) who assessed the impact of governmental and non-governmental peace-building interventions among farmers and herders in the Plateau State of Nigeria He revealed that NGO interventions had more significant impact on farmer-herder peaceful co-existence than governmental interventions. However, this study included only farmers and herders, neglecting other key stakeholders involved in the management of farmer-herder conflicts such as state and non-state institutions that formulate and implement policies on farming and herding activities.

Silungwe (2020) assessed the effectiveness of project management knowledge on the success of non-governmental organizations' project in Chipata District of Zambia based on qualitative and quantitative data from 29 staff of NGOs, using inductive reasoning and descriptive statistics respectively. The study revealed that stakeholders' knowledge in project management contributes considerably to project success. Further studies on project research evaluation were conducted by Reed et al. (2021) and Sarhadi et al. (2021) using the Grounded Theory. Reed et al. (2021) did literature survey on research impact evaluation with the aim of developing a methodological framework to guide research impact evaluation designs using Grounded Theory. The study proposed that researchers, funders and other stakeholders from different disciplines could evaluate research project impacts using experimental and statistical; textual, oral and arts-based; systems analysis; indicator-based; and/or evidence synthesis methods or approaches. On the other hand, Sarhadi et al. (2021) examined stakeholders' views on the feasibility of constructing public projects. The study found that social and political factors such as independent media, developing a well-functioning participative mechanism are the important determinants of project sustainability beyond implementation.

Sastoque-Pinilla (2022) proposed project success criteria evaluation using the Q - Methodology. The Q - Methodology is a statistical technique of assessing stakeholders' subjective view on project success using predetermined statements to be answered by respondents using a ranking grid or Likert Scale. He revealed that project success is defined by how a project is able to achieve its set objectives, with emphasis on stakeholders' satisfaction on the quality of activities delivered and new knowledge generated. Also, Negi and Sohn (2020) examined how projects outcomes can be sustainable and the determinants of project sustainability using 62 completed Global Environmental Facility (GEF) projects from 2018 to 2020. Project sustainability was assessed based on project mainstreaming, sustaining, replication, scaling-up, and market change using a Likert Scale. They found that though the achievement of most projects were sustainable, access to finance, political will, ability of implementing authorities to conduct post-completion follow-up and project design and support from stakeholders were the major determinants of project sustainability. However, their study has two main limitations. First, a comparison of project performance evaluations showed that the sustainability evaluations of the projects included through post-completion review were significantly different from the other completed projects in the GEF portfolio. This may be due to a selection bias given that projects with implementation failure due to both implicit and explicit factors were generally excluded from post-completion review and post-completion evaluations may implicitly give more attention to projects that provide greater opportunity to test the given project's theory of change. Secondly, the duration at which the post-completion evaluation was conducted after project completion ranged from two to fourteen years. Thus, there was much variation in project sustainability details among the reviewed project documents. Rather than using a desk review, the AAN project employed multiple evaluation approaches for triangulation of data and complementarity of findings using Sastoque-Pinilla et al. (2022) Q-Methodology for rating of stakeholders' perception on project success indicators.

2. Materials and Methods

2.1 Description of the Access-Authority Nexus in Farmer-Herder Conflict Project

The Access-Authority Nexus in Farmer-Herder Conflict (AAN) project is a 4.5year project, implemented in two

study sites in the Ashanti Region of Ghana (Ashanti Akim North Municipality and Sekyereh Afram Plains District) from July 2019 to December 2023. The project was funded by DANIDA and implemented by three Ghanaian Universities (Kwame Nkrumah University of Science and Technology, University for Development Studies and University of Energy and Natural Resources) in collaboration with the University of Copenhagen (Denmark). The project organized an international PhD course on pastoralism, conflict and change; trained two Post-docs and three PhD fellows; and supported eight masters students to conduct their thesis on farmer-herder conflicts to achieve its objective of building capacity in conflict research. In terms of dissemination of research findings, the project successfully organized two national workshops and two district workshops to present research findings to relevant stakeholders on farmer-herder conflicts at district and national levels; submitted over a dozen manuscripts to peer-review journals for publication; and engaged the media in disseminating its research findings.

2.2 Description of Study Area

The Asante Akim North Municipality and Afram Plains (Sekyereh Afram Plains and Kwahu Afram Plains North Districts) were purposively selected for this study based on three reasons: (i) these areas are currently the hotspots of farmer-herder conflicts in Ghana and offer rich cases (Bukari, 2022; Patton, 2002) with long histories and prevalence of farmer-herder conflicts; (ii) they have different land tenure histories and land use dynamics. Whereas most farmers in Ashanti Akim North are indigenes with birth rights to land access; most farmers in the Afram Plains areas are migrants. Thus, the two study sites carry different identities with implications for access to land, the underlying factor for the conflicts between farmers and herders; (iii) there is also higher pressure on land in these study sites due to the abundance of elephant grass for cattle grazing and vast fertile lands to support arable crop farming. These factors allow comparisons of differences and similarities, which may give indications on the robustness of our findings and the extent to which the findings may have validity beyond the study sites.

