# Capacity Building Strategies and Performance of Fish farming Projects in Kenya

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**ABSTRACT:**

There is a general concurrence on the role of fish farming projects in Kenya and throughout the world in the creation of employment by providing income opportunities, improving food security and alleviate poverty. The performance of fish farming projects in Kenya greatly improved after the roll out of Economic Stimulus Programme but to varying degrees in different Counties. This programme involved capacity building of farmers who were the implementers of the projects. This study sought to investigate the influence of capacity building strategies on the performance of fish farming projects in Kenya, a case study of the Economic Stimulus projects in Nyeri county. The specific objectives were: to examine the influence of reskilling of project participants on the performance of fish farming projects; to assess the influence of networking for partnerships on performance; examine the influence of leadership development on the performance and determine how the combined influence of capacity building influences the performance of fish farming projects in Kenya. This study adopted a pragmatic research paradigm for a mixed research method in a concurrent research design. The study targeted all the eight fish farming projects funded by the ESP programme in Nyeri County and the sample size was calculated based on Yamane (1967) formula. The study adopted both probability and non-probability sampling techniques. The sample size is 271 respondents comprising of 247 farmers, 8 project managers and 56 committee members from a population of 653 stakeholders.

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Structured questionnaires were administered to collect quantitative data from selected farmers, focus group discussions were conducted to collect qualitative data from the constituency project management committee members while interviews were administered to project managers. The instruments were tested for validity and reliability through the content validity index (CVI=0.833) and the Cronbach Alpha's internal consistency index (a=0.795) for reliability. Pearson's correlation and regression models were used to analyzed quantitative data while qualitative data was analyzed using content analysis. The study found out that all the strategies had a moderate positive relationship; reskilling of participants was average (r=.556), networking for partnerships (r=.567) and leadership development (r=.544) (r=.556) with project performance The study established a significant influence of capacity building strategies ($t=14.07$, $p<0.05$) on performance of fish farming projects. The study recommends that fish farming projects should increase the implementation of capacity building strategies so as to ensure better project performance.

**KEY WORDS:** Capacity Building Strategies, Reskilling, Networking for partnerships, Leadership development Performance of projects

## 1. INTRODUCTION

Performance of projects has been an area of great concern eliciting debate among stakeholders such as scholars, investors, donors and governments. As a result, a variety of performance measures have been fronted for evaluating the performance of a project (PMI 2022). Identifying appropriate measures of performance of projects has been sought so as to inform government agencies determine the most efficient allocation of resources. The aim of implementing projects is to improve the quality of life by uplifting the development measures in terms of activity choices, job choices, income amenities and stability. (Smith & Johnson, 2019).

Many performance measures have been proposed and used to evaluate the performance of projects. However, not all measures apply to each type of project. Factors such as geographic location, type of investment, and purpose of investment may determine which performance measures are best suited for each project. As a result of this discourse, performance measures have been agreed upon in terms of net change in income, employment and output. This has been in consideration of usefulness to the public, usefulness for decision-making the purpose of project, type of project, and impact area (Garcia & Lee 2020).). The argument is that the measures of success such as economic viability for the state, internal rate of return and payback period, should all be aligned with indicators that the project stakeholders are comfortable with, in terms of application and utilization of results. Therefore, for the purpose of this study performance is taken as the net change in income, jobs created, output in food in form of fish, quality of fish, completion rate and project sustainability as are the objectives of ESP in the fisheries sector.

Nyeri County is one of the beneficiaries of the Economic Stimulus Program (ESP), launched by the Kenyan government in 2009. The ESP program supports projects in the education, health and sanitation, food production, environment, local government, industrialization and fishery sectors. The Kenyan ESP in fisheries sector has four objectives namely, to create jobs, produce food and generate income enhance sustainability of fish farming at the constituency level.

