

Beneficiaries' Participation and Project Sustainability in Rwanda: A Case of Land Husbandry Water Harvesting and Hillside Irrigation Project in Rulindo District

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DOI: 10.47760/cognizance.2023.v03i11.008

Abstract:

Project sustainability is a global concern, with the goal of ensuring project objectives continue after official closure. However, project failure remains a mystery due to various factors. This study aimed to determine the impact of beneficiaries' participation in project identification, planning, and implementation on project sustainability in Rwanda. The research used stakeholder theory, reasoned action theory, and sustainability theory, with a descriptive design for both quantitative and qualitative data. The study involved 38 participants and a sample size of 35. The researcher analyzed and interpreted theoretical literature, empirical and critical literature, and presented a conceptual framework. Stratified sampling technique was used to select defendants representing various groups, and a regression model was used. Descriptive survey design was used to gather general information and administer questionnaires to respondents. Simple Random sampling method was used for staff selection. Regression analysis revealed that beneficiaries' participation in identification significantly affects project sustainability ($\beta = 0.628$, $p = .000$). However, beneficiaries' participation in planning had no statistically significant effect on project sustainability improvement ($\beta = 0.048$, $p = .689$). However, beneficiaries' participation in project implementation had a statistically significant effect on project sustainability ($\beta = 0.584$, $p = .000$). The study successfully achieved all research objectives and addressed the research gap by acquiring new knowledge from existing literature. The researcher recommends that governments, non-governmental organizations, and private sector federations implement measures to improve beneficiaries' participation in project management skills, and projects initiators, founders, donors, and managers should enhance their capabilities to contribute to project sustainability.

Keywords: *Beneficiaries' Participation, Project Sustainability, Land Husbandry, Water Harvesting, Rwanda*

1. Introduction

According to (Slack, Chambers & Johnston, 2016) and (Normak, 2018), a project refers to the sequence of activities or tasks having well-defined objectives/goals to achieve that must be accomplished within a specific time frame to achieve a certain and exact outcome. Any project needs the resources that help the project team to reach its objectives and the customers (funding institutions or donors) that will help finance the project requirements. Besides projects that may face a different level of uncertainty and risks, every project must have a contractor who will be in charge of coordinating and following up quotidian project tasks.

Project Management Institute and (Normak, 2018) have described that the process of managing projects falls into five (5) stages that contribute to the project life span that starts from the idea formulation of the project up to the project official closing. The initiation stage is the initial stage of the project in which project is officially launched and initiators explain and determine the objectives, requirements/resources, limitations, and risks of the project. At this stage, the shareholders decide whether to continue the project or deviate to another. The second phase is planning which is a roadmap that helps the initiators to carry out the project tasks. At this stage, they break down the project activities, set the deadlines and the resources are allocated.

Beneficiaries' participation in projects serves as promoting the sustainability of the projects in both developed countries and developing countries, but the adopted approaches change depending on country, usually based on the political and socio-economic realities of each country. The participation of beneficiaries is now considered as a significant element which could boost the possibilities of the projects to be sustainable across the beneficiaries' capacity building and their empowerment (Niyonizigiye, 2022). To boost sustainability of projects, Governments, Non-Governmental Organizations, regional and continental agencies etc, are required to embrace participatory approaches in their strategies because this approach empowers beneficiaries to rely on tangible and social community assets and to manage their own development.

In Africa, the most discouraging aspect of the project identification, planning and project implementation is to guarantee beneficiaries' participation because this aspect requires knowledge and skills necessary for project goals achievement. Conferences should be regularly conducted through the identification, planning and implementation process by facilitating beneficiaries to improve their skills about project goals. Project

sustainability requires cautious identification, planning and implementation; without appropriate identification, planning and proper implementation project failure is guaranteed (Thomsett, 2016).

Projects always have the targeted group that will get advantages from the impacts of the project. From the project initiation stage, the initiators define and explain to the shareholders the community that will be benefiting from the project. To limit the community for participating in the local projects may generate the failure or the discontinuity of the project because in most cases the beneficiaries don't feel the ownership of the project (Ako, 2018). Therefore, Governments and organizations must focus in the participatory approach as it creates enthusiasm and ownership in the beneficiaries to the sustainability of the projects. Ineffective planning and design provide the wrong structure of the project plan and it results in a discontinuity of the project after grant funding comes to the end. The projects are getting discontinued too due to poor management; that is the reason why at each stage there should be a monitoring and evaluation which is a tool of investigating how the project is running. After official closing, the project is handed over to the beneficiaries and if they do not take the responsibility of controlling the project, it disappears and the community will not be any more benefitting from it.

The Ministry of Agriculture in Rwanda, in partnership with the funders specifically World Bank has initiated agricultural projects such as Land husbandry Water harvesting and Hillside Irrigation (LWH) through the Rural Sector Support Project(RSSP) in different District of the country to support the improvement of agricultural production and poverty reduction. This increases crops production, increasing household income, and improves social and economic transformation in the country. This research will intend to find out whether the sustainability of the LWH-RSSP project in Rwandan agriculture is resulting from the community/Beneficiaries' participation in the District of Rulindo-Muyanza site.