2.3 Sources of Data

The data for this paper was collected during a National Mid-Term Stakeholders' Review of the Project in Kumasi, Ghana on March 8, 2023. The project implementers ensured that all relevant stakeholders who matter in the farmer-herder conflict were invited to the mid-term review workshop. During the two-day workshop, stakeholders were tasked to evaluate the success of the 4.5 years of implementation of the AAN project. A total of 46 stakeholders were invited for the workshop, drawn from six categories: agriculture and forest land use managers, local government and security agents, traditional authorities, farmers, cattle owners and herders as well as academia and researchers from community, district, regional and national levels. Each stakeholder evaluated the AAN project by responding to questions on the relevance, coherence, effectiveness, impact and sustainability of the project. Table 1 presents a distribution of the stakeholders who participated in the workshop to evaluate the project.

Table 1. Distribution of Stakeholders for the National Mid-Term AAN Project Review

Category of Stakeholder	Number of Respondents	Percentage of Respondents
Agriculture & Forest land use managers	6	13.0
Local government and security agents	10	21.7
Traditional authorities	7	15.2
Farmers	11	23.9
Cattle owners &herders	9	19.6
Academia & researchers	3	6.5
Total	**46**	**100**

2.4 Framework for Project Evaluation

The OECD DAC Network on Development assessment, EvalNet (2019) proposed six assessment criteria (relevance, coherence, effectiveness, efficiency, impact, and sustainability) as a guide for project evaluation. This offers a normative framework for judging an intervention's success (policy, strategy, programme, project, or activity). This study adapted the OECD DAC Network on Development Assessment (2019) project evaluation framework to evaluate the ANN project.

Relevance criteria in project evaluation determine the degree to which an intervention's objectives and design adjust to beneficiaries' needs, priorities, and global, national, and partner/institution needs—and do so even as conditions change (OECD Development Assistance Committee, 2012). The relevance evaluation criteria answer the question "is the intervention doing the right things?". The relevance criterion evaluates whether an

intervention's goals and design are in tandem with the political, economics, capacity, equity, and environmental context in which it is being implemented. Partner/institution refers to any national, regional, or local government, civil society group, business, or international entity that helps to fund, implement, or oversee a project. "The individuals, groups, or organizations, whether targeted or not, that benefit directly or indirectly from the development intervention" are referred to as beneficiaries. Project coherence measures an intervention's compatibility with other interventions in a nation, industry, or institution. The coherence evaluation criteria answer the question “how well does the intervention fit?”. Thus, the degree to which an intervention strengthens or weakens other interventions, and vice versa. Project coherence can be internal or exterior. Internal coherence examines the connections and synergies between an intervention and other interventions carried out by the same institution or government, as well as its consistency with pertinent international norms and standards to which that institution or government adheres. External coherence on the other hand is the degree to which an intervention adds value to other interventions in the same environment while minimizing duplication of effort, as well as complementarity, harmonization, and coordination with others. This study evaluates the compatibility of the AAN project with the efforts of the district assemblies, national security, central government and NGOs’ efforts in managing and resolving the impact of the farmer-herder conflict in the study area.

Project effectiveness evaluates the degree to which an intervention's goals were met or are anticipated to be met, as well as any differences in results between groups. The relative importance of intervention’s aims or results must be considered when evaluating project effectiveness. The effectiveness criterion answers the question “is the intervention achieving its objectives”. The efficiency criterion in project evaluation is the degree to which the intervention is likely to produce outcomes quickly and economically. Thus, project efficiency evaluates project performance based on how well resources are being used or the most cost-effective conversion of inputs (funds, skills, natural resources, time, etc.) into outputs, outcomes, and impacts in comparison to realistic alternatives in the context. "Timely" delivery is defined as occurring within the timeframe that was expected or as one that has been appropriately altered to meet the needs of the changing situation. The operational efficiency of the intervention (how well it was managed) may be evaluated as part of this. The impact criterion measures the extent to which an intervention has or will likely have significant higher-level positive or negative, direct or indirect effects on beneficiaries (Reed et al., 2021). Project impact criterion bothers on what difference the intervention makes. Impact measures the intervention's overall relevance and potential transformative effect. It looks for longer lasting or more comprehensive social, environmental and economic repercussions of the intervention than those already taken into account by the effectiveness criterion. This criterion aims to include an intervention's indirect, secondary and potential effects in addition to its immediate effects. It does this by analyzing the comprehensive and long-lasting changes in norms as well as any potential consequences on the environment, human rights, gender equality, and general well-being of the populace. Finally, the sustainability evaluation criterion borders on the length of time an intervention's net benefits have persisted or are expected to persist. Project sustainability criterion answers the question “will the benefits last*?”*. Impact also includes a review of the institutional, financial, economic, social and environmental capabilities of the systems required to maintain net benefits over the long term.

In applying this evaluation framework, the criteria must be understood and guided by two principles to ensure useful and high-quality evaluation outcome. First, the evaluation criteria ought to be thoughtfully used to ensure maximum quality and beneficial evaluation. Thus, the evaluation criteria should be contextualized in terms of the individual evaluation, the project being evaluated, and the stakeholders involved. The evaluation questions and the intended use of the answers should inform how the criteria should be specifically analysed and interpreted. In this study, we earlier conducted stakeholder analysis and set project objectives which guide the type of questions to be asked in the AAN project evaluation. Secondly, the use of the criteria depends on the purpose of the evaluation. The criteria should not be adapted robotically; instead, they should be used based on the needs of stakeholders and the context of the evaluation. Data availability, resource constraints, timing and methodological considerations may also influence how (and whether) a particular criterion is covered (OECD, 2021). Figure 1 presents a framework for project evaluation.

