Stakeholders' Decision Making and Sustainability of Potato Projects In Rubanda, Uganda

[1]Agaba Moses, [2]John Bosco Turyasingura, [3]Arinaitwe Julius Byarugaba, [4]Jasper Atukwase, [5]Ngele Mwazuna Alice

[1, 2, 3,] Department of management sciences, Faculty of economics and management sciences Kabale University
[4]Department of procurement and Logistics management, Faculty of economics and management sciences, Kabale University
[5]Department of Business Studies, Faculty of Economics and Management Sciences, Kabale University
agabamosez@yahoo.com

ARTICLE INFO

Research Paper

ABSTRACT

With a focus on potato projects in the Rubanda district, this study aimed to investigate how stakeholder decision-making affects the sustainability of donor-funded agricultural projects in Uganda. A cross-sectional survey design was used in the study. A total of 139 respondents' data was gathered, and both quantitative and qualitative analysis were performed. Frequency tables were used to display the data because descriptive analysis involved describing a single variable and its characteristics. A Pearson correlation matrix was used to determine the relationships between the dependent variable and the predictor variables at the bivariate level. To fit the data, a linear regression model was employed. Regression model research results indicate that stakeholders' decisions regarding potato projects have an impact on project sustainability (R=829). The primary finding of this study is that decisions have an impact on the sustainability of potato projects in the district of Rubanda. Therefore, if the sustainability of potato projects in Rubanda district is to be achieved, the study suggests that project managers and project implementers should focus more on stakeholder decision making.

INTRODUCTION

Rubanda District in southwest Uganda faces a number of institutional, social, economic, and environmental challenges that make potato initiatives unsustainable (Turyasingura &Agaba (2023). Understanding these challenges is essential to developing practical strategies to improve the sustainability of farming practices in the district (Turyasingura, Agaba, Orach-Meza & Zombeire 2021). Soil degradation may result from ongoing potato farming if proper soil management techniques are not used. This involves erosion and depletion of nutrients, which are made worse by high rainfall and ineffective land management techniques. Potato production is seriously threatened by the effects of climate change, which include higher temperatures and erratic rainfall patterns. Crop yields may be impacted, and crop susceptibility to pests and illnesses may rise (Turyasingura, Agaba, Orach-Meza, Zombire, Kyabarongo, 2022). Due to poor infrastructure, farmers in the Rubanda District frequently have trouble reaching markets. Produce cannot be transported to metropolitan areas where costs are

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higher if the roads are in poor shape. Farmers may find it more difficult to invest in sustainable methods due to the growing costs of agricultural inputs like pesticides, fertilizers, and seeds. Due to their limited resources, many smallholder farmers may turn to non-sustainable farming practices in an effort to save money. Local farmers frequently lack access to knowledge on optimum farming methods (Agaba &Turyasingura,2023) Education programs are required to increase understanding of sustainable farming practices. Though they contribute significantly to agriculture, women's access to resources including land, loans, and training programs is frequently restricted when compared to that of men (Nuwagaba, & Muwanga-Zake 2020). Farmers do not profit from advances that could increase sustainability since there is a lack of funding for regionally focused agricultural research (Turyasingura, Agaba &Tamwesigire,2023). Onyango, George Nyakoyo, and Abuya (2020) explains that, A multi-layered strategy comprising cooperation between governmental organisations, non-profits, local communities, and educational institutions is needed to address these issues. However, to achieve the above strategies to achieve sustainability of potato projects in Rubanda District, there is need for stakeholders' involvement in decision-making from the village, parish, subcounty, district up to parliament which is a policy formulating organ. This is issues of gender equity measures, better infrastructure, market accessibility, training on best practices, and regulatory frameworks that support them can all contribute to more sustainable potato growing in the district. Stakeholders' involvement in decision-making processes is critical for ensuring the sustainability of agricultural projects, including potato farming initiatives. When stakeholders are actively involved in decision-making, they are more likely to support and invest in the project, leading to better outcomes and sustained benefits Sartas, *et al*, (2019). Decision-making processes in potato projects should therefore include mechanisms for stakeholder input and feedback to ensure that project plans align with local needs and priorities. The purpose of this study was to examine the effect of stakeholders' decision-making on sustainability of potato projects in Rubanda District.