2. Problem Statement

Project sustainability is the ability of continuing the objectives of the project far into the future after official closing without the funders' authority. In Rwanda, some projects in different sectors sustain and others fail. Agriculture is a key economic sector in Rwanda, where it provides the work for about 70% of the total Rwandans. This sector contributes about a third of GDP (31%) and it is the most strategic sectors in the development of Rwanda. This sector plays also a significant role of foreign exchange yields from the

exports products, such as tea, coffee, pyrethrum, flowers, horticulture, etc. About 75% of Rwandan agricultural production comes from the smallholder farmers (IPAR, 2009). The fertile soil in Rwanda is around 61% of the agricultural territory and that is why the government of Rwanda has devoted to boost the development of the agriculture sector. The GoR has invested significantly in agricultural infrastructures such as mechanization if irrigation in order to increase the agricultural territory and it has invested in organic fertilizers for increasing crops. Different agricultural projects have been funded, launched, implemented but after official closing the projects disappear. Ramias & Fjeista (2015) have pointed out that a good number of the projects are not achieving their goals at 70% and this failure is found from project inception up to its closing. This failure may be grown from the poor leadership in initiating, inadequate planning, poor implementation because project initiators did not include the implementers in project identification for considering their ideas as beneficiaries. Regardless of the critical role played by beneficiaries on project sustainability, project failure remains mysterious. Generally, this research will need to know whether beneficiaries' participation is an important support to the agriculture project and how it can influence the project outcome. This research will show how the participatory approach can be included in project design if it can lead to the project outcome and to what extent the participation contributes to agriculture. Therefore, in Rulindo District-Muyanza site, this research will be giving the responses for whether LHW-RSSP has achieved the sustainable objectives through community participation and at what level which is the fundamental research problem.

2.1 Research Objective

The study aimed to assess the effect of beneficiaries' participation on project sustainability in Rwanda.

3. Literature Review

3.1 Theoretical Review

Beneficiaries' Participation

Participation is defined as an act of involvement in activities or tasks. A project refers to a sequence of activities that has a time frame that is carried out to achieve a specific target at a limited cost and it requires different resources both human and financial for achieving its objectives. European Commission Europa (2005) has indicated that managing a project is always a task, and therefore to guaranty, its success requires being both goal-oriented and cost-oriented. If the participatory approach is applied, it

saves resources and time in the long run and such approach is growing at a high rate because it became the fastest canal for development support and it connects people to decisions making according to their needs (Mansuri & Rao, 2004).

Participatory approach was grown in third world countries when they got their independence in the 1950s, but later it has been spread in Asia, Africa, and Latin America this approach leads to community-based techniques. Mansuri & Rao (2004) have identified that this approach aimed to the extent the roles of Management, roles, and responsibilities apart from profit maximization. The participatory approach suggests that all individuals or groups with reasonable benefits engaging in activities to gain the benefits (Patton, 2008) and he added that the aim of this approach allows the managers to recognize the targeted community and tactically manage them.

The participatory approach became dominant in all development initiatives and (Núñez & Úcar, 2013) indicated that significant social transformation at any initiative cannot be achieved only by external specialists regardless as long as the development is being occurred in developed or third world countries. This approach helps initiators to be capable of including the local communities as one of the techniques of the growth with no outside dominancy (Ako, 2018). Currently, participation is most critical because it allows the communities to describe their needs and become the resources than waiting for the supporters.

Participation is an obligation for social changes and practices which lead the learning (Kelly, 2001). When the beneficiaries are involved in the project many advantages will be recognized such as capacity building and the ability for identifying their upcoming projects. Kumar (2002) acknowledged different participation benefits where he clearly stated that community involvement guarantees efficiency because people form resources to be used for achieving common objectives. When the community participates, initiatives are settled on a plan and also they can participate in directing the project review that facilitates them to follow up the project progress. This leads the project to be goal oriented and it is boosted by allowing the beneficiaries to participate in planning and designing the project. Participation helps the community to learn and they won't be always counting on the outside support for their needs by initiating their efforts and mobilizing their resources to sort out their problems which are effective for eradicating the dependency habit. Beneficiaries' participation leads to being goal-oriented and better decision-makers in projects. This creates and develop inner sense of propriety and responsibility in the community that benefit from the project and this sense pushes the beneficiaries to fight against whatever that can disturb or demolish

what they have set and invest in the project. In addition, the project management might be in the beneficiaries' hands where they must monitor and evaluate what is going on in project stage so that project goals and project objectives be achieved as expected.

The involvement of the beneficiaries or participatory approach is very important to the success of any project and it may have effect at any stage of the project's life cycle (Kobusingye, Mungatu & Mulyungi, 2017) and it is the quickest mechanism for directing the development support by dynamically including the targeted society that is benefiting from the project in the design and management of the projects where the beneficiaries directly control projects decisions (Mansuri & Rao, 2004). EC-EU has indicated that there may be reasons for the beneficiaries to involve in the project or program's activities. With this involvement, people feel a sense of community and acknowledge the advantages of their participation. The social, traditional, and religious obligations for mutual help may be the motivation of working together and this helps the people to get a genuine opportunity to better their own lives and for the whole community.

Project Identification and Sustainability

Identifying the necessities is significant to the capacity development of the communities and this development starts from the identification of the needs (Matu, Kyalo, Mbugua & Mulwa, 2020). If the stakeholders do this with the community, the community will be able to share its vision and fight for its vision to become the reality. In this stage also the beneficiaries will categorize problems they have and they must be able to prioritize them from the most persistent needs and they must assess them by identifying the effects by considering their resources grant (Matu *et al.*, 2020). During the initiation stage, the analysis of the stakeholders can be used as a directing tool that will guarantee that the design of the project is objectively sticking to the desires and competencies of the concerned society and this will help the stakeholders to confirm whether the beneficiaries' participation is possible and applicable during the project implementation.

The evidence found in this introductory phase will be valued for such decision making and when the beneficiaries are involved in the identification of their needs they are having the same considerations on the problem and decides to find out various ways to find out the solutions (Matu *et al.*, 2020) because they have the feeling of the ownership if but they have ignored in this stage the realization of the goals will be

complicated even if there are outsiders who have identified the community's needs and this leads to the delay or failure of the project implementation.

Project Planning and Sustainability

Generally, planning is described as a concept of executive action that symbolizes the proficiency of expecting, affecting, monitoring the environment and direction of change. A project is defined as an activity that has different tasks to be carried out in the well-defined time frame to achieve a particular goal against a cost limits. The planning process starts with revising the present tasks of the project and pinpointing what requirements operationally to be upgraded futuristically. This implies that planning includes the predictions of the results that the project wishes to achieve, and it determines the best and necessary steps to achieve to the projected level of success, whether it is measured financially or goal achievement; that leads to the highest-rated project in customer satisfaction (Cioffi, 2002). To manage a project is always a challenging task that is why it requires a suitable and effective planning for its success (Jugdev & Müller, 2005).