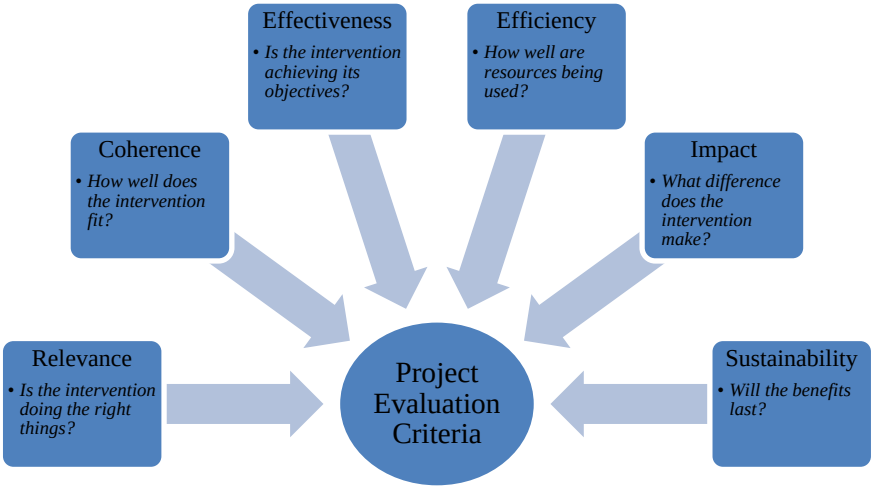

Figure 1. Framework on Project Evaluation

Source: OECD DAC Network on Development assessment, EvalNet (2019)

In the view of OECD (2021), in adapting the OECD DAC Network on Development Assessment (2019) framework to evaluate projects, project managers can select which criteria to focus on based on factors such as the project context as well as the objectives and limitation of the evaluation. In this study, the efficiency criterion was not included because we intentionally left the question of 'how well are resources being used" to the discretion of the financial auditors. Also, given that project beneficiaries did not have all the insights into the project funds, they were not in the position to evaluate the efficiency of the project in resource use. Thus, we focused on five criteria for project evaluation (relevance, coherence, effectiveness, impact and sustainability). This is backed by the second principle in adapting the OECD DAC Network on Development Assessment framework.

2.5 Methods of Data Analysis

Stakeholders' evaluation of the project was determined using perception index. In doing this, the project team identified statements related to project relevance, coherence with existing policies, effectiveness, impact and sustainability based on literature and previous district and national stakeholder workshops organized in August and December 2022. During the exercise, stakeholders were tasked to evaluate the project by stating the extent to which they agree or disagree to each statement under each of project relevance, coherence, effectiveness, impact and sustainability using a Likert scale. A set of statements were presented to stakeholders to strongly agree (2), agree (1), disagree (-1), or strongly disagree (-2). Also, a zero (0) value was set for respondents who were uncertain or had no idea to a given statement.

From the responses, an average perceived agreement rank score was first computed for each statement under each project success evaluation criteria using equation (1). Thus, the perceived agreement index for each statement was computed by averaging the responses of all stakeholders.

$$PAI_S = \frac{\sum S_i}{N} \quad (1)$$

Where PAI_S denotes perceived agreement index for statement S, S_i denotes rank scores of statement S for respondent i *and* N denotes number of respondents or stakeholders.

The second step was to determine stakeholders' perception on project relevance, coherence, effectiveness, impact and sustainability. This was done by averaging the perceived agreement indices (PAI) obtained in equation (1) for all statements constituting each project success criteria (relevance, coherence, impact, effectiveness and sustainability) as shown in equation (2).

$$PAI_C = \frac{\sum_{i=1}^{n} S_i}{n} \quad (2)$$

Where PAI_C denotes Perceived Agreement Index for project success evaluation criteria *C* (relevance, coherence, impact, effectiveness and sustainability), $\sum_{i=1}^{n} S_i$ denotes the summation of the PAI computed for all statements under project success evaluation criteria *C*, and *n* denotes number of statements constituting project success evaluation criteria *C*.

Finally, the Perceived Project Success Index (PPSI) is computed by averaging the perceived agreement indices for all five project evaluation criteria shown in equation (3).

$$PPSI = \frac{\sum_{i=1}^{k} PAI_C}{k} \tag{3}$$

Where $\sum_{i=1}^{k} PAI_C$ denotes the sum of perceived agreement indices for all project success evaluation criteria and *k* denote the number of project success evaluation criteria (5).

PPSI is a ratio ranging from -2 (stakeholders perceive negative success of project) to 2 (stakeholders perceive positive success of project).

