

INFLUENCE OF FISHERIES MANAGEMENT ON ECONOMIC DEVELOPMENT OF MUGADISHU, SOMALIA

¹Hassan Mohamed Hassan, ²Dr. Lucy Gichinga

¹Student, Jomo Kenyatta University of Agriculture and Technology

²Phd., Lecturer - Jomo Kenyatta University of Agriculture and Technology-Mombasa Campus

Abstract: Many developing countries have, on the one hand fish resources with considerable implicit wealth and, on the other considerable levels of poverty amongst their population. Fisheries sector occupies a very important place in the socio-economic development of the country. It has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of cheap and nutritious food besides being a foreign exchange earner. The main challenges facing fisheries development in Somalia have been in assessment of fishery resources and their potential in terms of fish production, development of sustainable technologies for fin and shell fish culture, yield optimization, harvest and post-harvest operations and landing and berthing facilities for fishing vessels, augmenting export of marine products, generating employment and improving welfare of fishermen and their socio-economic status. Somali waters are home to some of the richest fishing grounds in Africa, with vast potential for fisheries and coastal area development. However the sector remains under developed due to lack of skills among fishermen to go deep into sea water, lack of tools (boats and fishing gears) and lack of regulatory frameworks. Less attention is given to fishing management in Somalia, Part of the reason for the little attention to improving fisheries management lies in the shortage of empirical evidence on the effect of fisheries management on economic growth and poverty reduction in Somalia. It is of this shortage of empirical evidence on the effect of fisheries management on poverty reduction that the study intended to reveal. The study was guided by four objectives including, To find out the effect of fishing training on Economic Development of Mogadishu, Somalia, To assess the effect of Fish infrastructure development on Economic Development of Mogadishu, Somalia, To examine the effect of fish value addition on economic Development of Mogadishu, Somalia, To determine the effect of fish market development on economic Development of Mogadishu- Somalia. The study took a descriptive survey design; descriptive studies are more formalized and typically structured with clearly stated hypothesis or investigative questions. The study selected a sample of 198 respondents from the different segments of the larger population in Mogadishu to determine the influence of fisheries management in economic development of Mogadishu, Somalia. The study examined the effect of fishing training on economic development and found out that fishing training has a significant effect on economic development. The survey focused on investigating the effect of fishing infrastructure development on Economic Development and the regression analysis from the study indicated that fishing infrastructural development has a significant effect on economic development. The study examined the effect of fish value addition on economic development of Mogadishu Somalia and regression analysis also indicated that there is a significant effect of fish value addition on economic development. The study investigated the effect of fish market development on economic development of Mogadishu, Somalia and regression analysis indicated that there is a significant effect of fish market development on economic development. Based on the study findings, the study recommended government encouragement of foreign investment in the fishing industry in order to develop the fishing infrastructure and value addition to fish. The government of Somalia should develop a national policy to guide fishing activities to ensure that illegal fishing in Somali waters is stopped for good.

Keywords: Fisheries sector, socio-economic development, Economic Development, fishing training.

1. INTRODUCTION

Background:

The fisheries sector is rarely a strategic sector for national economic development. Although it plays a prominent role in only a few countries such as Iceland, Namibia, Maldives and other small island developing states rich in fishery resources relative to their populations, it is nonetheless an important economic activity, and very often a strategic one, in many coastal regions of the world. Indeed, in many countries, fish export is a major contributor to foreign exchange earnings, often ranking far higher than other agricultural commodities. The major trade flow from south to north underlines the significance of this sector for the trade balance of many developing countries. Licensing fees of foreign fishing fleets are another source of foreign exchange revenue from marine fishery resources, especially in West African and South Pacific countries (World Bank, 2014).

The more considerable and substantial contribution of fisheries worldwide is the supply of highly nutritious animal protein for human consumption and the employment and income generation in often-remote coastal areas. While globally some seventeen percent of the animal protein supply is derived from fisheries, in many developing countries -- especially in the Asian region that is home to nearly two-thirds of the world's population -- this share is above fifty percent. Finally, the growing importance of recreational fishing is also notable, especially as its contribution to economic benefits is often difficult to assess and still insufficiently recognized (World Bank, 2014). Historically, fishing has been a major source of livelihood for coastal and inland fishing communities as well as a source of healthy food for humanity at large. In India, fisheries and aquaculture are vibrant economic activities, and has been one of the fastest growing food production systems during the last three decades. Their significance and contribution towards agricultural (4.6 per cent GDP) and national economies (1.3 per cent GDP), livelihood and nutritional security, employment generation (11 million people) and foreign exchange earnings have been enormous though understated so far (World Bank, 2015).

Fisheries sector occupies a very important place in the socio-economic development of the country. It has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of cheap and nutritious food besides being a foreign exchange earner. Most importantly, it is the source of livelihood for a large section of economically backward population of the country. The main challenges facing fisheries development in the country have been in assessment of fishery resources and their potential in terms of fish production, development of sustainable technologies for fin and shell fish culture, yield optimization, harvest and post-harvest operations and landing and berthing facilities for fishing vessels, augmenting export of marine products, generating employment and improving welfare of fishermen and their socio-economic status (World Bank, 2015).

The fisheries sector usually makes a valuable contribution to economic development of coastal areas. The relative dispersion of coastal small-scale fisheries adds to maintaining economically viable rural communities and balancing the trend towards growing coastal urbanization. In history, fisheries have often been the basis for human settlements and coastal development in both the rural and urban environments. For example, Iceland was established as a fishing settlement and the United States owes a lot to the cod fisheries. In Africa, artisanal fisheries often generate the capital needed by fisher-farmers to invest in agriculture. In well-managed fisheries, high resource rents can be generated and used to finance investments within or outside the sector (Andersson, 2014). The sight of fishing activities (e.g. ports, fishing boats, and landing sites and fish markets) is attractive to many people and often has considerable aesthetic value to both those living permanently in the area and tourists.