In Project Management, Planning is the critical phase because it is a collaborating procedure used by stakeholders to share their ideas and express the possible means for achieving the desired situation. In this stage, the project details such as financial, tasks, evaluation, are discussed and this makes this stage the most significant. The project goal orientation is realized when the beneficiaries are involved in planning, procurement, and project tasks allocations (Matu *et al.*, 2020).

According to (Rahman, 2005) the budgeting through which the community contribute in, is a pioneering policy-making process, where the beneficiaries participate directly in making decisions and they may have the occasion to highlight community guidelines and keep an eye on public outlays. It has been realized that any plan organized by external specialists may technically be useful but not implore participation by people in their execution (Rahman, 2005). Worldwide they have proved that participatory planning is a smooth way for social equality where responsibility and fairness have also augmented as an effect of participatory planning. The Beneficiaries' participation in the planning stage, gives them feeling of possession and that of controlling the project's activities. However, the community involvement in projects is allowing them to control any decision and it can be done by supporting ideally and financially the project that they have planned for themselves. Beneficiaries' participation in the activities in planning stage of the project, it includes to identify the project objectives and project

goals, project resources and their allocation and the approaches to be used to deliver the project expectations.

Magassouba, Tambi, Alkhalaifat & Abdullah (2019) declare that stakeholders' participation in planning consists of involving stakeholders in defining different ways of planning, improving the statement scope, decide on the group in charge of planning, identifying project outputs and generating the work categorisation scheme, classifying the tasks required to accomplish those outputs and connecting the activities in their reasonable arrangement, approximating the required resources for various tasks, approximating timeframe and activities cost, establish and develop the schedule, upgrading the financial plan, planning risks and obtaining official authorisation for starting work.

Project Implementation and Sustainability

Normally, the community that benefits from the project result is also part of stakeholders and they must involve in the implementation phase. This phase, is the phase in which all plans start being put into action and it helps to direct human resources and other resources to execute the plans. As in other stages, this also is realized by the stakeholders in different resources such as financial, human, and materials. Beneficiaries' participation in the implementation of projects plans is a crucial exercise in the management of the projects. The involvement of the beneficiaries generates inner feeling of responsibility and proprietorship of the project and it brings about the sustainability of the project outcomes (Marks, Onda & Davis, 2013). When the beneficiaries contribute to the project financially or in kind, it helps to use the home-grown resources and it reduces the dependency on outside resources (Dipholo, 2007) and this limit the dictatorship of outside influencers and it determines the real needs of the beneficiaries (Dongier *et al.*, 2003).

3.2 Empirical Review

Various authors (Goedknecht & Silvius, 2012), (Turner, 2010) and (Imani & Etezadi, 2016) have provided different scopes through which the sustainability is referred to. Those scopes are: maintaining a balance of social, environmental and economic interests; harmonizing the orientation locally, regionally and globally; short-term and long-standing direction; ethics and values; accuracy and liability; stakeholder contribution; risk cut-backing and consuming income and not capital. Social, environmental and

economic are all three supports of sustainability and it is advised to promote positive and reduce negative sustainability impacts over project phases (Tam, 2010).

Beneficiaries' participation and Project sustainability

The study conducted by Grifoni *et al.*, (2014), they have emphasized that participatory approaches towards development, are validated by ensuring that the investment is cost and goal oriented, and by contributing to procedures of standardization and authorization. It is clearly proved that the sustainability is guaranteed if the beneficiaries have involved properly in the resources, services, and facilities management.

A study carried out by (Menoka, 2014) on stakeholders' engagement and sustainability related project performance. This study aimed to develop the construction project performance by attaining construction sustainability. Empirical investigation of this study was performed through diverse research methods and appropriate research techniques. Analysis of variance exposed variant views of roles of participants, strategies of companies towards the stakeholders' engagement, performance and sustainability of project in construction.

Khwaja (2004) has conducted a study on increasing communities' participation in projects. He evaluated projects in Northern of Pakistan; he found that beneficiaries' involvement increases project outcomes in non-technical assessments but not in technical decisions but not valuing the practicality of a people-centred orientation in development, nor to dismiss all attempts at community-based development leads to the unsuccessful. He indicated increasing beneficiaries' participation in technical decisions leads to poor project outcomes which is the project failure and it is advised to better increase the beneficiaries' participation in financial or in-kind contribution long-term the project sustainability.

Beneficiaries' participation in Project identification and Project sustainability

Every project has desired goals or objectives that project planners are expecting to be achieved. The project must follow all project stages so that project planners manage to monitor the project success. A stakeholder is a group of people or an individual who is affected by the attaining of project objectives or who can affect the project (Fudge & Wolfe, 2008) and a stakeholder might be actively involving in project. Project beneficiaries are also among the stakeholders because they are benefitting from the project goals achievement.

The project initiators must identify the stakeholders, expectations of any project and the stakeholders may call the community and beneficiaries participate for a fast and accurate realisation of the project activities because of the beneficiaries' involvement (Dill, 2010). Beneficiaries are profiting for having their expectations understood and managed by warranting them the significance of their backing to the project requirements and they have a lead in the project's outcomes. In identification stage, it might be planned and addressed all the challenges that may cease the project to keep on delivering the expected benefits and the strategic measures to be applied out of funding authorities (Khwaja, 2009). To plan the strategies that will be used against any limitation is the foundation of the sustainability and in this process project planners must recognise the long term expectations from the project. These expectations must be kept even after the funding is withdrawn in order to meet the project's objectives (Keeys, 2012). The identification procedures describe the project nature and project opportunities or project scope. If this step is not done well, the project is unlikely to be successful and sustainable (Adan, 2012).