The ESP projects are managed at the constituency level. Stimulus Project Management Committees (SPMCs) are charged with the responsibility of implementing the projects through a PM&E process. The SPMCs comprise of representatives from implementing respective line Ministries of Agriculture (Department of Fisheries) the Constituency Development Fund Committees (CDFC) and the fish farmers (MOALD, 2022). The projects are being implemented through a set of capacity building strategies that included reskilling of project participants, networking for partnerships and leadership development.

During the implementation of the programme, the participants were taken through reskilling. This strategy involves training project participants to transition to new roles by teaching them skills related to their current position (Smith & Johnson ,2020). Reskilling targets individuals with adjacent skills closely related to the new skills required by the project. It offers a lateral learning experience, essential for meeting the extensive reskilling demands of today's workforce. The World Economic Forum estimates that by 2025, half of all project participants will need reskilling due to technological advancements (World Bank, 2020). In this programe farmer were trained on new methods of pond construction, feeding and post-harvest handling.

The other strategy employed during this programme was networking for partnerships. This strategy involves seeking out like-minded agencies to collaborate with. Partnerships help project participants combine their resources, share knowledge, and create something new that benefits both sides. They also draw from diverse perspectives and capabilities to foster innovation, efficiency, and expertise (FAO,2020). Networking for partnerships in the context of fish farming projects involves establishing and nurturing relationships with potential Partners such as, government agencies, non-profits, businesses, and community groups that have an interest in or can contribute to fish farming initiatives (MOALD, 2022). It may also be pursued through participation in relevant industry events, conferences, workshops, and seminars related to aquaculture, agriculture, rural development, and sustainable food systems. These gatherings provide opportunities to meet potential partners, exchange ideas, and learn about innovative practices and funding opportunities. Finally, it will be evidenced by joint professional networks focusing on fish farming, agriculture, and rural development. This facilitates in engagement in discussions, sharing experiences, and connecting with individuals and organizations that share similar goals and interests (Garcia & Lee, 2019).

The third strategy employed to build capacity of project participants in the fish farming projects was investing in leadership development which ensures that a project has the guidance and strategic oversight needed to address challenges and capitalize on growth opportunities. Leadership development in the context of fish farming projects involves cultivating the skills, knowledge, and attributes necessary for individuals to effectively lead and manage teams, operations, and initiatives within the aquaculture sector (MOALD, 2022). The programme mounted training programs, workshops, and seminars focused on leadership skills such as communication, decision-making, problem-solving, conflict resolution, and team building. These programs can be tailored to the specific needs and challenges of fish farming projects. It also paired emerging leaders with experienced mentors or coaches who can provide guidance, support, and feedback as they develop their leadership abilities. Mentorship programs facilitate knowledge transfer and promote professional growth and development. Lastly it was pursued through experiential Learning where the implementing agencies offered opportunities for hands-on learning and real-world experiences where participants practice and refine their leadership skills in actual fish farming operations. (Smith & Johnson ,2020).

## 2. LITERATURE REVIEW

There are major empirical on findings on the performance of fish farming as found out in countries such as Israel where over half of the fish consumed as food countrywide was emanated from fish farming projects. Similarly, 25% of food in China, 11% in India, and 10% in Japan was derived from fish farming projects and consequent products. Fish projects were also notably a major source of income to small scale farmers and created job opportunities especially in rural settings. The findings are almost similar to results from studies conducted at Kafue Fish Farm in Zambia and other farms in Malawi, Zimbabwe, Nigeria and Ghana, (Roderick, 2002; Feder, Just & Ziblerman ,2005).

The findings of most studies on fish projects are that social networks and institutions are the major contributors towards development of fish farming projects in rural areas (Halwart & Gupta 2004). These studies have taken cases of fish farming in other parts of the world most of which are not pond projects funded by governments. This proposed study sought to fill this gap by studying rural fish farming projects in Nyeri, Kenya. Another major recommendation made is that with sufficient fiscal policy and funding, fish farming projects can considerably to rural development in countries where fish farming is neither a way of life nor a prevalent activity. This calls for investigations on areas where governments have beefed up their support in areas where fish farming was not originally a tradition such as Nyeri County in Kenya.