Statement of the Problem:

Many developing countries have, on the one hand fish resources with considerable implicit wealth and, on the other considerable levels of poverty amongst their population. Fisheries sector occupies a very important place in the socio-economic development of the country. It has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of cheap and nutritious food besides being a foreign exchange earner (Omwege, 2016). Most importantly, it is the source of livelihood for a large section of economically backward population of the country. The main challenges facing fisheries development in Somalia have been in assessment of fishery resources and their potential in terms of fish production, development of sustainable technologies for fin and shell fish culture, yield optimization, harvest and post-harvest operations and landing and berthing facilities for fishing vessels, augmenting export of marine products, generating employment and improving welfare of fishermen and their socio-economic status (FAO, 2015).

Somali waters are home to some of the richest fishing grounds in Africa, with vast potential for fisheries and coastal area development. However the sector remains under developed due to lack of skills among fishermen to go deep into sea water, lack of tools (boats and fishing gears) and lack of regulatory frameworks. The Somali fishing industry has high potential for growth and job creation. Though it is not among the top three contributors to the country's GDP, the Somali coast line is the longest in Africa occupying 3300 kilometers and among the most blessed waters (World Bank, 2016). According to the latest survey, some of the only fish stocks in the world that are actually "under fished" are in the deep waters off the Somali coast. Large schools of primarily tuna migrate from north to south and back along the east coast of Africa. It's no doubt, home to an extensive list of fish species, including lobster, swordfish, shark, and many others. The Somali fisheries resource remains largely under-exploited partly due to the absence of good infrastructure for post-harvest management of catches and lack of government support despite the fact that there is growing local, regional and international demand for fish which could be exploited (World Bank, 2016).

Roughly half the catch derives from the artisanal fishermen. They are relatively few in number, and located at some 25 landing sites. Much of the coastline is remote from settlements and hence only lightly fished. The Ministry of Fisheries and Marine Resources (2012), revealed that annual catch were relatively small but increasing since 1974 to 1987 ranging between 5,980 and 19,546 tonnes respectively (Ministry of Fisheries and Marine Resources,, 2016). Less attention is given to improvement of fisheries management in Somalia and part of the reason for the little attention to fisheries management is in the shortage of empirical evidence of the effect fisheries management on economic development. The study intended to provide empirical evidence on the influence of fisheries management on economic development as this will guide policy formulation on fisheries management in Somalia.

General Objectives:

The general objective was to investigate the influence of fisheries management on economic development of Mogadishu, Somalia

Specific Objectives:

1. To find out the effect of fishermen training on Economic Development of Mogadishu, Somalia
2. To assess the effect of Fish infrastructure development on Economic Development of Mogadishu, Somalia
3. To examine the effect of fish value addition on economic Development of Mogadishu, Somalia
4. To determine the effect of fish market development on economic Development of Mogadishu- Somalia

Research Hypothesis:

- 1) H_01 : Fishing training has no significant effect on economic development of Mogadishu Somalia
- 2) H_02 : Fish infrastructure development has no significant effect on economic development of Mogadishu, Somalia
- 3) H_03 : Fish Value addition has no significant effect on economic development of Mogadishu, Somalia
- 4) H_04 : Fish Market development has no significant effect on economic development of Mogadishu, Somalia

2. LITERATURE REVIEW

Effect of Fishermen Training on Economic Development:

Fisheries development requires developing a sustainable, competitive and more efficient fisheries and aquaculture industry that contributes to the improvement of the livelihoods of stakeholders and the national economy while preserving the environment. Effective and efficient implementation of fisheries activities requires adequate infrastructure, working facilities, well trained staff as well as strengthening capabilities of private sector fisheries and aquaculture related personnel. This is achieved through institutional capacity building, awareness creation, training, and exposure and exchange programs (Ministry of Livestock and Fisheries Development Tanzania, 2015).

Sustainable fisheries development and management is guided by strategic scientific research and information. The challenges facing fisheries and aquaculture research are: funding of fisheries and aquaculture research Institutions, skilled personnel, research infrastructure and facilities, coordination among research collaborators, presence of scientific based

International Journal of Novel Research in Interdisciplinary Studies

Vol. 5, Issue 4, pp: (11-24), Month: July - August 2018, Available at: www.noveltyjournals.com

database. The objective of the training is almost always to contribute towards increasing fish production as well as improving fish quality at landing. The training also aims sometimes at improving safety at sea by providing better designed therefore more stable boats to fishermen. The final objective is to make countries less dependent on fish importation and/or foreign artisanal fishermen to satisfy the increasing yearly-based protein demand. This results in improving the fishermen's standard of living as well as creating employment opportunities (Julian, 2017).

Until the mid 1980's, there was a scarcity of training regimes that focused on training commercial fishermen. Maritime academies focused on licensed personnel the maritime academy curriculum was lengthy, expensive and not focused on unlicensed mariners such as commercial fishing and thus did not attract many fishermen. Academies also did not outreach to fishermen. Undocumented are the number of casualties that have been avoided due to the raising of awareness of risk which has led to the voluntary purchase of additional survival equipment and addition of new safety procedures due to training (Dzukan, 2015). It has also been well documented by survival psychologist John Leach, and others, that those workers who have had formal training in survival procedures to take in case of a casualty, have a better chance of surviving a casualty. Additionally, raising awareness of the risks through training and education has been demonstrated to show less risk taking behavior in many other areas of public health and safety (Dzukan, 2015).