The research conducted by (Wanjiru, 2016) about the Influence of stakeholders' engagement on performance of street rehabilitation programmes in Nairobi-Kenya. In project identification stage, the following were expected: understanding stakeholders' expectations, understanding what support the programme was in need from stakeholders and initiating the programme requirements. In this study, most of the respondents have shown that to involve the stakeholders in identification of the project or program is very crucial as indicated by mean 4.49, 4.78 and 4.53 where the standard deviations are 0.57, 0.98 and 0.88 respectively. This implies that stakeholders' involvement in the identification stage of the project was worthy because it has facilitated the programme objectives to be attained. Therefore, beneficiaries' participation in project identification may affect positively the other phases of the project towards the achievement of the project goals which leads to the project sustainability.

Beneficiaries' participation in Project planning and Project sustainability

Planning is a critical stage of projects management. After the initiation stage, the project must be strategically organised to an appropriate level of detail. The major objective is to organise scheduling, to analyse the resources and cost suitably, doing the estimation of the work needed and to excellently manage the control of the risks during project implementation. In this stage, project planners, stakeholders especially the beneficiaries

share their knowledge and they identify how it should be implemented and used for achieving the project expectations. In this stage project details are discussed such as budget, finding out and allocating the resources, tasks allocation and evaluation plan (Matu *et al.*, 2020). The project is said to be effective project when the beneficiary of the project is participating in project phases especially in planning, purchasing the requirements and allocating tasks as it increases accountability and ownership for the beneficiaries.

In the study conducted by (Bazimya, 2018), titled influence of stakeholders' participation on performance of public projects in Rwanda, in this study, the case study was water, sanitation and hygiene (wash) project in Musanze District, it has been proved that 95.1% of the respondents have responded positively about the positive impact of planning stage. They agreed that project planning had helped them to have a clear picture on project expectations whilst 4.9% disagreed. As per the maximum of defendants has agreed, the findings shown that the process of planning was very critical to the project beneficiaries as it had given them the opportunity that made them to be aware of various concepts of the projects as well as tasks to be done and their contribution in the project.

A study by (Njogu, 2016) which its objective was about determining the influence caused by the involvement of the stakeholders on project performance, a case of National Environmental Management Authority (NEMA); project was about controlling the automobile emission in Nairobi county, Kenya. The findings shown that the stakeholders' participation in planning stage of this project had a constructive and critical effect in the control of Automobile Emission project Performance where 76% of the defendants specified there was the participation of stakeholders in planning process of NEMA automobile emission project was controlled to a very high level whereas 24% left of the defendants shown that the engagement of stakeholders in planning stage of controlling automobile emission Project by NEMA to a high level. Findings also shown that Beneficiaries' participation in controlling automobile emission planning of project through specifications of resources affect positively the project performance to a high extent with 74% standard deviation. This obviously proved that the stakeholders engaged and participated in planning process and activities of this Project by NEMA to a very high level and it is confirming that the participation of the stakeholders in project planning has influenced the performance of automobile Emission Control Project to a high level which leads to the sustainability based on the strategic measures set by project planners.

Beneficiaries' participation in Project implementation and Project sustainability

The implementation of the project is the stage at which all plans start being put into action. According to (Kagendo, 2013), it is indicated that during the project lifecycle, before the execution the implementers, directed by the committee in charge of the project, should pinpoint their controllable internal factors namely strength and weaknesses, including their non-controllable external factors which are opportunities and threats. During this SWOT analysis, the opportunities and strength are positive factors that must be used for implementing project plans effectively and efficiently while threats and weaknesses are interruptions that may handicap the execution and the Management of project.

A study conducted by (Paddock, 2019) titled Learning and Impact Assessment of Water and Access Projects on Community Health: La Garrucha, Guatemala. The major issue identified in this area was access to health care facilities and safe drinking water. To sort this, EWB-USA had introduced a project where one resolution was to build a bridge for vehicles over the Rio Motagua and this was engaged by 14 communities. The main objective was to grant access to health care, education and buying and selling activities because this river was not crossable for eight months each year. The second solicitation was signed by the community of La Garrucha who required assistance in the design and implementation of a drinking water scheme for its 1300 residents.

The objective was achieved where infant mortality rate was reduced from 38/1000 up to 2/100 and the maternal mortality was completely reduced from 15/1000 up to nil from 2008 up to 2018. Not only this, because approximately 310 pupils were dropping out from primary school each month due to diarrhoea and/or parasites but this was sorted out because of the project impact and a 70-foot vehicular bridge was constructed and facilitates transportation for those using the local road. A part from the funders of this project, even beneficiaries were financing the project financially and in kind because 60 labourers were working voluntarily daily during bridge construction. When this study was being conducted, the bridge was of very high quality and it was still serviceable.

Therefore, to involve the beneficiaries in the project implementation it helps the projects planners to achieve their objectives effectively and efficiently, because the beneficiaries assist they may fund the project either financially or voluntarily funding as labourers. This participation in implementation of projects then, it leads to the sustainability because the beneficiaries feel the ownership of the project concern.

4. Methodology

The study aimed to assess the impact of beneficiary participation on project sustainability in Rwanda. The research design of this study was descriptive, with both quantitative and qualitative data collected. The total population consisted of 38 people and the sample size was 35 people. The researcher analyzed and interpreted the theoretical literature review; The empirical and critical literature examined the correlations to the variables examined as well as the summary and research gaps that needed to be closed. The conceptual framework was also presented. While the model was the regression model, a stratified sampling technique was used to manually select the defendants who were representatives of the target group from different groups. Descriptive survey design was used by collecting general information and distributing questionnaires to a sample of respondents. Descriptive statistics (frequency, percentages, mean and standard deviation) and inferential statistics were used to determine effects. The simple random sampling method was used to select employees to form the sample.