Given that the computed perception indices are averages, there is the need to test for differences in the means of the project evaluation criteria and the overall success indices among the different stakeholders. We employed the Kruskal-Wallis H to test for difference in means of the project evaluation parameters/criteria (coherence, relevance, effectiveness, impact, and sustainability) and the overall project success given that these factors are measured as continuous variables and the stakeholders is measured as a categorical variable with more than two categories, limiting the application of t-test. Also, the correlation among the project evaluation parameters/criteria was tested using Pearson Correlation which is a measure of monotonic relationship between two variables (Schober et al., 2018). The Pearson Correlation coefficient ranges between -1 and +1. The sign of the coefficient denote either a negative or positive relationship between the two variables while the absolute coefficient determines the intensity of relationship as shown in Table 2.

Table 2. Interpretation of Pearson Correlation Coefficient

Pearson Correlation Coefficient	Interpretation
0.00 - 0.09	Negligible correlation
0.10 - 0.39	Weak correlation
0.40 - 0.69	Moderate correlation
0.70 - 0.89	Strong correlation
0.90 - 1.00	Very strong correlation

Source: Schober et al. (2018)

3. Results

3.1 Stakeholders Evaluation of Project Relevance

Stakeholders evaluated the AAN project based on four questions. The results show that all 46 stakeholders agreed or strongly agreed that the AAN project is leading to a better understanding of farmer-herder conflict among people in the study area; increases the intellectual, educational, and research capacity of Ghanaians; and offers solutions needed for the farmer-herder conflicts. Finally, the results show that 97.8% (73.9 + 23.9) of stakeholders strongly agreed or agreed that the project contributes to the security and peace in conflict hot-spots in the study region. Table 3 presents descriptive statistics on respondents' agreement levels on statements relating to AAN's relevance to development discourse.

Table 3. Results of Stakeholders Agreement Levels on Project Relevance

Statement on project relevance	Respondent's agreement level				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
The project is leading to a better understanding of the farmer-herder conflict	25 (54.4)	21 (45.6)	0 (0)	0 (0)	0 (0)
The project is increasing the intellectual, educational, and research capacity of Ghana	22 (47.8)	24 (52.2)	0 (0)	0 (0)	0 (0)
The project results are contributing to solutions needed for the farmer-herder conflicts	20 (43.5)	26 (56.5)	0 (0)	0 (0)	0 (0)
The project is contributing to the security and peace in the conflict hot spots	16 (34.8)	29 (63.0)	1 (2.2)	0 (0)	0 (0)

Note: Figures in parentheses are percentages

3.2 Stakeholders' Evaluation of Project Coherence

The coherence of the AAN project was evaluated by stakeholders using fifteen (15) bench marks. The results indicate that about 97.8% either strongly agreed or agreed that the AAN project supports the policies of the agricultural sector (58.7 + 39.1) and policies of the district/municipal assemblies (32.6 + 65.2) with only 2.2% of stakeholders being uncertain to the coherence of the projects with other policies initiated by the Department of Agriculture and the district/municipal assemblies. The results further revealed that 93.3% of stakeholders strongly agreed or agreed that the project supports the policies of the traditional authorities (37.0 + 56.4) and security agencies with only 2.2% and 4.4% (2.2 + 2.2) of stakeholders uncertain and disagreeing that the AAN project's supports policies of traditional authorities and security agencies.

Whereas 69.5% (30.4 + 39.1) and 67.4% (50.0 + 17.4) of stakeholders strongly disagreed or disagreed that the project undermines the policies of the agricultural sector and district/municipal assemblies respectively, about 76.1% (37.0 + 39.1) of stakeholders strongly disagreed or disagreed that the project undermines the policies of the security services in the study area. About 67.4% (39.1 + 28.3) and 69.7% (43.5 + 26.2) of stakeholders strongly agreed or agreed that the project serves the long-term interest of farmers and herders respectively. Also, about 65.3% (37.0 + 28.3) and 67.4% (34.8 + 32.6) of stakeholders strongly disagreed or disagreed that the project hinders the long-term interest of farmers and herders respectively. The results further show that 78.1% (43.5 + 32.6) of stakeholders strongly agreed or agreed that the project is consistent with the ECOWAS protocol on transhumance while 93.6% (56.6 + 37.0) of stakeholders strongly agreed or agreed that the project adds value to the partners' credentials in research. In terms of project visibility, 97.8% (76.1 + 21.7 / 45.6 + 52.2) of stakeholders strongly agreed or agreed that the project improves the visibility of the partner institutions and donors respectively. Table 4 presents stakeholders' evaluation of the AAN project coherence with other interventions or projects.