Effect of Fishing Infrastructure Development on Economic Development:

Fishing infrastructure, like other public investments, raises agricultural productivity, which in turn induces growth in the rural areas, bringing about higher agricultural wages and improved opportunities for non-farm labor. The rise in agricultural productivity, which reduces food prices, benefits both urban and rural inhabitants who are net food buyers. Thus, aside from its growth benefits, agricultural productivity has significant poverty reduction effects. Good infrastructure has other ancillary and equally important effects. Fan and others (2004) show that improved roads lead to the rise of small rural non-farm businesses, such as food processing and marketing enterprises, electronic repair shops, transportation and trade, and restaurant services. Rural infrastructure provides a good stimulus to the growth of the rural economy (Martin Associates, 2014).

The fishery sector contributes to development and growth in many countries, playing an important role for food security and nutrition, poverty reduction, employment and trade. Fisheries and aquaculture provided livelihoods and income for an estimated 54.8 million people engaged in the primary sector of fish production in 2010. Apart from the primary production sector, fisheries and aquaculture provide numerous jobs in ancillary activities such as processing, packaging, marketing and distribution, manufacturing of fish processing equipment, net and gear making, boat construction and maintenance, research and administration (Martin Associates, 2014). Passenger and air cargo activity at an airport, waterborne activity at a seaport and real estate activity contribute to the local and regional economy by generating business revenue to local and national firms providing services to these sectors. These firms, in turn, provide employment and income to individuals and pay taxes to state and local governments (Martin Associates, 2014).

At the outset, activity at the airport and seaport generates business revenue for firms that provide services. This business revenue impact is dispersed throughout the economy in several ways. It is used to hire people to provide the services, to purchase goods and other services, to pay for the use of airports and seaports and to make federal, state and local tax payments. The remainder is used to pay stockholders, retire debt, make investments or is held as retained earnings (Martini, 2015). Landing fees and terminal rentals paid by the steamship lines and cruise lines; and revenue from real estate leases, generate revenue to the Port provide for some of the costs of operation of the seaport and capital costs of new construction (Martini, 2015).

Effect of Fish value addition on Economic Development:

Fish begins to spoil immediately after death. This is reflected in gradual developments of undesirable flavours, softening of the flesh and eventually substantial losses of fluid containing protein and fat. By lowering the temperature of the dead fish, spoilage can be retarded and, if the temperature is kept low enough, spoilage can be almost stopped (Allison, 2015). Value addition refers to the enhancement of the value of fish before the local fishermen sells them to the consumers. These are processes associated with fish products between the time fish are caught and the time of the final product is delivered to the consumer. The shelf life of the fish from the lake without being put in the cold room is very

limited and therefore the fishermen have to sell them to the middle men before they get spoilt. The valve addition is very important to the fishermen because it increases the value of the fish and enables the fishermen get better price from the market both local and international. Providing the fishermen with cold rooms will greatly enhance the value of the fish as they will not be in a hurry to sell them (Abend, 2015).

Aquaculture is becoming increasingly important in satisfying consumer demands for good quality seafood. It has maintained a steady, positive growth over the years when compared to marine fisheries and is supplying the nutritional needs for both developed and developing countries. While aquaculture has supplied fresh fish and shellfish to global markets, there is an increasing opportunity for expanding value-added products (Barry, 2016). There are several advantages to value-added processing, including creating safer products, preserving high quality characteristics, extending shelf-life and enhancing economic return to the producer/processor. Value-added products can come in several forms including traditional processed products; market-driven products that have a steady or increasing demand; health-driven seafood, which is becoming an increasingly important niche, values-driven product that is focused more on environmental concerns and social issues, and technology-driven seafood products which often adds safety as well as quality characteristics to products (Cressey, 2015).

Value-added fish and shellfish products usually undergo some level of processing that will inactivate and/or kill bacteria and pathogens. The inactivation or reduction of bacteria in a food generally results in shelf-life extension and can also provide new market opportunities. Deterioration of fish and shellfish quality is attributed to decomposition of key components of the raw material from endogenous enzymes or microbial action (Adams, 2017). Freezing also contributes to an increased shelf-life and, consequently, boosting distribution and market opportunities. For example, harvest ponds are analogous to preserving the intrinsic quality of fish/shellfish and providing the fishermen or harvesters with new opportunities to develop novel, high-end markets (Liu, 2016).

The freezing process alone is not a method of preservation. It is merely the means of preparing the fish for storage at a suitably low temperature. In order to produce a good product, freezing must be accomplished quickly. A freezer requires to be specially designed for this purpose and thus freezing is a separate process from low temperature storage. The purpose of freezing fish is to lower the temperature and thus slow down spoilage so much that when the product is thawed after cold storage it is virtually indistinguishable from fresh fish (Allison, 2016). When newly caught, fish are frozen quickly and stored at a low temperature on board, so there is no limit imposed on the length of voyage due to spoilage of the catch. Fishing vessels can remain at the fishing grounds until the hold is full. This increases the proportion of time spent at the fishing ground and improves the economics of fishing. It also allows the fish to be distributed to a wider market even without the existence of an elaborate "cold chain". Fish which have been frozen at sea are of very good quality when landed; therefore, more time is available for the fish to be distributed over a wider area and still be in good condition (Belton, 2016).