5. Findings and Discussions

5.1 Project sustainability

According to the majority of the respondents (69%), the influence of economic factors on LWH sustainability is very high, with only 31% feeling that it was high (Table 1). Generally, the respondents agreed with an average score of Mean = 4.69 with Standard deviation SD=0.471.

Table 1: Rate of the influence of economic factors on Land husbandry water harvesting and hillside irrigation sustainability

	Very high	High	Moderate	Low	Very low	Mean	SD
	%	%	%	%	%		
From your point of view, rate the influence of Economic factors on Land husbandry water harvesting and hillside irrigation sustainability	69	31	0	0	0	4.69	0.471

This variable has six statements as portrayed in Table 2; most of the study participants feel that beneficiaries' participation in the project at any stage influences customer satisfaction 96.6% at high extent and 3.4% at great extent. On average the participants were agreed with this statement with Mean=4.97 and Standard Deviation = 0.186. Efficiency and effectiveness with 72.5% at Very great extent, 24.1% at high extent and 3.4% at moderate extent. In general, the research participants agree with this statement with an average score of mean = 4.69 and SD = 0.541. Increase in crop production with 96.6% at high extent and 3.4% at great extent. On average the participants were agreed with this statement with Mean=4.97 and Standard Deviation = 0.186. Capacity building of the beneficiaries on mechanism of the irrigation system 62.1% at very high extent and 37.9% at great extent, the research participants agree generally with this statement with an average score of mean = 4.62 and SD = 0.494. LWH project management by beneficiaries 93.2% at very high extent, 3.4% at great extent and 3.4% at Moderate extent. The defendants agreed on average of Mean=4.90 and standard deviation =0.409. Feeling of a sense of project ownership 93.2% at very high extent, 3.4% at great extent and 3.4% at Moderate extent. The defendants agreed on average of Mean=4.90 and standard deviation =0.409. The scored mean greater than 4.21 shows that in general, beneficiaries' participation in the project at any stage influences all the statements to a very great extent.

Table 2: To what level does the participation of beneficiaries in the project at any stage impact the following measures of LWH project sustainability?

Survey statement	Very great extent	Great extent	Moderate extent	Less extent	Not at all	Mean	SD
	%	%	%	%	%		
Customer satisfaction	96.6	3.4	0	0	0	4.97	0.186
Efficiency and effectiveness	72.5	24.1	3.4	0	0	4.69	0.541
Increase in crop production	96.6	3.4	0	0	0	4.97	0.186
Capacity building of the beneficiaries on mechanism of the irrigation	62.1	37.9	0	0	0	4.62	0.494

system.

LWH project management by beneficiaries	93.2	3.4	3.4	0	0	4.90	0.409
Feeling a sense of project ownership	93.2	3.4	3.4	0	0	4.90	0.409

5.2 Project Identification

Of the study participants sampled, a whopping 93.1% participated in the project identification. At the same time, all the defendants think that beneficiaries' participation in identification stage of project has influenced the project's expectations (Figure 1). Similarly, all of the interviewees agreed that beneficiaries contributed to the identification of the LWH project. This information is summarized in Figure 1.

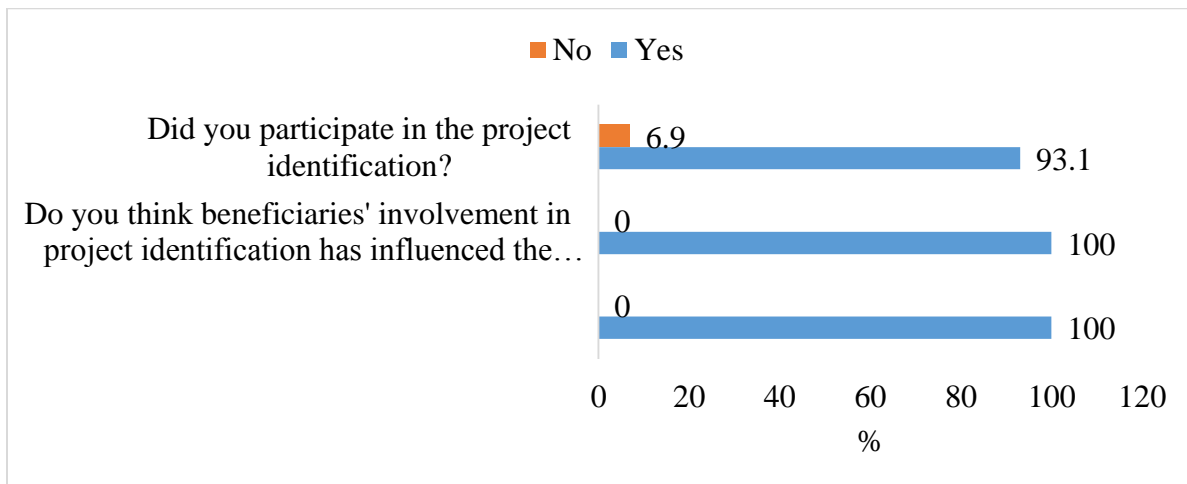


Figure 1: Project identification

Among the 93.1% of those who participated in project identification, majority of them worked in liaison and communication (69%) and data collection and documentation (65.5%), while about half (48.3%) participated in preparation and project planning (Figure 2).