The concept of capacity building has different meanings to different people. However, in general capacity building relates to strengthening or enhancing an organization's or individual's capacity to achieve goals. This concept emerged in the lexicon of international development during the 1990s. It means an investment in human resources, institutions and practices that aid the countries in the region achieve development goals (World Bank, 2010). Being a new build-up of capabilities, capacity building is practically meant to develop the capabilities of people, communities and organizations. This incorporates analyzing their environment in order to determine their problems, complications, requirements, opportunities and also set strategies to cope with the issues (ILO, 2012).

Globally, the initiative to the understanding of stakeholder capacity building or development was undertaken by The United Nations Development Programme (UNDP). Accordingly, it defined stakeholder capacity building as a long term continual process of development involving all stakeholders including local authorities, ministries, NGOs, stakeholder members, professionals and academics among others. Deborah (2006) and Kaplan (2000) agree that stakeholder capacity building employs the use of resource capabilities, organizational and a country's human resources. Consequently, the aim of stakeholder capacity building is to deal with the problems relating to policy and development methods while at the same time considering potential limits and the needs of the people concerned.

Independent Kenya has embraced capacity building by aggressive training and private sector involvement in government funded projects. This training ranges from short courses, certificates, diplomas offered in colleges and up to doctoral degrees at university levels. The ESP programme was meant to be implemented through capacity building of farmers in fish farming technologies such as pond construction, stocking, feeding, harvesting and post-harvest handling, (GOK, 2009). During the implementation of the ESP, capacity building of fish farmers was to be conducted by extension officers who visited the projects sites where farmers were trained in groups.

A government report revealed inadequate capacity of fish farmers and the extension workers which consequently retarded the growth of the fisheries sector. This inadequacy was rated at a paltry 40 percent (MOFD). The report recommends an investigation on how capacity building has been carried out in government projects. Studies by Ajieh (2004) and Sarker (2006) agree on the complexities involved in fish

farming such as pond fertilization and food provision and thus the need for training in competencies required for the efficient and effective management of fish projects. They report a significant relationship between training and adoption of technologies by farmers in Nigeria and Bangladesh respectively. There is therefore need to carry out similar studies in Kenya especially upon the implementation of the Economic Stimulus Programme in the fisheries sector.

Studies have reported that capacity building is one of the requirements of project performance. (World Bank, 2010), It's a new build-up of capabilities and practically, capacity building is meant to develop the capabilities of people, NGOs, organizations and communities, analyze their environment and notice their problems, complications, requirements, opportunities and also set strategies to cope with the issues (ILO, 2012). Samah and Aref (2011) reports benefits accruing from capacity building such as learning new skills, gaining information, helping others, increasing social contact, and fulfilling obligations than less involved individuals. The study also notes that people who take capacity building activities learn and gain knowledge. This is an indication of the close relationship between capacity building and project performance. Hilhost and Guijt (2006) contend, capacity building results to self-sufficiency and self-assurance amongst program participants such that they are able to pursue project objectives effectively. From these studies, it is clear that among other products such as empowerment of the project participants and political cohesion.

In a research to assess the influence of capacity building on fish farming in Ekiti State, Nigeria, (Ajieh, 2004) investigated the data circulated to fish farmers, characteristics of fisheries officers, and farmers' contact with the farmers and viability of the farms. A structured questionnaire was used to collect information from the farmers and a sample size of 90 fish farmers was selected from the six local government projects. Gross Margin analysis was used to compute the viability of the initiatives. It suggested that fisheries officers should strengthen their energies in reaching out to the farmers and disseminating useful information to them in order to assure farmers' viability (Ajieh, 2004). This study used performance index, combining jobs, food and income as a measure of the overall performance of fish farming projects.