Freezing at sea has therefore an important role in world fisheries. A look at a map will show that large areas of ocean are far distant from any centers of population or even land, and many potential fisheries are therefore not exploitable without a method of preserving the fish for long sea voyages. Only quick freezing and low temperature storage has so far satisfied this need and, as traditional near water fisheries become overfished or are unable to satisfy the growing demands of an ever increasing population, freezing at sea will become more and more necessary (Belton, 2016).

Canning is an important, safe method for preserving food if practiced properly. The canning process involves placing foods in jars or similar containers and heating them to a temperature that destroys micro-organisms that cause food to spoil. During this heating process air is driven out of the jar and as it cools a vacuum seal is formed. This vacuum seal prevents air from getting back into the product bringing with it contaminating micro-organisms. This increases on the value of the canned products (Jarvis, 2014). Fisheries sector occupies a very important place in the socio-economic development of any country. It has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of cheap and nutritious food besides being a foreign exchange earner. Processing units with modern machinery for freezing and canning are important centers to process and pack for exports (DFID, 2017).

Effect of Fish Market Development on Economic Development:

Fish is the most valuable agricultural commodity traded internationally with annual sales of nearly US\$80 billion and increasing each year (FAO Fish Stat, 2016). For Developing Countries in regions such as West Africa, fish exports to markets in Developed Countries, especially in Europe, are a major source of foreign exchange revenue, and help to underpin the domestic fisheries in terms of earnings and employment. However, despite the range of benefits for development which are generated by the fish trade, including contributing to economic growth, there are also concerns about the possible negative impacts which might be involved. For example, it has been suggested that an expanding fish trade aggravates the overexploitation of vulnerable fish stocks under conditions of weak governance and that local trade routes supplying local markets may be disrupted as fish supplies are diverted for exports (FAO, 2016).

Rural development, the process of sustained growth of the rural economy and improvement of well-being of rural men, women and children, has various dimensions, but it is particularly the development of the agricultural sector, which is widely believed to provide the main impetus not only for reducing poverty and hunger but also for ensuring food security for all. Only if more rapid agricultural growth takes place in countries with impoverished rural populations, can rural farm and non-farm incomes rise sufficiently to enable the rural poor to become more food secure (Neiland, 2016). Fisheries continue to play an important role, and in many areas remain adequate to satisfy subsistence and may even offer a valuable source of cash income for farmers. Aquaculture becomes an attractive and important component of rural livelihoods in situations where increasing population pressures, environmental degradation or loss of access limit catches from wild fisheries. The benefits of aquaculture in rural development relate to health and nutrition, employment, income, reduction of vulnerability and farm sustainability (Neiland, 2016).

Fisheries resources from the oceans, rivers and lakes are important sources of food for people in developing countries. According to FAO, fishery products constitute nearly 20% of animal protein intake in developing countries and they are often among limited choices of affordable protein source. As such, the fisheries sector plays an important role in terms of providing a valuable means of livelihood for most vulnerable population such as women-headed households and those people who do not possess production assets (FAO, 2016). Fisheries infrastructure development such as construction of landing ports and markets that promote efficient fish marketing as well as community members' collective actions facilitate efficient economic growth of fishing communities. Working to improve the capacity of fisheries organizations as well as women's group fish processing and sales activities improves fishing households (JICA, 2015).

Economic Development:

Economic development is the process by which a nation improves the economic, political, and social well-being of its people. The term has been used frequently by economists, politicians, and others in the 20th and 21st centuries. We may conclude that development is both a physical reality and a state of mind in which society has, through some combination of social, economic, and institutional processes, secured the means for obtaining a better life (Todaro, 2014). Whatever the specific components of this better life, development in all societies must have at least the following three objectives: To increase the availability and widen the distribution of basic life-sustaining goods such as food, shelter, health, and protection. To raise levels of living, including, in addition to higher incomes, the provision of more jobs, better education, and greater attention to cultural and human values, all of which will serve not only to enhance material wellbeing but also to generate greater individual and national self-esteem. To expand the range of economic and social choices available to individuals and nations by freeing them from servitude and dependence not only in relation to other people and nation-states but also to the forces of ignorance and human misery. The study will measure the dependent variable using the contribution of fish exports on the gross domestic product of Somalia as the indicator.

3. RESEARCH METHODOLOGY**Research Design:**

This study took a descriptive survey design. According to Coopers and Schindler (2003) descriptive studies are more formalized and typically structured with clearly stated hypothesis or investigative questions. The researcher used the above design to enable him describe or present a picture of the problem under study. According to (Owens 2002), survey research design is unique as it gathers information not available from other sources as information is collected from respondents. Individual respondents are never identified and the survey results are presented in the form of summaries, such as statistical tables and charts.

International Journal of Novel Research in Interdisciplinary Studies

Vol. 5, Issue 4, pp: (11-24), Month: July - August 2018, Available at: www.noveltyjournals.com

Target Population:

This study was conducted in Mogadishu City, the capital of Somalia. The target population of this study were residents of Mogadishu from the different segments of the society including; University students from college of fishing development, government officials and Fisher men. The target population of this study was 396 residents of Hodan District. The stratum showed in the table below:

Table 3.1: Target population

Stratum	Target population	Percentage
Government Officials	32	8%
Fisher men	116	29%
Fishing companies	6	2%
University Students(CFD)	242	61%
Total	396	100%

Sampling Frame and Sample size

The study selected a sample of 198 respondents from the different segments of the larger population in Mogadishu to determine the influence of fisheries management on the economic development of Mogadishu, Somalia. The data collected was tabulated and analyzed. A sample size of 198 persons was obtained using Slovene's equation and it is deemed ideal for this kind of study.