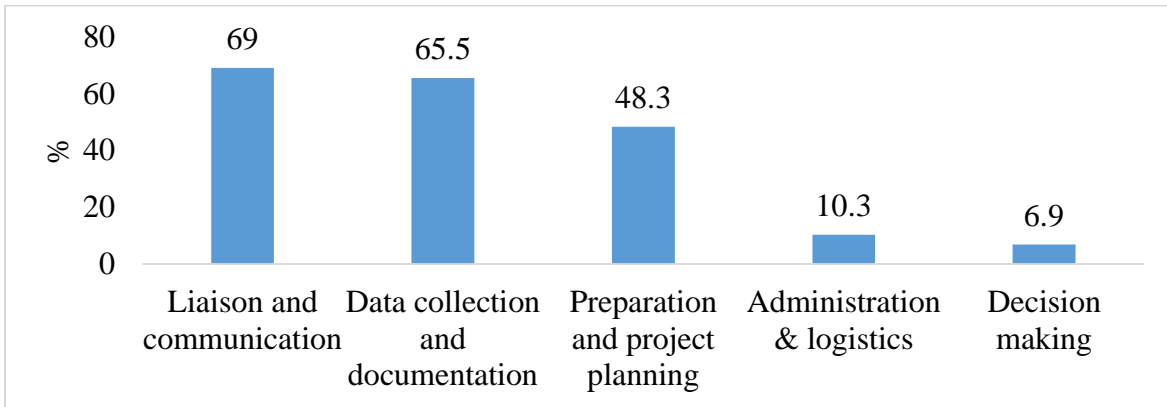


Figure 2: What was your responsibility during Project identification?

From Figure 3, 82.8% reported the emphasis of the project identification as assessment of the beneficiaries’ resources, 65.5% indicators of the project, 51.7% project components and deliverables, while 41.4% thought the project identification focused on communication strategy.

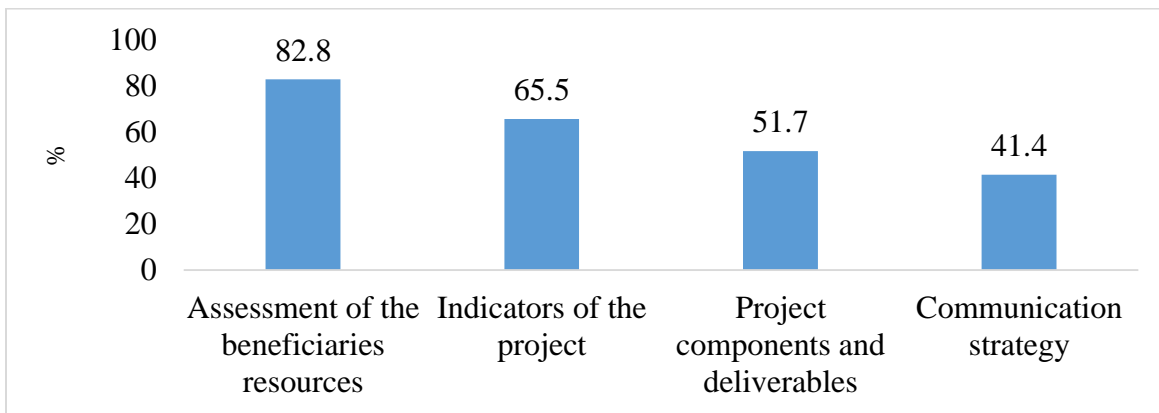


Figure 3: What was the project identification focus?

Table 2 displays the results describing the statements used to construct beneficiaries’ involvement in project identification. From the findings, 58.7%, 37.9%, and 3.4% are of the view that involving beneficiaries in project identification affects project efficiency and project time frame to a very great extent, great extent, and moderate extent respectively. The two survey statements had an equal mean of 4.55(SD=0.572). This

indicates that most of the respondents think that engaging beneficiaries in project identification affects project efficiency and project time frame to a very great extent.

From the results as per Table 3, most of the defendants think that beneficiaries' involvement in project identification influences project sustainability, project effectiveness, and improving process of decision making to a very great extent with percentages equal to 65.5%, 89.7%, and 69% respectively. On the other hand, 34.5%, 10.3%, and 27.6% think that this effect is just to a great extent in the same order. Mean values greater than 4.21 indicate that a majority of survey participants view the impact of engaging beneficiaries in project identification on the respective statements being to a very great extent.

Although more than half of the defendants (62.1%) think that participation in project identification by the beneficiaries enhances project assistance to a great extent, the mean (4.31, SD=0.541) indicates that this level is to a very great extent, in more general terms.

Table 3: To what level do you consider beneficiaries' involvement in identification stage of the project has influenced the following expected aspects of the project?

Survey statement	Very great extent	Great extent	Moderate Extent	Less Extent	Not at all	Mean	SD
	%	%	%	%	%		
Project efficiency	58.7	37.9	3.4	0	0	4.55	0.572
Project timeframe	58.7	37.9	3.4	0	0	4.55	0.572
Project sustainability	65.5	34.5	0	0	0	4.66	0.484
Project effectiveness	89.7	10.3	0	0	0	4.90	0.310
Enhance the project assistance	34.5	62.1	3.4	0	0	4.31	0.541
Improving process of decision making	69	27.6	0	3.4	0	4.62	0.677

5.3 Project Planning

As portrayed in Figure 4, a whopping 93.1% participated in project planning and all respondents have a view that beneficiaries' participation in planning stage of the project impacted the sustainability of the LWH project.

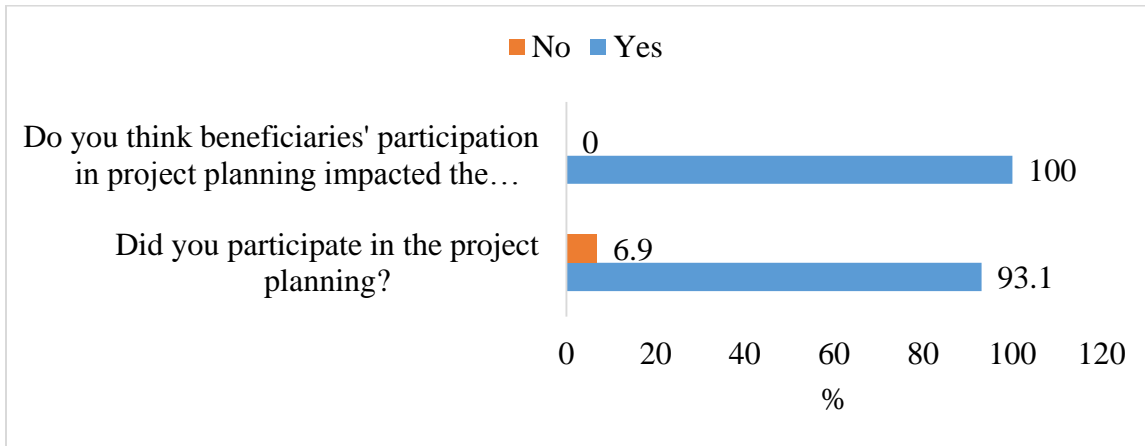


Figure 4: Project planning

Among those who took part in project planning, majority 65.5% of them were tasked with designing research tools and involved as defendants (Figure 5). Less than half reported designing a database (20.7%) and collecting data (6.9%).