LITERATURE REVIEW
Globally, the sustainability of potato projects has become increasingly linked to how decisions are made by various stakeholders along the value chain.(Agaba & Turyasingura,2025) Empirical evidence shows that participatory decision-making involving farmers, researchers, policymakers, and private sector actors increases the adoption of sustainable practices, boosts productivity, and promotes long-term project outcomes. For example, studies show that collaborative decision-making processes in seed systems and value chain upgrading improve both economic and environmental sustainability (Birch et al., 2022; Balin *et al*., 2024). The Food and Agriculture Organization (FAO, 2008) also emphasizes the importance of active stakeholder engagement in project governance in developing countries, as fragmented potato value chains reduce sustainability prospects.
Potato production in Africa is constrained by weak seed systems, poor market links, and insufficient stakeholder coordination. Empirical analyses show that inclusive decision-making processes, particularly in seed production and distribution, have increased farmers' access to quality inputs and strengthened potato project resilience (FAO, 2008). A study conducted across several African countries discovered that project designs that included private seed producers, NGOs, and farmers' associations in decision-making platforms resulted in better sustainability outcomes (AGRA, 2020). However, sustainability issues persist due to low financial inclusion and poor local governance (Warinda et al., 2022). Potato is a priority crop in East Africa, and research shows that its sustainability is dependent on the level of decision-making participation of stakeholders such as government agencies, seed companies, farmer organizations, and donors. Empirical evaluations in Kenya, Uganda, and Tanzania show that projects based on regional stakeholder platforms and seed potato strategies significantly increased yields and farmer livelihoods (ASARECA, 2024; CGIAR, 2023). For example, AGRA's (2020) synthesis report shows that multi-stakeholder interventions increased adoption of improved potato varieties and reduced post-harvest losses. However, sustainability suffers when decisions are dominated by donors with insufficient local participation (Warinda et al., 2022). According to Ugandan research, stakeholder resource mobilization, decision-making participation, and

intervention ownership all have a significant impact on the sustainability of potato projects. According to research in Kabale District, while donor and government-funded potato projects increased production initially, their long-term impact was limited by a lack of community involvement and inadequate funding after the donors exited. Projects in which stakeholders made joint decisions about input supply, extension services, and monitoring systems produced better sustainability results (Mugisha, 2023). This emphasizes the importance of participatory decision-making in ensuring the continuity of benefits. Empirical research on Irish potato farmers in Rubanda District emphasizes the importance of local institutions and decision-making at the community level. According to studies, when farmer cooperatives, local leaders, and NGOs participate actively in decision-making, adoption of sustainable practices such as disease-resistant varieties and climate adaptation strategies increases (Kwesiga, 2021; Nuwagaba, 2022). Institutional barriers, such as limited credit access, weak bylaw enforcement, and unequal participation in decision-making forums, jeopardize sustainability (Kwesiga, 2021). These findings indicate that localized, inclusive stakeholder decision-making is critical for sustaining potato projects in Rubanda.

Although many studies have demonstrated the importance of stakeholder involvement in agricultural projects on a global and regional scale, much of the empirical research focuses on seed systems, productivity, and market linkages (Birch et al., 2022; FAO, 2008). There is little understanding of how specific stakeholder decision-making processes (such as resource allocation, monitoring, conflict resolution, and activity prioritization) affect the long-term viability of potato projects in rural Uganda. Existing research on Rubanda District focuses on institutional determinants and climate adaptation (Kwesiga, 2021; Nuwagaba, 2022), but little is known about the relationship between local decision-making dynamics and project sustainability. Thus, there is a knowledge gap in understanding how stakeholders' decision-making influences sustainability outcomes in smallholder potato projects.

The majority of previous research on potato projects in Africa has focused on agricultural development or value chain perspectives (AGRA, 2020; Mugisha, 2023). However, governance and stakeholder participation theories (such as Stakeholder Theory, Institutional Theory, and Participatory Development frameworks) have been used sparingly to explain why some projects survive after donor withdrawal while others fail. This results in a theoretical gap: a lack of robust theoretical integration that connects stakeholder decision-making processes to sustainability outcomes. Applying stakeholder theory and participatory governance models could help provide a more clear explanatory framework for why projects succeed or fail to sustain impact.

Existing empirical research on potato projects in Uganda and Rubanda is mostly descriptive, case study-based, or cross-sectional (Jamaal et al., 2022; Mugisha, 2023). Few studies have used mixed-methods or longitudinal designs to examine both quantitative outcomes (e.g., yield, income, project continuity) and qualitative processes (e.g., perceptions, participation, power dynamics) in stakeholder decision-making. Furthermore, there is a methodological gap due to the limited use of comparative or experimental approaches that could identify causal relationships between stakeholder decision-making practices and sustainability metrics. This reduces generalizability and undermines policy recommendations for scaling interventions.