$$\text{Sample size } n = \frac{N}{1+N(e)^2} = 198$$

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

$$n = \frac{396}{1+396(0.05)^2}$$

$$n = 198$$

Where n represents sample size,

N represents population size,

While ϵ represents margin of acceptable error

Sampling Technique:

This involves the method that was used to obtain the samples from the population which was used to answer the research questions. The researcher selected a sample of 198 respondents from the different segments of the larger population in Mogadishu. The population from which the sample was drawn did not constitute a homogeneous group; stratified sampling technique was applied in order to obtain a representative sample. Under stratified sampling the population is divided into several sub-populations that are individually more homogeneous than the total population (the different sub-populations are called 'strata') and then we select items from each stratum to constitute a sample. The population was divided into four strata consisting of government officials, Fisher men, fishing companies and University Students and then employs quota sampling. Under quota sampling the interviewers are simply given quotas to be filled from the different strata. The study selected a sample size of 198 respondents consisting of 58 respondents from Fisher men, 3 fishing companies, 16 government officials and 121 University students

International Journal of Novel Research in Interdisciplinary Studies

 Vol. 5, Issue 4, pp: (11-24), Month: July - August 2018, Available at: www.noveltyjournals.com
Table 3.2: Sample Size

Stratum	Target Population	Sample Size
Government Officials	32	16
Fisher men	116	58
Fishing companies	6	3
University Students	242	121
Total	396	198

Data Collection Instrument:

In order to conduct the study, the researcher used the questionnaire to collect data in this study. Simple but comprehensive questionnaires were prepared by the researcher and were validated by the supervisor and they were based on the objectives which the researcher sought out to achieve. The study used questionnaire because large amounts of information were to be collected from a large number of people in a short period of time and in a relatively cost effective way. The results of the questionnaires can usually be quickly and easily quantified by either a researcher or through the use of a software package (Kothari, 2014). The researcher used Linkert scale in getting information from the respondents. A Linkert-type scale assumes that the strength/intensity of experience is linear, i.e. on a continuum from strongly agree to strongly disagree, and makes the assumption that attitudes can be measured.

Data Collection Procedure:

The study employed a questionnaire to collect data. Questionnaires are appropriate for studies since they collect information that is not directly observable as they inquire about feelings, motivations, attitudes, accomplishments as well as experiences of individuals (Mellenbergh, 2008). The questionnaire was designed to capture critical information that answers the objectives and comprised of both open and close-ended questions. Franker, (2006) stated that a questionnaire is useful in obtaining objective data because participants are not manipulated in any way by the researcher. Further, questionnaires have the added advantage of being less costly and using less time as instrument of data collection (Mutura, 2014). The questionnaires were distributed to each respondent and were given time to respond to the questions related to the problem under study.

Data processing, Analysis and Presentation:

The questionnaire generated both qualitative and quantitative data. Data was cleaned, coded and entered into Statistical Packages for Social Scientists (SPSS Version 20.0) and analyzed using descriptive statistics. Descriptive statistics involved the use of absolute and relative (percentages) frequencies, measures of central tendency and dispersion (mean and standard deviation respectively). Findings were also subjected to ANOVA and correlation analysis to determine the influence of fisheries management on economic development of Somalia.

Regression Model:

$$Y = \beta + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu$$

Where;

Y is Economic Development, β is the constant, X_1 is the effect of fishing training, X_2 is the effect of fishing infrastructure development, X_3 is the effect of fish value addition, X_4 is the effect of fish market development and μ is the stochastic term.

4. PRESENTATION AND DISCUSSION OF FINDINGS

Response rate:

Data was collecting using self-administered questionnaires, a total of 198 questionnaires were administered to the respondents and all the 198 questionnaires were returned fully answered by the respondents. This represented a response rate of 100 percent. This was attributed the fact that the questionnaires were administered and answered in the presence of the researcher as the respondents were not allowed to stay with the questionnaires for long hours.

International Journal of Novel Research in Interdisciplinary Studies

Vol. 5, Issue 4, pp: (11-24), Month: July - August 2018, Available at: www.noveltyjournals.com

Table 4.1: Response Rate

	Number	Percentage
Questionnaires given out	198	100%
Questionnaires returned	198	100%

Table 4.2: Correlation Analysis

Correlation Analysis:

		Fishing Training	Fishing Infrastructural Development	Fish value addition	Fish Market development	Economic Development
Fishing Training	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	198				
Fishing Infrastructural Development	Pearson Correlation	.027	1			
	Sig. (2-tailed)	.604				
	N	198	198			
Fish value addition	Pearson Correlation	.080	.076	1		
	Sig. (2-tailed)	.119	.126			
	N	198	198	198		
Fish Market development	Pearson Correlation	.082	.078	.091	1	
	Sig. (2-tailed)	.118	.128	.533		
	N	198	198	198	198	
Economic Development	Pearson Correlation	.582**	.780**	.109*	.900**	1
	Sig. (2-tailed)	.000	.000	.033	.000	
	N	198	198	198	198	198

** . Correlation is significant at the 0.01 level (2-tailed).

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

The study conducted a correlation analysis to determine the relationship between the variables. Correlation analysis is a statistical technique used to test the relationship between the dependent and independent variable. Results from the study showed that there is significant relationship between the dependent variable and independent variables, however there was no relationship existing among the independent variables. This fulfills the Gauss Markov assumption which states that there should be no perfect relationship among the independent variables in order for them to be able to predict the dependent variable.