Table 4. Results of Stakeholders' Agreement Levels on Project Coherence

Statement on project relevance	Respondent's agreement level				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
The project supports the policies of the agricultural sector	27 (58.7)	18 (39.1)	1 (2.2)	0 (0)	0 (0)
The project supports the policies of the district/municipal assembly	15 (32.6)	30 (65.2)	1 (2.2)	0 (0)	0 (0)
The project supports the policies of the traditional authorities	17 (37.0)	26 (56.4)	1 (2.2)	1 (2.2)	1 (2.2)
The project supports the policies of the securities services	17 (37.0)	26 (56.4)	1 (2.2)	1 (2.2)	1 (2.2)
The project undermines the policies of the agricultural sector	9 (19.6)	5 (10.9)	0 (0)	14 (30.4)	18 (39.1)
The project undermines the policies of the district/municipal assembly	7 (15.2)	6 (13.0)	2 (4.4)	23 (50.0)	8 (17.4)
The project undermines the policies of the security services	4 (8.7)	7 (15.2)	0 (0)	17 (37.0)	18 (39.1)
The project serves the long-term interest of farmers	18 (39.1)	13 (28.3)	9 (19.6)	2 (4.3)	4 (8.7)
The project serves the long-term interest of herders	20 (43.5)	12 (26.2)	10 (21.7)	2 (4.3)	2 (4.3)
The project hinders the long-term interest of farmers	5 (10.9)	7 (15.1)	4 (8.7)	17 (37.0)	13 (28.3)
The project hinders the long-term interest of herders	5 (10.9)	7 (15.2)	3 (6.5)	16 (34.8)	15 (32.6)
The project is consistent with ECOWAS protocol on transhumance	20 (43.5)	15 (32.6)	3 (10.9)	5 (6.5)	3 (6.5)
The project adds value to the partners' credentials in research	26 (56.6)	17 (37.0)	1 (2.2)	1 (2.2)	0 (0)
The project improves the visibility of the partner institutions	35 (76.1)	10 (21.7)	1 (2.2)	0 (0)	0 (0)
The project improves the visibility of the donor (Danida)	2 (45.6)	24 (52.2)	1 (2.2)	0 (0)	0 (0)

Note: Figure in parentheses are percentages

3.3 Stakeholders' Evaluation of Project Effectiveness

Stakeholders' evaluation of the project effectiveness was based on four (4) project assessment statements. The results show that 97.8% (43.4 + 54.4) of stakeholders strongly agreed or agreed that the project is on course to achieving its' research objectives while all stakeholders strongly agreed or agreed that the project is using the process planned for achieving its' research objectives. The results further showed that 97.8% (69.5 + 28.3) of stakeholders strongly agreed or agreed to the cooperation of all relevant stakeholders in the farmer-herder conflict. Finally, the results show that 69.6% (32.6 + 37.0) of stakeholders strongly disagreed or disagreed that the project has escalated the conflict situation in the area. Results on stakeholders' level of agreement on project effectiveness is presented in Table 5.

Table 5. Results of Stakeholders' Evaluation of Project Effectiveness

Statement on project relevance	Respondent's agreement level				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
The project is on course in achieving its research objectives	20 (43.4)	25 (54.4)	1 (2.2)	0 (0)	0 (0)
The project is using the process planned for achieving its research objectives	17 (37.0)	29 (63.0)	0 (0)	0 (0)	0 (0)
The cooperation of all relevant stakeholders has been important in the achievement of project objectives	32 (69.5)	13 (28.3)	1 (2.2)	0 (0)	0 (0)
The project has unintended results (escalated the conflict)	5 (10.9)	6 (13.0)	3 (6.5)	15 (32.6)	17 (37.0)

Note: Figure in parentheses are percentages

3.4 Stakeholders' Evaluation of Project Impacts

Five statements were used to evaluate project impacts by stakeholders. The results show that all stakeholders strongly agreed or agreed that the project is making a difference in creating voice for all stakeholders while 93.5% (34.8 + 58.7) of stakeholders strongly agreed or agreed that the project is making a difference in the way stakeholders understand the effect of the conflict on people's livelihoods and wellbeing. About 96.2% (45.6 + 45.6) and 87% (32.6 + 54.4) of stakeholders strongly agreed or agreed that the project is making a difference in the way stakeholders understands the effects of the conflict on institutions and state building and the way herders and farmers interact respectively. Finally, the results show that 87% (30.5 + 56.5) of stakeholders strongly agreed or agreed that the project is making a difference in reducing social inequality. Table 6 presents results on stakeholders' agreements on the evaluation of project's impact.

Table 6. Results of Stakeholders' Agreements on Project Impact

Statement on project relevance	Respondent's agreement level				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
The project is making a difference in creating voice for all stakeholders	29 (63.0)	17 (37.0)	0 (0)	0 (0)	0 (0)
The project is making a difference in the way we understand the conflicts effect on people's livelihood and wellbeing	16 (34.8)	27 (58.7)	0 (0)	3 (6.5)	0 (0)
The project is making a difference in the way we understand the conflicts effects on institutions and state building	21 (45.6)	21 (45.6)	3 (6.6)	1 (2.2)	0 (0)
The project is making a difference in the way herders and farmers interact	15 (32.6)	25 (54.4)	1 (2.2)	5 (10.8)	0 (0)
The project is making a difference in reducing social inequality	14 (30.5)	26 (56.5)	3 (6.5)	3 (6.5)	0 (0)

Note: Figure in parentheses are percentages

3.5 Stakeholders' Evaluation of Project Sustainability

Stakeholders' evaluation of the AAN project's sustainability was based on three criteria. The results show that all stakeholders (100%) strongly agreed or agreed that they are willing to continue to dialogue on how to resolve or manage farmer-herder conflict during and after the project period. The results further show that all stakeholders strongly agreed or agreed that their dialogues on farmer-herder conflict cases will be informed by research findings, especially those emanating from the AAN project. Finally, 97.8% (73.9 + 23.9) of stakeholders strongly agreed or agreed that beyond the AAN project, researchers will have the capacity to access funding for further research on farmer-herder conflicts. The results of stakeholders' evaluation of project sustainability is presented in Table 7.