METHODS

In this study, a cross-sectional research design was used. A cross-sectional survey offers a one-time chance for a thorough examination of the details of the data gathered (Turyasingura and Agaba,2023). The study extrapolated the results to the entire population by considering the beliefs, inclinations, routines, anxieties, attitudes, and opinions of the target sample. A cross-sectional survey was suitable for this study since it considered elements such as economical design, speedy data collection, and the ability to understand a population from a small portion of it. A cross-sectional design was employed, combining quantitative and qualitative techniques. .Area of study The study was conducted in the Rubanda district of Muko and Ikumba, two sub-counties in southwest Uganda. One of the reasons is that donor-funded projects have long been implemented in these areas, and the majority of farmers in this district rely on growing potatoes. The district has a total area of 660.2 square kilometers. The

district is between 1,219 meters (3,999 feet) and 2,347 meters (7,700 feet) above sea level. The area is perfect for growing Irish potatoes because of its elevation (Agaba, Turtasingura & Kabagambe,2023).

Study Population,
The population (Plaisier, Dijkxhoorn, van Rijn, Bonnand, & Talabi, 2019). According to Epp et al. (2019), it is the total population of a place that is part of a specific racial, social, cultural, socioeconomic, or ethical subgroup. The portion of the population chosen especially to enable the study of the parent's characteristics is known as the sample size. "Population" refers to the entire group of people, events, or exotic items that the researcher wants to examine. Additionally, larger sample sizes are often associated with more reliable results (Devaux, Goffart, Kromann, Andrade-Piedra, Polar, & Hareau, 2021) and Benon,*et.al*, (2025). But because the group under study is homogeneous, he continued, selecting an even smaller population still produced reliable results if all of the population's constituents were thesame. During the study process, a small sample was recommended as a very acceptable approximation due to its closeness to the features of the location under investigation. 174 farmers selected by cluster sampling from Irish potato farmer groups, two sub-county chiefs, two community development officers, and four extension workers from the production department of the Rubanda district comprised the study's target population of 182 participants.

Sample size determination

According to Devaux et al. (2021), a sample is a subset of the members of a population. A person who takes part in a sample is called a subject. The term "population" refers to the entire population, noteworthy occurrences, or intriguing items that the researcher wishes to investigate. Thus, the Rubanda district served as the study's location. A subset of the population whose outcomes are representative of the total population is called a sample. A sample size of 139 was determined using Yamane's formula.

Considering a population of 182 a total number of 139 respondents was selected using the Yamane (1967:886) formula. This provided a simplified formula to calculate sample sizes.

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

Where;
$n = sample\ size$
$N = population$
$e = level\ of\ precision$

$N = 182$

$e = 0.05$

By substituting;

$$n = \frac{182}{1 + 182(0.05)^2}$$

$$= \frac{182}{1 + 182 * 0.0025}$$

$$= 125$$

Catering for non-response of 10 % (125/1-0.1) will give a sample size of 139.

Table 1: Category of the study population, population sample size

Study population/ category	Total population	Sample size to be selected	Sampling technique
Selected Farmers from farmer groups	174	131	Simple random sampling
Sub county chiefs	02	02	Purposive
Community development officers	02	2	Purposive
Extension workers from the production department in Rubanda district.	04	04	Purposive
Total	**182**	**139**	

Sampling techniques and procedure

Douthwaite (2020) defines a sampling approach as a method by which the researcher selects representative members of the population. Sampling methods are processes for selecting samples from the population. Sample-based data collection is quicker, less expensive, and requires less effort than collecting data from the entire population. A more thorough evaluation of the items in the population is made possible by sampling. Both purposive and cluster sampling methods were used by the researcher.

The findings are based on a range of objects, persons, and things that had varying chances of being included in the sample. Purposeful sampling, according to Plaisier *et al*. (2019), entails choosing the sample non-randomly by applying the researcher's discretion and population knowledge. The researcher chose this approach because it allowed for the selection of participants based on their application of sustainability and project implementation in Rubanda District.This sampling strategy is cost-effective, which is another reason the researcher considered it, because only a small portion of the population with relevant information about the study area was sampled. The researcher employed this methodology to select 131 Irish potato farmers, two sub-county chiefs, two community development officers, and four extension agents from the Rubanda district's production department. This approach is appropriate for the study since it allows for the collection of accurate data and information from respondents who are believed to be more knowledgeable and skilled about the subject.