Regression Analysis:

Multiple linear regression analysis is used to test the effect of the independent variables on the independent variable. Regression analysis from the study revealed that the relationship between the independent variables and dependent was significant. The independent variables can be used to predict the behavior of the dependent variable. The regression analysis produced R squared of 0.865 which indicated that the independent variables explain 86 percent of the variations in the dependent variable as shown in table 4.3

Table 4.2: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.930 ^a	.865	.125	.084

a. Predictors: (Constant), Fish Market development, Fishing Training, Fishing Infrastructural Development, Fish value addition

ANOVA:

ANOVA is used to test if the mean values of the independent variables are statistically significant. The F-test from the ANOVA analysis produced a P-value of 0.000 which is less than 0.05. This indicated that independent variables are statistically significant and can be used to predict the behavior of the dependent variables when the independent variable changes.

International Journal of Novel Research in Interdisciplinary Studies

Vol. 5, Issue 4, pp: (11-24), Month: July - August 2018, Available at: www.noveltyjournals.com

Table 4.4: ANOVA

		ANOVA				
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	17.264	4	4.316	332	.000 ^b
	Residual	2.694	193	.013		
	Total	19.958	197			

a. Dependent Variable: Economic Development

b. Predictors: (Constant), Fish Market development, Fishing Training, Fishing Infrastructural Development, Fish value addition

Regression Coefficients:

From the regression analysis the study indicated that there is a significant effect of fishing training on economic development. This is shown by P-value of 0.000 which is lower than 0.05 presented in table 4.5. With this finding the study rejects the null (H_{01}) hypothesis which said that fishing training has no effect on economic development and conclude that fishing training has effect on economic development.

The study indicated that fishing infrastructural development has a significant effect on economic development shown by p-value of 0.000 which lower than 0.05 presented in table 4.5. Based on this analysis the study rejected a null hypothesis (H_{02}) which said that fishing infrastructural development has no effect on economic development and conclude that fishing infrastructural development has a significant effect on economic development.

The study also indicated that there is a significant effect of fish value addition on economic development. This is shown by a p-value of 0.029 in table 4.5 which is lower than 0.05. This leads to the rejection of the null hypothesis (H_{03}) which said that fish value addition has no effect on economic development and conclude that fish value addition has a significant effect on economic development.

The regression analysis indicated that there is a significant effect of fish market development on economic development. This is presented by a p-value of 0.032 in table 4.5 which is lower than 0.05. Based on this analysis the study rejected a null hypothesis which predicted that fish market development has no effect on economic development and concludes that fish market development has a significant effect on economic development.

Table 4.5: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.016	.173		17.414	.000
Fishing Training	.066	.011	.283	5.883	.000
1 Fishing Infrastructural Development	.075	.021	.176	3.604	.000
Fish value addition	.051	.023	.107	2.195	.029
Fish Market development	.061	.029	.103	2.150	.032

a. Dependent Variable: Economic Development

Substituting the estimates into the regression model $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu$ gives out the following;

$$Y = 3.016 + 0.283X_1 + 0.176X_2 + 0.107X_3 + 0.103X_4$$

Where Y is the dependent variable (Economic development), X_1 is the effect of fishing Training, X_2 is effect of fishing infrastructural development, X_3 is effect of fish value addition and X_4 is the effect of Fish market development.

Table 4.6: Hypothesis Testing Results

Hypothesis Statement	Hypothesis Test	p-value	Decision Rule
H_{01} : There is no relationship between Fishermen Training and economic development in Mogadishu, Somalia.	F-test (ANOVA)	.000	Reject H_{01}
H_{02} : There is no relationship between fishing infrastructure development and economic development in Mogadishu Somalia	F-test (ANOVA)	.000	Reject H_{02}

International Journal of Novel Research in Interdisciplinary Studies

 Vol. 5, Issue 4, pp: (11-24), Month: July - August 2018, Available at: www.noveltyjournals.com

H₀₃ :There is no relationship between Fish value addition and economic development in Mogadishu, Somalia	F-test (ANOVA)	.029	Reject H ₀₃
H₀₄ : There is no relationship between fish market development and economic development in Mogadishu, Somalia	F-test (ANOVA)	.032	Reject H ₀₄

5. SUMMARY, CONCLUSION AND RECOMMENDATION

Summary of Findings:

Effect of fishing training on Economic Development:

The study examined the effect of fishing training on economic development and made the following discoveries; the study found out that respondents agreed that fishing training improves fishing skills shown by mean response of 3.96. Study findings showed that respondents agreed that fishing training attracts graduates into fishing activities presented by mean value of 3.73. Findings from the study revealed that respondents agreed that fishing development reduces unemployment presented by mean response value of 3.92. The study found out that respondents agreed that fishing training reduces accidents on the ocean as presented by mean response of 3.98. Survey findings showed that respondents agreed that fishing training encourage use of effective and efficient fishing techniques shown by mean response of 3.87.

From the regression analysis the study indicated that there is a significant effect of fishing training on economic development. This is shown by P-value of 0.000 which is lower than 0.05 presented in table 4.5. With this finding the study rejects the null (H₀₁) hypothesis which said that fishing training has no effect on economic development and conclude that fishing training has effect on economic development.

Effect of Fishing Infrastructure Development on Economic Development:

The survey focused on investigating the effect of fishing infrastructure development on Economic Development and made the following discoveries. The study found out that respondents agreed that fishing ports improves unloading of fishing vessels shown by mean response value of 3.82. The study revealed that respondents agreed that fishing port improves marketing of fish caught presented by mean response value of 3.80. Study findings indicated that respondents agreed that fishing ports facilitates maintenance and repair of fishing equipment shown by mean response value of 3.87. Findings from the study showed that respondents agreed that Fishing ports acts as industrial zones for fish processors presented by mean response value of 4.01. The survey further discovered that respondents agreed that fishing ports facilitate centralized collection of fees and revenues from fishing shown by mean response of 3.82.