Table 7. Results of Stakeholders Evaluation of Project Sustainability

Statement on project relevance	Respondent's agreement level				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Stakeholders are willing to continue to dialogue during and after the project	15 (32.6)	31 (67.4)	0 (0)	0 (0)	0 (0)
Stakeholders' dialogue will be informed by research information	19 (41.3)	27 (58.7)	0 (0)	0 (0)	0 (0)
Researchers' will have capacity to access funding for further research on farmer-herder conflicts	34 (73.9)	11 (23.9)	0 (0)	1 (2.2)	0 (0)

Note: Figure in parentheses are percentages

3.6 Evaluation of Project Success

The evaluation of project success was done using Perceived Success Index based on the five criteria (relevance, coherence, effectiveness, impact and success). Given that different stakeholders evaluated the project success, the analysis of project success was done across stakeholders and the Kruskal-Wallis used to test for significant differences in stakeholders perceived agreement on project success. The overall PAI for project relevance is 1.45 and indicates that stakeholders generally perceived the project to be relevant to peace and development in the area. Results of the Kruskal Wallis H test shows that the Chi^2 of 16.360 is significant at 1%. This implies a significant difference among stakeholders on their perceived relevance of the project to peace and development, with agricultural & forest land use managers and academic and researchers having a PAI of 1.58 and perceiving the project to have a higher relevance than other stakeholders.

Also, the overall PAI for project coherence is 1.13 and implies that stakeholders perceive the project to be coherent with other existing interventions on farmer-herder conflicts in the study area. Thus, stakeholders think that the AAN project is compatible with the other existing interventions on farmer-herder conflicts by the district assembly, NGOs, and other Civil Society Organisations and strengthens the gains achieved by these interventions. Results of the Kruskal-Wallis H test show that the Chi^2 of 18.592 is significant at 1% and indicates a significant difference in the perceived project coherence among stakeholders. The computed PAI shows that academic and researchers, with a PAI of 1.62 have the highest perception of project coherence. The results further show that the overall PAI for project effectiveness is 1.29, which indicates that stakeholders perceived the AAN project to be effective in achieving its objectives on research, capacity building, and dissemination of research findings. Results of the Kruskal-Wallis H test show that the Chi^2 value of 7.756 is not significant. This indicates that there is no difference in the means of the PAI, which implies no significant difference in the perceived effectiveness of the project among the various stakeholders. The PAI for project impact is 1.28 and indicates that stakeholders agreed that the project has a positive impact in reducing cases of farmer-herder conflicts as well as its effects on livelihoods and state building in the study area. Results of the Kruskal-Wallis H test show that the Chi^2 (10.126) is significant at 10%. Thus, there is a significant difference in the perceived impact of the project among stakeholders. Finally, the computed PAI for project sustainability is 1.48, which implies that stakeholders agreed that the achievements of the project will persist for a long time. Thus, stakeholders opined that the AAN project provides a long-term solution to farmer-herder conflicts and its effects on livelihoods and state building. Results of the Kruskal-Wallis H test show that the Chi^2 of 7.292 is not significant and implies no significant difference in project sustainability among the various stakeholders.

The perceived success of the AAN project was ascertained by averaging the PAIs for the five evaluation criteria. The results show that the PAI for project success is 1.36, which suggests that stakeholders perceived the AAN project to be successful in reducing farmer-herder conflict and the effects of the conflict on livelihoods and state building. Thus, stakeholder evaluation of the project show that the project is relevant, coherent with other interventions on farmer-herder conflicts, effectively achieved its' objectives, significantly impacted the livelihoods of the beneficiaries and the project have put in place the necessary structure to maintain the gains achieved by the project. Table 7 presents the computed PAI and results of Kruskal-Wallis H test for Project Evaluation Parameters by stakeholders.

To assess the relationship among project evaluation criteria, the five evaluation criteria were correlated using Pearson correlation. Results of the Pearson correlation show that project relevance has a significant, but weak positive relationship with project coherence ($r = 0.31$), effectiveness ($r = 0.26$), impact ($r = 0.39$) and sustainability ($r = 0.36$). The Pearson correlation results further show that project coherence has a significant

positive and weak relationship with project impact (r = 0.38), and sustainability (r = 0.36), but has a significant positive and moderate correlation with project effectiveness (r = 0.50). Finally, the project impact had a significant positive and moderate correlation with project sustainability (r = 0.59). However, project effectiveness has no significant correlation with project impact (r = 0.23) and project sustainability (r = 0.24). Thus, effectiveness of a research project does not necessarily imply high impact and sustainability of achievements. Table 8 presents results of Pearson correlation among the five evaluation criteria.