Eligibility criteria

Data collection instruments

 Questionnaire

A questionnaire is a professionally created tool that consists of statements and questions intended to directly gather information from individuals (Mugenda and Mugenda, 2003). It is a crucial research instrument that collects accurate and timely data from a sizable sample of respondents. To guarantee a sufficient response rate for the study, a closed-ended questionnaire comprising sections on demographic (background) information and study variables was created and given to participants. It was based on five categories: strongly disagreeing (SD), disagreeing, agreeing, and being undecided. Compared to most other attitude measures, the Likert scale is much more adaptable and simpler to construct (Amin, 2005). It allows the test-taker to choose the response that most accurately captures how they feel about each statement. Each response is averaged after being weighed on a scale of 1 to 5. (Amin, 2005). The questionnaire was used to gather quantitative data.

Interview guide

According to Agaba *et al*. (2023), an interview guide is a list of subjects and questions that are discussed during the interview. The interview method of gathering data will be facilitated by the use of an interview guide. The researcher conducted interviews using the format of the questions that acted as a guide for the study.

Validity and reliability of research instruments
Validity is the extent to which the findings of data analysis accurately depict the phenomenon under study. After developing the study tools and conferring with Kabale University supervisors, the researcher pre-tested them on respondents from the Kabale District who had traits in common with those from the Rubanda District, where the study was carried out. By pre-testing the research tool, flaws such as complicated or unclear questions, questions with limited space for answers, crowded questions, and improper numbering can be identified and corrected (Kothari 2014). After the researcher spoke with the two supervisors from Kabale University, four judges were asked to evaluate the items on each instrument. Next, each judge's percentage of valid items was divided by the total number of items to calculate the content validity index (CVI).
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Thus, $CVI = \dfrac{\text{Number of items rated relevant by expert}}{\text{Total number of items in the instrument}}$

Summary of the reliability statistics

Judge 1.   = 125/139=0.899

Judge 2.   =115/139= 0.827

Judge 3.   = 119/139= 0.856

Judge 4.   = 124/139=0.892

Therefore 0.899+0.827 +0.856+0.892=3.474. 3.474/4=0.869

These findings suggested that the research tools were appropriate for gathering information about the execution of sustainable farming initiatives. As illustrated by an example involving potato initiatives in the Rubanda District, instruments must have an average content validity index (CVI) of at least the number of certified valid items divided by the total number of items in order to be considered authentic (Amin, 2005). 0.7. Given that the CVI value exceeded 90%, the instruments were deemed valid (Amin, 2005). ;;;

Reliability of research instruments

Reliability is the extent to which an instrument reliably measures what it is supposed to measure (Amin, 2005). The Cronbach alpha (Cronbach, 1951) reliability coefficient, which computes the average correlation or internal consistency of the survey's items, assesses the reliability of a survey instrument. The higher the score, the more reliable the generated scale is. Dorothy, *et.al*, (2024) & Schrepp (2020), claims that a reliability coefficient of 0.7 alpha is sufficient**.** To ensure reliability, the researcher used the same instruments on the same respondents three times to check for consistency in the results. With a particular focus on potato projects in Rubanda District, the researcher conducted a pilot study on the effect of project implementation on agricultural project sustainability.

The scores found at 0.7 and above alpha values indicated good credits hence better for use (Amin, 2005).

Table 2. **Reliability**

Variable	Reliability statistics
Power,	0.841
legitimacy, and	0.804
Urgency	0.891
Sustainability	0.877
Total	3.413
Average	3.413/4=0.853

Data analysis

Turyasingura et al. (2022) claim that the data is evaluated. It is necessary to apply logical and statistical methods methodically in order to explain, summarize, and compare data. The researcher coded, examined, and generated key themes from all of the qualitative information acquired through document analysis and key informant interviews in order to gain insight into the phenomenon under study. The quantitative data analysis procedure employed both descriptive and inferential statistics. The data was first analyzed by computing frequencies, which included means and percentages, to ascertain respondents' opinions regarding the sustainability and impact of project implementation of donor-funded agricultural projects in Uganda, specifically potato projects in Rubanda District, Western Uganda. Pearson's coefficient (+ or -) was used as the basis for the correlation technique, which was based on two-tailed correlations and significantly more than or equal to 0.05 to indicate the direction of the relationship between the variables. At the 99% and 95% confidence levels, significance was examined. A positive correlation indicates a direct positive relationship between the two variables, whereas a negative correlation implies an inverse relationship. The regression analysis used the adjusted R^2 values and significance values to determine how much the independent variables affected the dependent variable (Amin, 2005).