The regression analysis from the study indicated that fishing infrastructural development has a significant effect on economic development shown by p-value of 0.000 which lower than 0.05. Based on this analysis the study rejected a null hypothesis (H₀₂) which said that fishing infrastructural development has no effect on economic development and conclude that fishing infrastructural development has a significant effect on economic development.

Effect of Fish Value addition on Economic Development:

The study examined the effect of fish value addition on economic development of Mogadishu Somalia and made the following discoveries; the study found out that respondents agreed that Fish Processing encourages export as shown by mean response of 3.85. The survey discovered that respondents agreed that fish processing industries provide employment opportunities to locals presented by mean response of 3.95. The survey also found out that respondents agreed that Fish processing industries are a source of revenue to the government shown by mean response of 3.96. The study further found out that respondents agreed that Fish processing industries lead to increased export revenue due to value addition presented by mean response of 3.60. Fish value addition through fish processing leads to increased export of the processed fish due to increased quality.

The regression analysis also indicated that there is a significant effect of fish value addition on economic development. This is shown by a p-value of 0.029. Which is lower than 0.05. This leads to the rejection of the null hypothesis (H₀₃) which said that fish value addition has no effect on economic development and conclude that fish value addition has a significant effect on economic development.

Effect of Fish Market Development on Economic Development:

The study investigated the effect of fish market development on economic development of Mogadishu, Somalia and made the following findings; the study discovered that respondents agreed that the Poor Transport network limits fish market expansion in Somalia evidenced by mean response value of 4.01. The survey also found out that respondents agreed that High importation of fish limits domestic fish market growth presented by mean response of 4.15. The study findings revealed that respondents agreed that Fish Markets provide access to a variety of fish products as shown by mean response of 3.96.

The study further revealed that respondents agreed that Fish market development reduces fish spoilage presented by mean response of 3.73. Study discovered that respondents agreed that development of domestic fish market creates employment opportunities as indicated by mean response of 4.22. Increased domestic demand for fish creates employment opportunities for the people as more are engaged in fishing to satisfy local demand. The regression analysis indicated that there is a significant effect of fish market development on economic development as presented by a p-value of 0.032 which is lower than 5 percent. Based on this analysis the study rejected a null hypothesis which predicted that fish market development has no effect on economic development

Economic Development:

The study made inquiries about the effect of fishing on economic development of Mogadishu, Somalia and made the following discoveries; the study discovered that respondents agreed that Fish exports have contributed to gross domestic product (GDP) rise in Somalia as indicated by mean response of 4.01. The study further found out that respondents agreed that Fishing has helped in Establishment of quality schools in the fishing community as presented by mean response of 4.15. Revenue from fishing has been used in the economic development of the communities around fishing areas and construction of schools has been one of the investments done by prominent fishermen.

Conclusions:

The study examined the influence of fisheries management on economic development and from the study findings the researcher made the following conclusions. The study examined the effect of fishing training on economic development and found out that fishing training has a significant effect on economic development. With this finding the study rejects the null hypothesis which assumed that fishing training has no effect on economic development and conclude that fishing training has effect on economic development.

The survey focused on investigating the effect of fishing infrastructure development on Economic Development and the regression analysis from the study indicated that fishing infrastructural development has a significant effect on economic development. The study rejects the null hypothesis which assumed that fishing infrastructural development has no effect on economic development and conclude that fishing infrastructural development has a significant effect on economic development. The study examined the effect of fish value addition on economic development of Mogadishu Somalia and regression analysis also indicated that there is a significant effect of fish value addition on economic development. Based on the study findings the study concludes that fish value addition as a significant effect on economic development. The study investigated the effect of fish market development on economic development of Mogadishu, Somalia and regression analysis indicated that there is a significant effect of fish market development on economic development. With this finding the study concluded that fish market development has a significant effect on economic development

Recommendations:

Basing on the findings of the study the researcher made the following recommendations;

1. Fishing has proved to be a professional activity which requires training. Capacity building could focus on a training of key fishing stakeholders to develop their skills and knowledge. These trainees would be equipped to undertake their own capacity building back in their own environments.
2. Somalia is a large country with several major fisheries as well as imports and some exports into Kenya and a limited established frozen fish trade. Infrastructure, equipment and services such as landing sites, proper markets, ice, insulated boxes and water supplies are lacking in key locations. Provision of basic landing facilities is earmarked as a future developmental priority.

International Journal of Novel Research in Interdisciplinary Studies

 Vol. 5, Issue 4, pp: (11-24), Month: July - August 2018, Available at: www.noveltyjournals.com

3. In a drive to improve the fisheries sector, government should actively encourage foreign investment in the fishing industry in order to develop the fishing infrastructure and improve on value addition to fish.
4. There should be increased investment in rural roads to facilitate easy and quick transportation of fish from landing sites to both urban and rural markets. As a result, a more integrated approach to rural transport planning is advocated which not only concentrates on road building, but also on the promotion of vehicle services, location of essential services and the provision of low cost vehicles to facilitate fish transportation to markets.