Table 7. Results of PAI and Kruskal-Wallis H test for Project Evaluation Parameters by Stakeholders

Project success evaluation Criteria	**Perceived agreement Index (PAI) by Stakeholders**							**Kruskal-Wallis H test**	
	Agriculture & forest land use managers	Local government & security agents	Traditional authorities	Farmers	Cattle owners & herders	Academia and research	Overall PAI	Chi^2 (5)	*P*-Value
Relevance	1.58 (0.41)	1.05 (0.11)	1.75 (0.20)	1.55 (0.40)	1.39 (0.36)	1.58 (0.29)	1.45 (0.38)	16.360***	0.006
Coherence	1.39 (0.23)	1.01 (0.41)	1.61 (0.27)	0.73 (0.30)	0.93 (0.62)	1.62 (0.42)	1.13 (0.50)	18.592***	0.002
Effectiveness	1.54 (0.19)	1.25 (0.42)	1.43 (0.53)	1.15 (0.46)	1.11 (0.50)	1.67 (0.14)	1.29 (0.45)	7.756	0.170
Impact	1.30 (0.41)	1.18 (0.06)	1.74 (0.32)	0.91 (0.90)	1.36 (0.46)	1.60 (0.20)	1.28 (0.57)	10.126*	0.071
Sustainability	1.39 (0.39)	1.33 (0.00)	1.86 (0.26)	1.45 (0.52)	1.44 (0.44)	1.44 (0.19)	1.48 (0.39)	7.292	0.200
Overall Success	1.46 (0.17)	1.19 (0.09)	1.68 (0.21)	1.21 (0.34)	1.29 (0.45)	1.58 (0.18)	1.36 (0.32)	15.814***	0.007

Note: Figure in parentheses are standard deviation
***, ** and * denote statistically significant at 1%, 5% and 10% respectively

Table 8. Results of Pearson Correlation among Project Evaluation Parameters/Criteria

	Relevance	Coherence	Effectiveness	Impact	Sustainability
Relevance	1.00				
Coherence	0.31* (0.053)	1.00			
Effectiveness	0.26* (0.082)	0.50*** (0.001)	1.00		
Impact	0.39*** (0.009)	0.38** (0.015)	0.23 (0.127)	1.00	
Sustainability	0.36** (0.015)	0.36** (0.022)	0.24 (0.116)	0.59*** (0.000)	1.00

Note: ***, ** and * denote statistically significant at 1%, 5% and 10% respectively

4. Discussion and Implications of Findings

4.1 Project Success

The AAN project was evaluated based on its relevance, coherence, effectiveness, impact and sustainability as proposed by OECD DAC Network on Development assessment, EvalNet (2019). Project relevance answers the question "is the AAN project doing the right things?" (OECD, 2012). The AAN project did not only collect data from participants; but also engaged stakeholders regularly on intellectual and solution-based dialogues for fair political, socio-economical, capacity building, equitable, and sustainable use of environmental resources. These are the main pillars of project relevance specified in the OECD DAC Network on Development assessment, EvalNet (2019). Thus, unlike typical academic research work the project added value to the research material and demonstrated practical steps towards conflict management. This is what made the stakeholders agree that the project was doing the right thing.

The coherence evaluation criteria answer the question "how well does the AAN project fit or is compatible with other interventions?". Participants evaluation of project relevance and coherence with other interventions differed among stakeholders and was higher among traditional authorities and agriculture and forest land use managers. This may be explained by the fact that being the first point of call by most projects, these institutions have higher awareness of other state and non-state interventions in the area than groups such as farmers and herders. In addition, due to their role in land allocation and extension service provision, traditional authorities and agricultural extension officers are often in the picture anytime there are conflicts between farmers and herders. Therefore, these two stakeholders are in a better position to judge the difference that the project could

make to the conflict management than other stakeholders. The by-laws enacted by the Sekyere Afram Plains District Assembly with support from the project is congruent with the Inter-governmental Authority on Development, IGAD (2020) Protocol on Transhumance which promotes safe cross-border movement of transhumance and their herd through proper herds certification for identification, ownership, number and avoidance of straying herds. It is also compatible with the ECOWAS (1998) Protocols on transhumance herding and cross-border movement of herders and herd. Thus, the AAN project is coherent with these regional policies on transhumance herding in Africa and will contribute to ensuring farmer-herder peaceful co-existence, therefore contributing to peace and justice as rightly judged by the stakeholders.

In answering the effective evaluation question of "has the AAN project achieved its objectives", the findings suggest that the AAN project's development objective of contributing to the building of well-functioning and legitimate institutions for peaceful co-existence and stable wellbeing of farmers and herders has been achieved. The stakeholders' opinion of the project objectives is likely to have been informed by their awareness of the quality of the research findings which have been shared with them at the district and national level, the involvement of post-docs, PhD and masters students in the project, as well as the multi-stakeholder engagement process which the project used to reach out to all relevant stakeholders in the study area and beyond. Like Silungwe (2020) observation that people's knowledge on project activities contribute to its success, the findings of this study showed that the AAN project was effective in achieving its goals probably because all relevant stakeholders were involved and sensitized on all project activities and the need for them to support the project in ensuring farmer-herder peaceful co-existence. The impact criterion measures the extent to which an intervention has or will likely have significant positive or negative, direct or indirect effects on beneficiaries (Reed et al., 2021). Project impact criterion bothers on what difference the intervention makes. A few reasons may account for the stakeholders' positive evaluation of the AAN Projects' contribution to farmer-herder peaceful co-existence. First, the project implementers engaged all relevant stakeholders from the project initiation and planning stages up to its implementation. Secondly, the project removed the communication barriers between the conflict actors and for the first time, farmers and herders sat together to discuss their views on the conflict. It was also noted that some actors' perspectives on certain issues in the conflict such as who should have access to which land and who should be excluded softened with time due to the new insights such actors gained from the project results. In addition, the fact that the project supported the local government to formulate by-laws that recognizes the rights of both farmers and herders to regulate the activities of transhumance herders was a strong indication of the projects' contribution to peaceful co-existence of farmers and herders. The findings are consistent with Gukas (2019) who revealed that the interventions of non-governmental organisations significantly impacted in the peace building between farmers and herders in the Plateau State of Nigeria than governmental interventions due its collaboration with community leaders, farmers, herders, government agencies and all relevant individuals and institutions that had stake in the farmer-herder conflict.