FINDINGS

Examining how stakeholder decision-making affects the sustainability of potato projects in Rubanda District was the aim of the study. The researcher's question, "What is the effect of stakeholder decision making on sustainability of potato projects in Rubanda District?" served as the basis for this investigation. Both primary sources (staff) and secondary sources (documented work) provided the data needed to accomplish this. The table below provides a summary of the answers.

Table 3 . Descriptive statistics on stakeholder's decision-making and sustainability of potato projects in Rubanda District.

Statement	5	4	3	2	1	Mean	Std dev
I have participated in potato project decision-making in Rubanda District	32 (23)	72 (51.8)	11 (7.9)	17 (12.2)	7 (5.1)	3.7	1.1
Potato project decisions have been legitimate	35 (25.2)	78 (56.1)	11 (7.9)	8 (5.8)	7 (5)	3.7	1.06
Potato project decisions have helped project stakeholders own the project	30	65	16	15	13	3.68	1.10

	(21.6)	(43.2)	(11.5)	(10.8)	(9.4)		
Potato projects have been a success due to stakeholder's participation in decision-making	34 (24.5)	70 (50.4)	18 (12.9)	11 (7.9)	6 (4.3)	3.6	1.17
Potato projects have given stakeholders the power to make decisions which has helped projects to be sustainable	32 (23)	72 (51.8)	11 (7.9)	17 (12.2)	7 (5.1)	3.7	1.19

Note: Scales: 5=Strongly Agree; 4=Agree; 3=Neutral; 4=Disagree; 5=Strongly Disagree
Source: Field data 2024

Stakeholder decision-making has a major impact on project sustainability, according to the study, and the majority of participants think it is acceptable. During data collection, 74.8% of respondents said they had participated in the decision-making process for the potato project in Rubanda District, while 17.3% disagreed, leaving 7.9% unsure. The mean score was 3.7, with a standard deviation of 1.1. When asked if the decisions made on the Potato project were legitimate, 81.3% of respondents agreed, compared to 10.8% who disagreed and 7.9% who were unsure with mean of 3.68 and standard deviation of 1.10. When asked if decisions made on the Potato project had helped project stakeholders take ownership of the project, 64.8% of respondents said that they had, leaving 11.5% unsure (mean of 3.6, standard deviation of 1.10). With a mean score of 3.6 and a standard deviation of 1.17, 74.9% of respondents agreed during data collection that stakeholder participation in decision-making has contributed to the success of potato projects, while 12.2% disagreed. With a mean score of 3.7 and a standard deviation of 1.19, 74.8% of respondents agreed with the statement that potato projects have empowered stakeholders to make decisions, allowing projects to be sustainable, while 17.3% disagreed, leaving 7.9% of respondents unsure.

Respondent:
"The distribution of resources, including money, labor, and technology, is decided by stakeholders. It also affects regional development and agricultural policies. They can also encourage a feeling of community ownership and act as an advocate for a project. The community is more likely to fully participate when stakeholders are actively involved in decision-making, which promotes the project's sustainable growth."

Respondent:
"Certain projects in the Rubanda district lacked continuity because funding stopped when donors departed, making it impossible to meet community needs. They don't have enough money to keep the project going, for instance, to hold meetings without funding participant refreshments and transportation reimbursement. Due to a lack of government policies that supported them, some projects lacked sustainability. Unpredictable weather patterns, such as droughts, floods, and other related climatic challenges, make some projects unsustainable and make it extremely difficult for farmers in the Rubanda district to maintain their potato projects."

Respondent:
"Due to inadequate project stakeholders' decision-making process, Rubanda projects are not sustainable. Some individual farmers are ignorant of modern farming methods, disease management, and pest control; these lower yields and renders potato projects unsustainable. In the Rubanda district, for example, AFRICARE used to provide farmers with free potato seeds, but because of poor management and a lack of skills, local farmers sold off all of their produce to raise money that they never saved to continue the project at the household level. This lack of market information also deters

farmers from investing in potato farming. However, their lack of pest control expertise reduced their output.''