In Bangladesh, (Saker, Chowdry and Itohara, 2006) carried out in-depth surveys in farms using a common close ended questionnaire for all sites. These surveys explored the relationship capabilities and adoption of technologies by farmers. They concluded that farmers' competencies in fish farming can be enhanced through proper training so as to impact new knowledge, teach better skills and bring about more effective performance in the production of food in fish industry. This study considered training as a standalone determinant, a gap that was filled by analyzing the combined influence of training along other variables such as characteristics of participants and PM&E.

In an investigation in the Songhai-Delta , a simple random sampling technique was used in selecting 15 trainees from each of the 3 senatorial districts in the state to give a total of 45 respondents from the list of 75 trainees, Okwu and Ejembi (2005), reported that capacity building farmers helps understand and practice the skills required in the adoption of technology and fills the deficit situation in the knowledge and skill level of the practicing farmers as well as the availability of appropriate applicable information, the utilization of which makes the farmers better practitioners.

Studies have cited lack of technical capacity among participants as a major reason for the low output of fish ponds in Kenya. The lack has been observed at all levels, from the lowest-level extension agent through

university levels (Veverica, *et al*, 2000). During implementation of ESP, capacity building was enhanced through training for farmers and therefore this study investigated its relationship with PM&E in fish farming. Bamba and Kienta (2000) studied a USAID funded programme in Guatemala and Panama, South America and pointed out that poor fish farming capacity among fish farmers and extension agents greatly influenced the performance of fish farming projects. The study only sampled two projects and also did not clearly investigate these factors influenced capacity of farmers, a gap that this study wishes to fill.

Munialo (2011) observed that most fish farming project, concentrated on maximizing output rather than solving the local problems**.** Before a would-be fish farmer could successfully produce fish economically, participants require special training in fish pond management value addition, and other post-harvest handling skills. This study wishes to study these elements in terms of the extent to which farmers were trained in them and their influence on their capacity fish farming.

Mwangi (2008) reported that insufficient capacity of extension staff as a result of with practical fish farming skills as the main challenge facing the performance fish farming in Kenya. Ngugi *et al* (2007) was also in agreement that capacity related factors towards impeded aquaculture in Kenya. The studies however did not attempt to investigate how significantly capacity related aspects influenced project performance.

Building stakeholder capacities is regarded as a more accurate measure of stakeholder participation outcomes than other success indicators prescribed by outside experts. The knowledge and skills resulting from capacity is an in indicator of change (Lennie, 2005). Fraser *et al*. (2006) observe that engagement of locals helps build stakeholder capacity to handle their issues. In their studies, they observed that stakeholder capacities can be enhanced by employing local languages when pursuing evaluation practices and then utilizing scientific tools to extend the evaluation findings from the local level to wider areas. The studies further revealed that it is a means of reducing tensions among participants otherwise responsible for resource-based conflicts. As a consequence, various stakeholder ends up learning to work together towards a common objective.

There is evidence that performance of any project is different from the valuation of individual user benefits, and is also different from broader social performance. The user benefits and social impacts may include the valuation of changes in amenity or quality of life factors (such as health, safety, recreation, air or noise quality). The study concurs with the case of Singh, Gkritza, and Sinha (2007) that project benefits are as a result of other social benefits such as Stakeholder knowledge and increased capacity among the locals.

## 3. METHODOLOGY

This study adopted a pragmatic research paradigm for a mixed research method in a concurrent research design. The study targeted the eight fish farming projects funded by the ESP programme in Nyeri County and the sample size was calculated based on the formula by Yamane (1967) through both probability and non-probability sampling techniques. The sample size is 271 respondents comprising of 247 farmers, 8 project managers and 56 committee members. Structured questionnaires were administered to collect quantitative data from selected farmers while focus group discussions were conducted to collect qualitative data from the constituency project management committee members while interviews were administered to project managers. The instruments were tested for validity and reliability through the content validity index (CVI=0.833) and the Cronbach Alpha's internal consistency index (a=0.795) for reliability. Pearson's correlation was used to analyse quantitative data while qualitative data was analysed using content analysis.