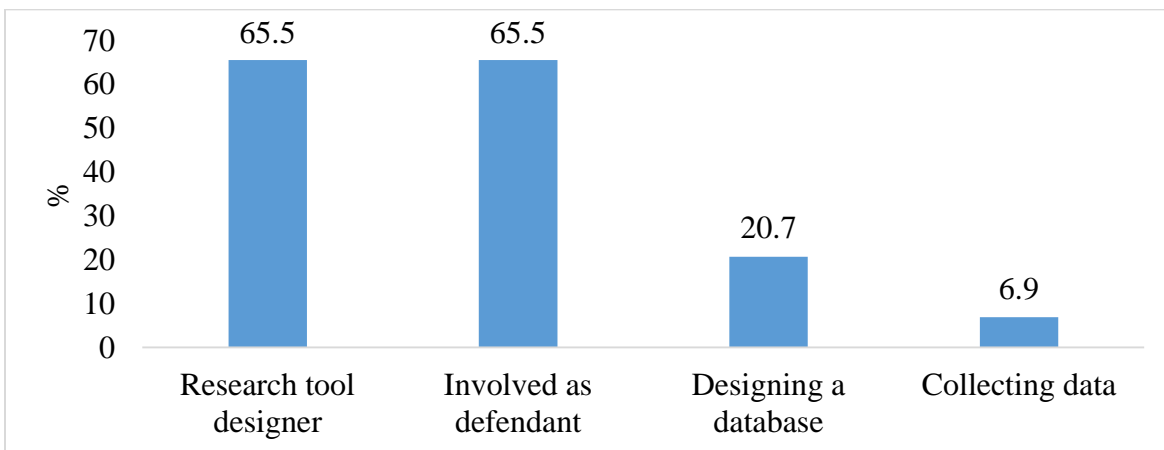


Figure 5: If (Yes) you participated in project planning, what was your task?

When asked about at which level does the beneficiaries' participation in project planning impacted the selected aspects of sustainability of the LWH-Project, most of the respondents think that the statements "Personnel's roles and responsibilities identification" 82.8% at very high extent, 13.8% at very high extent and 3.4% at moderate extent with (Mean=4.79 and SD=0.491). "Resources availability" 89.7% at a

very high extent, 6.9% at a high extent and 3.4% at moderate extent with (mean= 4.86 and SD = 0.441). "Specification of resources" 79.4% at a very high extent, 17.2% at a high extent and 3.4% at moderate extent with (mean= 4.76 and SD = 5.11)., "Allocation of Resources" 93.2% at a very high extent, 3.4% at a high extent and 3.4% at moderate extent with (mean= 4.9 and SD = 0.409). and "Method of delivery" (55.2%) at a very high extent, 41.4% at a high extent and 3.4% at less extent with (mean= 4.48 and SD = 0.688) were impacted to a very great extent (**Error! Reference source not found.**). Those of the opinion that the effect was to a great extent on "project budgeting", "Intervention in giving the security to donor funding", and "Working plan and opening" were 69%, 51.8%, and 55.2% in that order with (Mean= 4.29 and SD=0.460), (mean=4.30 and SD=0.677) and (Mean=4.38 and SD=0.561) respectively. All statements had mean values greater than 4.21, an indication that beneficiaries' participation in project planning impacted each of the statements to a very great extent.

Table 4: At what degree does participation of the beneficiaries in the planning process of the project impact the following aspects of sustainability of LWH-Project?

Survey statement	Very grea t exte nt	Grea t exte nt	Modera te Extent	Less Exte nt	No t at all	Mea n	SD
	%	%	%	%	%		
Personnel's roles and responsibilities identification	82.8	13.8	3.4	0	0	4.79	0.491
Project budgeting	27.6	69	0	0	3.4	4.29	0.460
Intervention in giving the security to donor funding	44.8	51.8	0	3.4	0	4.38	0.677
Resources availability	89.7	6.9	3.4	0	0	4.86	0.441
Working plan and opening	41.4	55.2	3.4	0	0	4.38	0.561
Specification of resources	79.4	17.2	3.4	0	0	4.76	5.11
Allocation of Resources	93.2	3.4	3.4	0	0	4.90	0.409
Method of delivery	55.2	41.4	0	3.4	0	4.48	0.688

5.4 Project Implementation

About 82.8% confirmed that the implementation unit for the LWH project was already in place. All respondents believe that beneficiaries contributed to the project implementation (Figure 6).