The study verified that there was a connection between the quantitative and qualitative results, and the majority of the models on the impacts of stakeholder decision making demonstrate that they collaborate for the successful sustainability of potato projects. The two data sets agreed, and it was evident that the qualitative information supported the quantitative information.

Hypothesis Testing;

The Pearson's product moment correlation coefficient was thus used to ascertain the strength of the relationship, as indicated in the table below, in order to validate the alternative hypothesis that there is a strong relationship between stakeholder decision making on sustainability of potato projects in Rubanda District:

Table 4 Correlation analysis on stakeholder's decision makin

		Sustainability of potato projects	Stakeholders' decision making
Sustainability of potato projects	Pearson Correlation	1	.829**
	Sig. (2-tailed)		.000
	N	139	139
Stakeholders' decision making	Pearson Correlation	.829**	1
	Sig. (2-tailed)	.000	.000
	N	139	139

**. Correlation is significant at the 0.01 level (2-tailed).
Source: Field Data 2025

The aforementioned table makes it clear that stakeholder decision-making and the sustainability of potato projects are positively correlated (r=.829, p< 0.01). This result indicates that the sustainability of potato projects in Rubanda District is linked to the decision-making of stakeholders.

Table 5 Model summary of the Stakeholders decision making

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.829a	.159	.154	.14749

a. Predictors: (Constant), Stakeholders decision making
b. **Source field data 2022**

The decision-making of stakeholders has an 82.9% impact on the sustainability of potato projects in Rubanda District, according to the coefficient of determination 899. A meaningful relationship, then.

Table 6 Regression output summary Stakeholders decision making

Model	Unstandardized Cefficients		Standardized Coeficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.941	.219		13.460	.000
Stakeholders' decision making	.299	.054	.829	5.593	.000

a. Dependent Variable: **Sustainability of potato projects**
Source: Field data 2025
The results showed a significant relationship with a regression coefficient of 829 at the 0.01 significant level. With a 95% confidence level of 0.829, the results further support the idea that stakeholder decision-making influences the sustainability of potato projects.

DISCUSSION

There hasn't been much sustainability in the Rubanda District's potato projects. The results of the study show that 89% of the sustainability of the potato projects can be attributed to the decision-making of stakeholders. As per Turyasingura and Agaba (2023). Effective stakeholder decision-making processes that incorporate systematic data collection, analysis, and reporting promote stakeholder accountability and project performance monitoring. According to Nuwagaba (2020), stakeholders include a wide range of individuals and groups, such as farmers, representatives of the local government, agricultural extension agents, non-governmental organizations, researchers, and consumers. The decision-making process that establishes the duration of these projects depends on each stakeholder. Their influence and interests can have a significant impact on a project's outcomes. A variety of stakeholders' involvement encourages collaborative decision-making, which is essential to addressing the complex issues associated with potato cultivation. By combining a range of viewpoints and expertise, stakeholders can identify sustainable practices that optimize output while reducing environmental impact (Agaba *et al*., 2023). For instance, farmers may be asked about their field experiences by agricultural extension specialists who can provide scientific insights into soil health or pest management.

CONCLUSION
In Rubanda District, stakeholder decision-making is directly related to the sustainability of potato projects. To ensure that these potato projects are not only financially viable but also socially and environmentally just, a wide range of stakeholders, including farmers, local government agencies, non-governmental organizations (NGOs), and community members, must participate. It is essential to include all relevant parties in the decision-making process for potato projects. Setting up frequent stakeholder meetings is crucial for discussing the project's goals, challenges, and opportunities. Recognizing and implementing traditional farming practices and indigenous knowledge can help improve sustainability in potato farming.Promoting the exchange of information and viewpoints among stakeholders regarding crop rotation, pest control, and soil management is crucial. Training programs focusing on sustainable farming practices should be developed in collaboration with local

experts to give farmers the skills they require. Before beginning potato initiatives, thorough environmental impact studies must be conducted. Stakeholders should use the findings of EIAs to make well-informed decisions about project design and execution strategies that minimize environmental harm. Promoting sustainable agricultural practices like conservation tillage, organic farming, and integrated pest management (IPM) can significantly increase the sustainability of potato initiatives. Stakeholders should provide funding for the study and creation of sustainable methods tailored to the particular conditions of Rubanda District.

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