## 4. RESULTS AND DISCUSSIONS

### 4.3 Demographic Characteristics of Respondents

This section presents the respondents in terms of their demographic characteristics. This was assessed in terms of gender, age, level of education and occupation. This was aimed at investigating how the project participants were distributed along their demographic characteristics and how this was in line with the ESP policy guidelines.

#### 4.3.1 Gender of the respondents

This study investigated the participants in the fish farming projects in terms of whether they were male or female. Generally, the findings were that majority of the participants were male while females formed the minority.

The results of the analysis are presented in Table 4.1

**Table 4.1 Gender of the respondents**

| Gender of the respondents | Frequency | Percentage |
|---|---|---|
| Female | 70 | 31.0 |
| Male | 156 | 69.0 |
| **Total** | **226** | **100.0** |

According to Table 4.1, the study revealed that 70 (58.5%) of the respondents were female while 156 (69.0%) were male. This indicates that there were more males than females in uptake of fish farming projects activities in the project. These findings are in agreement with earlier studies that majority of the fish farmers are men. In a study conducted in Kirinyaga, this was because fish farming requires ownership of land (Ngugi, et al, 2014**).** Similary, Nyeri County is a patriarchal society where land ownership is mostly in the hands of men and in some cases construction of ponds by females required consent from their male counterparts (Maina, 2014). This finding was also contrary to the findings of Okali (2006) found out that women were more likely to indulge in small projects such as fish pond farming.

#### 4.3.2 Age of the respondents

This study further investigated the participants in the fish farming projects in terms of age. This was meant to find out the uptake of the fish farming projects in terms of their age brackets. Generally the findings were that majority of the participants were above 40 years of age.The results of the analysis are presented in Table 4. 2

**Table 4.2 Age of the respondents**

| Age of the respondents | Frequency | Percentage |
|---|---|---|
| Below 20 years | 2 | .9 |
| 21-30 years | 7 | 3.1 |
| 31-40 years | 42 | 18.6 |
| 41-50 years | 70 | 31.0 |
| Above 50 years | 105 | 46.5 |
| **Total** | **226** | 100.0 |

Table 4.2 shows the findings of the ages of the participants in terms of five age categories. The vast majority of the respondents 175 (77.5%) were above 40 years with only 51(22.6%) representing the youth with ages ranging from 40 years and below. Again, despite the ESP's policy to prioritize involving young people by engaging them in gainful employment and generate income (MOFD, 2011), this objective was not fully achieved. These findings were in contrast to those of Polson and Spencer (1991), that age was positively correlated with adoption of fish farming technologies with younger farmers being more likely to try new technologies than older farmers and similarly ended up harvesting more fish per year than the older farmers.

**4.3.3 Level of education among the respondents**

This study further investigated the level of education among the project participants. This was measured in terms of participants' highest academic qualifications. This was meant to establish the participants' ability to acquire of employees' skills in fish farming. The study found out that majority of the employees had secondary education as their highest academic qualifications followed by diploma, then primary education and lastly with very few having postgraduate education. This information is summarized on Table 4.3.

**Table 4.3 Level of education among the respondents**

| Level of education | Frequency | Percentage |
|---|---|---|
| Primary education | 32 | 14.2 |
| Secondary education | 101 | 44.8 |
| Diploma | 71 | 31.4 |
| Degrees | 21 | 9.3 |
| Post graduate | 1 | .4 |
| **Total** | **226** | **100.0** |

According to Table 4.3, the study revealed that level of education among the participants was generally high with a majority 194 of the respondents representing 85.9% with secondary education and above and only a partly 32 representing 14.2 % of the respondents. Since fish farming is a technologically based project with activities ranging from pond construction, feeding, harvesting and post-harvest handling, the level of education was likely to have an implication on participation in the project. A study by Mwangi (2008) also revealed that formal education is positively correlated to the probability to adopt farming technologies. The author attributed this to the fact that much of the fish farming technologies were communicated to farmers through pamphlets, newsletters, trainings and seminars, which were conducted in the English language. Similarly, Solomon & Kerere (2013), concur that education can have an impact on the adoption of fish farming since it aids farmers to understand the technology that is required.