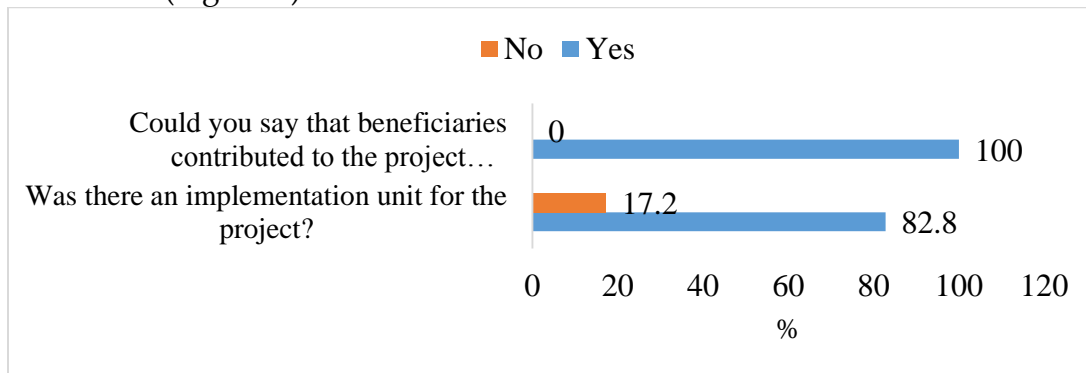


Figure 6: Project implementation

From figure 6, the most of the respondents (75.9%) rated the impact of beneficiary’s participation in the implementation stage on project sustainability as very high, with only 24.1% rating it as high. Around 65.5% of the survey participants reported that the contribution of beneficiaries to the control of operational risks in LWH project was very high while 31% rated it as high with only 3.4% rating as moderate.

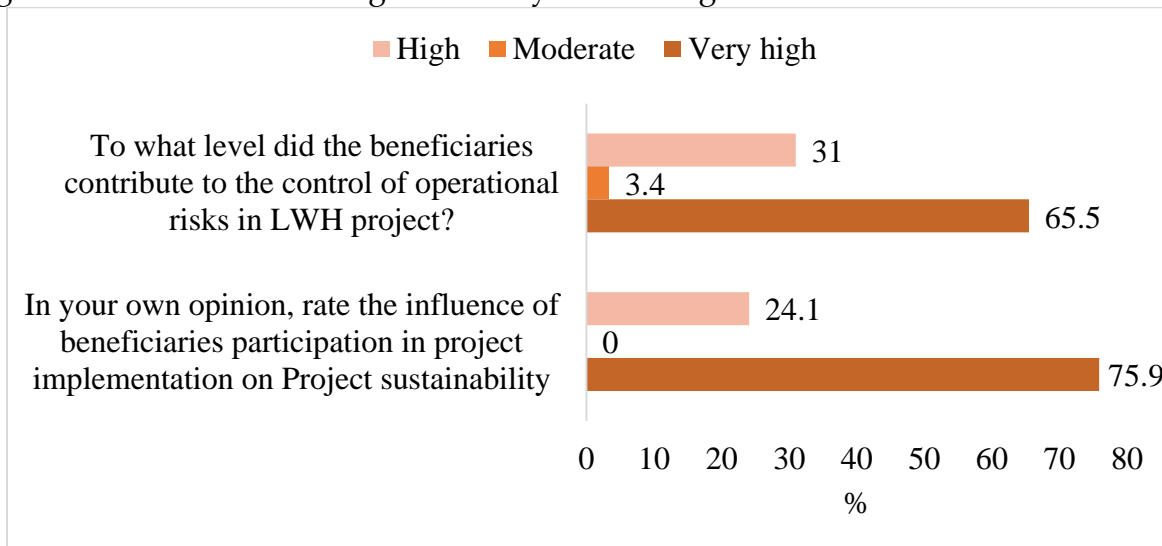


Figure 7: the impact of the participation of the beneficiaries at the implementation stage of the project on project sustainability

Analysis results displayed in the Table 5 indicated that to engage the beneficiaries in implementation of project plans influence, roles and responsibilities identification (75.9%) with Mean=4.69 and SD=0.660, The project budget was prepared by project officials (51.7%) with Mean=4.52 and SD=0.509, the raw materials contribution (62.1%) with Mean=4.59 and SD=0.568, and involvement in offering grants (69%) with Mean=4.66 and SD=0.553 to a very large extent. Respondents felt that “To determine the acquisition for the project and maintaining a kick-off meeting also makes sense” and “Intervention in donor funding security” were affected to a very great extent and great extent proportion (48.3%) with (Mean=4.45 and SD=0.572) and with (Mean=4.41 and SD=0.682) consecutively. The mean scores to all the statements exceed 4.21 meaning that beneficiaries' participation in implementation of project plans influence all the statements to a very great extent.

Table 5: At what level does the participation of beneficiaries in implementation of project plans affect the following aspects of project sustainability?

Survey statement	Very extent	great	Great extent	Moderate Extent	Less Extent	Not at all	Mean	SD
	%		%	%	%	%		
Roles and responsibilities identification	75.9		20.7	0	3.4	0	4.69	0.660
The project budget was prepared by project officials	51.7		48.3	0	0	0	4.52	0.509
To determine the acquisition for the project and holding a kick-off meeting are also logical.	48.3		48.3	3.4	0	0	4.45	0.572
Intervention in donor funding	48.3		48.3	0	3.4	0	4.41	0.682

security

The raw materials contribution	62.1	34.5	3.4	0	0	4.59	0.568
Involvement in offering grants	69	27.6	3.4	0	0	4.66	0.553

6. Conclusion

From the results of this study in chapter 4, it was clearly recognized that the participation of the beneficiaries in project identification, in the project planning stage and in the implementation stage of the project are statistically significant in clarifying of the LWH-project the sustainability in Rulindo district. It was also found that there is a correlation between project management technics and the project sustainability. Beneficiaries' participation in the project identification and their participation in project implementation are highly contributing to the project sustainability while their participation in project planning represents the small contribution. All research objectives were achieved and the gap in this research was addressed by getting new skills to the existent literature because the study was completed successfully.

7. Recommendations

The researcher recommended that Government, Non-governmental organizations and private sector federation establish the measures to improve the beneficiaries' participation in project management skills by taking into consideration the study findings and conclusion

In addition, projects initiators, founders, donors and managers are strongly urged to enhance their capabilities in management of the projects in order to contribute to the sustainability of those initiatives. Beneficiaries, are also required to increase their participation in the project management and in project management capacity building.

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