REFERENCES

- [1] Aas, Ø. (2016). *Global challenges in recreational fisheries*. Oxford.: Blackwell.
- [2] Abdullah. (2016). *Misali Island, Tanzania: an open access resource redefined*. Bloomington, Indiana: Constituting the Commons, the Eighth Annual Conference of the International Association for the Study of Common Property.
- [3] Abend, L. (2015). *Sustainable aquaculture: net profits*. Time magazine, June 15.
- [4] Adams, R. (2017). Use of high-pressure processing for oyster shucking and shelf-life extension. *J. Food Sci.* 67(2): 640-45.
- [5] Allison, E. (2016). *Aquaculture, Fisheries, Poverty and Food Security*. Paris: OECD.
- [6] Allison, E. (2016). *Aquaculture, Fisheries, Poverty and Food Security*. Paris: OECD.
- [7] Andersson. (2014). *Coastal communities' production choices, risk diversification, and subsistence behaviour*.
- [8] Barry, U. (2016). *Annual report on the United States seafood industry*. www.urnerbarry.com.
- [9] Belton, T. (2016). *Fisheries in Transition: Food and nutrition security implications for the global South*. Global Food Security.
- [10] Bostock. (2016). *Successful Fisheries Management: Issues, Case Studies and Perspectives*. Eburon: Delft.
- [11] Cressey, D. (2015). *Aquaculture: future fish*. *Nature* 458, 398-400. Online at:.
- [12] DFID. (2007). *Present and Future Economic and Nutritional Consequences of the Exploitation of Small Pelagics (Sardinellas) in West Africa*. Rome: FAO.
- [13] DFID. (2017). *Sustainable Fisheries Livelihoods Programme*. NewYork: Oxford University Press.
- [14] DFID. (2014). *The Role of Fisheries in Economic Growth and Poverty Alleviation*. London: DFID.
- [15] Ditton. (2008). *Global challenges in recreational fisheries*. Oxford.: Blackwell.
- [16] Dzugan, J. (2010). *25 YEARS OF TRAINING COMMERCIAL FISHERMEN*. Washington D.C.: National Transportation Safety Board Fishing Vessel Safety Forum.
- [17] FAO. (2015). *Fact Sheet: The International Fish Trade and World Fisheries*. Rome: FAO.
- [18] FAO. (2015). *Fisheries and Poverty Reduction*.
- [19] FAO. (2016). *The International Fish Trade and World Fisheries*. Rome: FAO.
- [20] FAO. (2015). *The state of food insecurity in the world*. Rome: United Nations.
- [21] FAO. (2014). *The State of World Fisheries and Aquaculture*. Rome: United Nations.
- [22] FAO. (2014). *The State of World Fisheries and Aquaculture*., Rome: FAO Fisheries and Aquaculture Department.
- [23] Flaaten, O. (2015). *Fisheries Economics and Management*. University of Tromsø,Tromsø, Norway: Norwegian College of Fishery Science.
- [24] Glazer. (2015). *Disaggregating Culture*. In L.E. Harrison and S.P. Huntington (Eds.). *Culture Matters*.
- [25] Jarvis. (2014). *Curing and Canning of Fishery Products: Marine Fisheries Review*. Washington DC: U.S. Fish. Commission.
- [26] JICA. (2015). *Agricultural and Rural Development / Fisheries*. JICA.

International Journal of Novel Research in Interdisciplinary StudiesVol. 5, Issue 4, pp: (11-24), Month: July - August 2018, Available at: www.noveltyjournals.com

- [27] Julian, G. (2007). Lessons Learned from Training Artisanal Fishermen in West Africa. FAO Library.
- [28] KOTHARI. (2004). Research Methodology. New Delhi: NEW AGE INTERNATIONAL (P) LIMITED, PUBLISHERS.
- [29] Kothari, C. (2014). Research Methodology Methods and Techniques 2nd Edition. Mumbai: New Age International Limited Publishers.
- [30] Liu, C. (2009). Effects of Flash Freezing, Followed by Frozen Storage, on Reducing *Vibrio parahaemolyticus* in Pacific Raw Oysters (*Crassostrea gigas*). *J. Food Protection* 72 (1); 174-177.
- [31] Martin Associates. (2014). THE 2013 ECONOMIC IMPACT OF THE PORT OF SEATTLE. Seattle, WA 98121: 2711 Alaskan Way.
- [32] Martini, R. (2015). Fishing for Tomorrow: Managing fisheries for sustainable development. Paris: OECD.
- [33] Mellenbergh, G. J. (2008). Construction and advising on research methods. Huizens: Johannes van Kessel Publishing.
- [34] Ministry of Fisheries and Marine Resources, . (2012). Fishing Trends in Somalia.
- [35] Ministry of Livestock and Fisheries Development Tanzania. (2010). FISHERIES SECTOR DEVELOPMENT PROGRAMME. Dar es Salaam: Ministry of Livestock and Fisheries Development.
- [36] Mutura, J. M. (2014). Influence of innovation procurement practices on performance of national social security fund in Kenya. *International academic journals* , 1-20.
- [37] Neiland, A. E. (2016). CONTRIBUTION OF FISH TRADE TO DEVELOPMENT, LIVELIHOODS AND FOOD SECURITY IN WEST AFRICA. Rome: FAO.
- [38] Omwega, R. N. (2016). Fishing and poverty levels around Lake Victoria (Kenya). Kisumu, Kenya: Kenya Marine and Fisheries Research Institute.
- [39] Thorpe, R. (2013). African Poverty Reduction Strategy Programmes and the Fisheries Sector: Current Situation and Opportunities. Rome:: FAO.
- [40] World Bank. (2016). Saving Fish and Fishers: Towards sustainable and equitable governance of the global fishing sector. Report no. 29090. Washington, DC,: World Bank.
- [41] World Bank. (2014). World Development Report: Agriculture for Development. The World Bank Group.
- [42] World Bank. (2016). Saving Fish and Fishers: Towards sustainable and equitable governance of the global fishing. Washington, DC: World Bank