**4.3.4 Occupation of the respondents**

The study sought to establish the occupations of the project participants. This was meant to establish the participants' ability to devote time and attention in fish farming projects' activities. The study found out that majority of the participants were farmers with other engagements in the agricultural sector followed by farmers with other engagements in the formal sector, then farmers with full employment in the informal and informal sectors and lastly full time farmers with no other engagements. This information is summarized on Table 4.4.

**Table 4.4 Occupation of the respondents**

| Occupation | F | % |
|---|---|---|
| Farmer with full time employment in the formal sector | 14 | 6.19 % |
| Farmer with other non-agricultural engagements in the informal sector | 14 | 6.19% |
| Farmer with other agricultural engagements in the formal sector | 61 | 26.99% |
| Fish farmer with other farming activities in the agricultural sector | 118 | 52.21% |
| Full fish farming with no other engagements | 19 | 8.41% |
| **Total** | **226** | **100.0** |

On the other hand, the study revealed that only 19 (8.41%) of the respondents were full time fish farmers with no other engagements. This represents the number of residents who could fully dedicate all their time in the project activities and consequently increase their chances of a better performance. Further, a vast majority 193 (94.59 %) were engaged in other activities out which 19 (8.41%) in full time employment in the formal sector, 14 (6.19%) engaged in non-agricultural engagements in the informal sector, 14(6.19%) engaged in agricultural engagements in the formal sector and 118 (52. 21% engaged in with other farming activities in the agricultural sector. These findings were similar to those of Ngugi et.al (2007) who found that very few fish farmers in Kenya take as full time employment.

**Correlation Analysis**

The study further conducted a correlation analysis between the capacity building strategies and performance of fish farming projects.

**Table 4.6: Correlation Analysis of reskilling strategies and performance of fish farming projects**

| | | Reskilling strategies | Performance |
|---|---|---|---|
| **Reskilling strategies** | Pearson Correlation | 1 | .556** |
| | Sig. (2-tailed) | | .000 |
| | N | 226 | 226 |
| **Performance** | Pearson Correlation | .556** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 226 | 226 |

**. Correlation is significant at the 0.05 level (2-tailed).

The Pearson correlations between the variables are shown in Table 4.6 show that the study found that reskilling strategies were moderately and positively correlated with performance of fish farming projects ($r$ = 0.556, $p$ < .05). This implies that as the level of reskilling strategies increases, the better the performance of fish farming projects.

This finding was in line with interviews that related reskilling strategies in fish farming projects in Nyeri County. The discussions revealed that reskilling strategies generally influences the performance of projects. These findings are in agreement with Fraser *et al.* (2006), who observed that local engagements that builds

stakeholder capacity to address their problems, learn to work together and consequently perform better in community interventions.

**Table 4.7: Correlation Analysis of Networking for partnerships and performance of fish farming projects**

| | | Networking partnerships | forPerformance |
|---|---|---|---|
| **Networking for partnerships** | Pearson Correlation | 1 | .567** |
| | Sig. (2-tailed) | | .000 |
| | N | 226 | 226 |
| **Performance** | Pearson Correlation | .567** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 226 | 226 |

**. Correlation is significant at the 0.05 level (2-tailed).

The Pearson correlations between the variables are shown in Table 4.7 show that the study found that networking for partnerships was moderately and positively correlated with performance of fish farming projects ($r = 0.567$, $p < .05$). This implies that as the level of networking for partnerships increases, the better the performance of fish farming projects.

This finding was in line with interviews that related networking for partnerships in fish farming projects in Nyeri County. The discussions revealed that reskilling strategies generally influences the performance of projects. These findings are in agreement with (Garcia & Lee, 2019) that posits that establishing and nurturing relationships with potential Partners such as, government agencies, non-profits, businesses, and community groups that have an interest in or can contribute to fish farming initiatives.