On the issue of sustainability of project results, the question of "will the outcome of the AAN project last*?"*, was answered by participants in the affirmative. Unlike development projects, the sustainability of research projects is difficult to predict and depends very much on beneficiaries' capacity and willingness to use the results to influence policy and practice (Negi and Sohn 2020). In the present case, the stakeholders evaluated project sustainability based on their hope for the continuous use of the dialogue which the project has initiated as well as actors' preparedness to continuously argue their case based on research information. This of course, has cost implications for the local government since it must organize and fund the dialogue and build the capacities of all relevant stakeholders (district assemblies, traditional authorities, farmers and herder association, etc.) in effective dialogue and the need to continue to rely on dialogue as a way of sustaining the prevailing farmer-herder peaceful co-existence and uninterruptible livelihoods. Probably the single most important indicator of sustainability of project results is the bylaws facilitated by the project. Its successful implementation will ensure that actors' behavior is better regulated, and funds can be generated by the local government to fund the dialogue and other activities related to the conflict.

Findings from the AAN project is coherent with Timpong-Jones et al (2023) who revealed that for the ECOWAS cross -border transhumance protocols to be effectively enforced and complied to avoid farmer-herder conflict, there is the need for these policies to be operationalized and discernible gaps addressed. In view of this, the AAN project collaborated with the Sekyere Afram Plains to draft and gazette by-laws on transhumance pastoralism to regulate the cross-border movement of transhumant herders and their herd as provided in the ECOWAS (1998) Protocol on Transhumance.

4.2 Implications of Project's Effect on Peaceful Co-existence of Farmers and Herders and the Legitimacy and Authority of Institutions in State Building

Before the project's execution most conflict actors in the study area did not understand the frustrations and plights of the other, which complicated the conflict resolution process. However, the project's platform for sharing research results also served as a means for stakeholders to share their perspectives on the conflicts especially the conflict effect on their livelihoods and functionality of the institutions they serve. This has contributed to the present relatively peaceful co-existence between farmers and herders. The AAN project provided a platform for the voices of the vulnerable voiceless group such as herders and women. Stakeholders perceived that the project's activities have indirectly culminated in reducing crop and cattle damage. This suggests that it has contributed to farmers' and herders' livelihoods security.

The politico-legal institutions such as traditional authorities, local government and the police that have been drawn into the conflict have had their legitimacy and authority dented due to the way they acted or failed to act in conformity with other conflict actors' expectations. Whilst the project was not designed to restore these lost images, it provided opportunity for the affected institutions to get feedback on their performance thus enabling them to reflect on what society expects of them going forward. In another sense, the institutions managing the conflict are compelled to step-up their game to sustain the trust bestowed on them by the people. The conflicts' impact on institutions is very important since weak institutions is a threat to law enforcement and security in the area and can undermine state building processes and dynamics (OECD 2011).

4.3 Implications of Findings on Project Evaluation

A project's success is judged based on what project implementers aimed to achieve. Hence, project success is contextual, and project evaluation should not be based on a singular criterion. The findings from this study show that having multiple criteria enables project assessors to examine its success from different dimensions and perspectives. Evaluation of this nature makes it possible to see differences in project impact on beneficiary stakeholders as well as aspects of the project that need to be improved to meet stakeholder expectations. The results also point to the fact that a research project's relevance has significant correlation with how compatible the project activities and objectives are with other projects or interventions and defines the intensity of impact a project could achieve as well as how sustainable the outcome could be. The implication is that projects should not be evaluated in isolation but with reference to other initiatives and developments taking place in the projects' spatial and temporal area of influence. In addition, a multi-stakeholder evaluation provides more robust results that lend themselves to further enquiry for specific stakeholder views on project performance. Differences in stakeholder views may be important in addressing specific stakeholder needs in future projects in the area. Although farmer-herder conflicts have been well researched in West Africa, the results of this study show that stakeholders consider research to be still relevant in society's quest for workable solutions to the conflicts. This means more research should be supported but research should go along with interventions such as stakeholder engagement to make it impactful.

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Authors contributions

Dr. SIA: Conceptualization of topic, literature review, development of data collection instruments, data collection and analysis, and first draft of paper. Prof. BK: Conceptualization of topic, development of data collection instrument, data collection, searching for funds, and review of first draft. Dr. PO: Conceptualization of topic, development of data collection instrument, data collection, searching for funds, and review of first draft. All co-authors contributed substantially in preparing the manuscript.

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Competing interests

The authors declare no conflicts of interest regarding this manuscript. The authors affirm that the research was conducted in an objective and unbiased manner and that the findings presented in this manuscript are based on sound scientific principles.

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