**Table 4.8: Correlation Analysis of Leadership Development and performance of fish farming projects**

| | | Leadership Development | Performance |
|---|---|---|---|
| **Leadership Development** | Pearson Correlation | 1 | .544** |
| | Sig. (2-tailed) | | .000 |
| | N | 226 | 226 |
| **Performance** | Pearson Correlation | .544** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 226 | 226 |

**. Correlation is significant at the 0.05 level (2-tailed).

The Pearson correlations between the variables are shown in Table 4.8 show that the study found leadership development was moderately and positively correlated with performance of fish farming projects ($r = 0.544$ $p < .05$). This implies that as the level leadership development increases, the better the performance of fish farming projects.

This finding was in line with interviews that related networking for partnerships in fish farming projects in Nyeri County. The discussions revealed that leadership development strategies generally influence the

performance of projects. These findings are in agreement with (MOALD, 2022) that reports that investing in leadership development cultivates skills, knowledge, and attributes necessary for individuals to effectively lead and manage teams, operations for the good of initiatives within the aquaculture sector (MOALD, 2022).

**Regression Analysis**

The study further tested the hypothesis that there is a significant relationship between the capacity building strategies and performance of fish farming projects in Nyeri County. The null hypothesis was phrased as follows:

**$H_o1$:** There is a significant relationship between capacity building strategies and performance of fish farming projects in Nyeri County

This was tested using the model

**Model 1;** $Y= \beta_0 + \beta X+ \varepsilon$

Where;

Y= performance of fish farming projects

X= Capacity building strategies

$\beta_0$ = the intercept (constant term)

$\beta_1$ = Regression coefficients shows the change in the value of Y for a unit change in X

$\varepsilon$ = random error

A linear regression analysis was conducted to examine how well capacity building strategies predicted performance of fish farming projects. The model represented a value of $R^2$ which show the proportion of variation in dependent variable explained by the regression model. Table 4.9 shows that the capacity building strategies had a coefficient adjusted $R^2$=.306. This indicates that 30.6 % of the variation in performance of fish farming projects can be accounted for by the capacity building strategies.

**Table 4.9 Capacity building strategies and performance of fish farming projects**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .556[a] | .310 | .306 | .594 | .310 | 100.437 | 1 | 224 | .000 |

a. Predictors: (Constant), Capacity building strategies

b. Dependent Variable: Performance of fish farming projects

**Table 4.10 Coefficients of Capacity building strategies**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 1.860 | .132 | | 14.07 | .000 | 1.600 | 2.120 |
| | Capacity building strategies | .377 | .038 | .556 | 10.022 | .000 | .303 | .451 |

a. Dependent Variable: Performance of fish farming projects

According to Hair, Barbin, Anderson and Tatham (2006) if the coefficients of the independent variables are not zero, then the F-ratio should be greater than 1.00. In this case the F-ratio = 100.43 with a p-value <.000. Hence the final simple regression model can be explained as;

$Y= 1.860 + 0.556 X+ \varepsilon$

Where;

$Y =$ performance of fish farming projects

$X =$ Capacity building strategies

For the hypothesis that there is no significant influence of the capacity building strategies on performance of fish farming projects, results illustrated that a unit increase in capacity building strategies is responsible for increasing project performance by 55.6%. This relationship was found to be statistically significant with ($t=14.074$, $p<0.05$). Therefore, rejecting the null hypothesis and accepting the alternative hypothesis that the capacity building strategies significantly influences the performance of fish farming projects.

## 5. CONCLUSION

The research objective of this study was to establish the influence of capacity building on performance of fish farming projects in Nyeri County. The research found out that there was a moderate positive linear relationship between capacity building strategies and performance of fish farming projects ($r=0.556$). The study further concluded that capacity building strategies significantly influences the performance of fish farming projects.

## 6. RECOMMENDATIONS

The study recommended that since capacity building strategies are a significant predictor performance of fish farming projects, the implementing agencies such as SPMCs, should in reskilling project participants, encourage and facilitate them in forming networks for partnerships and invest in leadership development.

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