ASSESSMENT OF THE PERFORMANCE IN REVENUE COLLECTION FROM FRESH WATER FISHES AT NYAMAGANA MUNICIPAL COUNCIL IN MWANZA, TANZANIA

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DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURAL ECONOMICS OF SOKOINE UNIVERSITY OF AGRICULTURE. MOROGORO, TANZANIA.

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ABSTRACT

The study was conducted in order to assess performance in revenue collection from fresh water fishes at Nyamagana Municipal Council. Specifically the study aimed at identifying sources of revenue from fishery sub sector at the Municipality; determining revenue collection gap between 2000 and 2010; as well as determining administrative factors that influence revenue collection performance and assessing extent sub sectoral factors influence revenue collection in the fishery sub sector. The study used both primary and secondary data. Primary data were collected using structured questionnaires with 120 randomly selected fish traders and fisheries officers. The data were analyzed using SPSS and MS-Excel. The collection gap found was 1.09 billion TZS with a T-test of 0.002 at five percent level of significance. Multiple regression model was used to determine administrative (revenue payers identification, revenue payers assessment, collection procedures as well as revenue payers sensitization) factors that influence revenue collection performance. It was found that both administrative factors are significant at five percent level of significance. Adjusted R^2 was 0.60 (indicating the relationship between dependent and independent variables by 60%). F-value is positive (35.10357) and significant at. All coefficients indicate positive relationship between variables (revenue payers' identification (0.20), revenue payers' assessment (0.12), revenue collection procedures (0.12) and sensitization (0.12). Identification of revenue payers' has the highest contribution (p=0.000), followed by revenue payers' assessment (p=0.01), sensitization of revenue payers (p=0.04) and last revenue collection procedure (p=0.024) both at five percent level of significance. Also sub sectoral factors influence revenue collection including illegal fishing (20%), corruption (16.7%), good governance and management of natural resources (16.7%) was assessed. The study recommends policy action on revenue administration to be strengthened in order to improve revenue collection capacity as well as curbing illegal fishing and corruption in the fishery sub sector.

DECLARATION

I, **Jonathan Jackson Lumenyela**, do hereby declare to the Senate of Sokoine University of Agriculture, that this dissertation is my original work and that it has neither been submitted nor being concurrently submitted for degree award in any other institution.

_____ _____

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The above declaration confirmed by

_____ _____

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(Supervisor)

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This work is dedicated to my parents Mr. and Mrs. Jackson Lumenyela Gwiha, for their tireless efforts in ensuring that I got good foundation for my education.

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LIST OF ABBREVIATIONS AND ACRONYMS

ABARE	Australia Bureau of Agriculture Research
ADB	Africa Development Bank
BMU	Beach Management Unit
CPUE	Catch Per Unit Effort
DFID	Department for International Development
DRC	Data Resource Centre
EPA	Environmental Protection Agency
EU	European Union
FA	Forest Agreement
FAO	Food and Agriculture Organization
FD	Fisheries Department
FOs	Fisheries Officials
GDP	Gross Domestic Product
GOs	Government Officials
GoT	Government of Tanzania
IMF	International Monetary Fund
ICPAU	Inter Committee for Parliamentary Affairs in Uganda
KPIs	Key Performance Indicators
MACEMP	Marine and Coastal Environmental Management Project
MNRT	Ministry of Natural Resources and Tourism
MRAG	Marine Resources Assessment Group
MPI	Mean Performance Index
MTEF	Medium Term Expenditure Framework
NAPA	National Academy of Public Administration
NBS	National Bureau of Statistics

PI	Performance Index
R^2	Regression Coefficient
REPOA	Research on Poverty Alleviation
SADC-MCS	Southern Africa Development Cooperation-Marine and Coastal State
SPSS	Statistical Package for Social Sciences
TAFIRI	Tanzania Fisheries Research Institute
TRA	Tanzania Revenue Authority
TZS	Tanzania Shillings
URT	United Republic of Tanzania
US$	United States Dollar
WB	World Bank
WRI	Water Research Institute

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Tanzania is one of the largest fisheries nations in Africa (Salehe, 2008). The country is endowed with both marine and freshwater fisheries. It shares the largest inland lakes in Africa, which include Lake Victoria, Lake Tanganyika and Lake Nyasa; and has also the Indian Ocean coastline, rivers and wetlands (Ngaga *et al.,* 2005). The freshwater fishery is divided into two major categories; the large water bodies which include the Great Lakes (Victoria, Tanganyika and Nyasa), Lake Rukwa, Nyumba ya Mungu Dam and Mtera Dam; and the minor water bodies which include all small water bodies in different regions and rivers like Pangani, Rufiji, Ruvuma, Wami, and Ruvu rivers (DFID, 2008). Fisheries resource in mainland Tanzania is managed by the Fisheries Department, subordinated to the Ministry of Fisheries and Livestock Development (URT, 2012).

The potential resource yield of fish from natural waters is estimated to be 730 thousands metric tonnes with a present catch of over 350 thousands metric tons annually (Masato, 2011). The sector is dominated by the artisanal Nile perch fishery from Lake Victoria, in terms of volume, landed value, export revenue and government tax revenues followed by the shrimp fishery from marine shallow water (Salehe, 2008). The URT (2013) claimed that, contribution of the sector to the national GDP is about 1.2% per annum; fish contribute 27% of the total animal protein consumption in Tanzania and the sector employs about 300 thousand people as permanent and temporary fishers (FAO, 2007) of whom 150 thousand people are full time artisanal fishermen whereas about other 2.0 million people make their livelihoods through various fisheries-related activities such as

boat building, net mending, fish processing, food vendors and other petty business (DFID, 2008).

Apart from previous mentioned fisheries activities, Government through Fisheries Division (FD) collects revenue from the sector activities at different levels of the government (Ngalewa *et al.,* 2009). Such revenue include levy, licenses and export revenue from both fresh as well as marine resources. The money so collected is used to develop the sector in terms of management, training and monitoring of the resource utilization (Pulchocwk, 2010; World Bank, 2005).

1.1.1 Fish production and status of Nile perch fishery in the Lake Victoria

Fish production of the Lake Victoria is dominated by artisanal fishers and the lake contributes up to 60% in annual production of capture fisheries in the country and equivalent to 40% when compared with partner states. According to DFID (2008), there are more than 98 thousand fishers that are permanently involved with harvesting of lake resource on the Tanzanian side. Since mid 1980s the production trend has potentially increased although not stable; in the late 1990s and early 2000s the fish production increased at a decreasing rate and catches were mostly dominated by three species of high commercial value; L. *niloticus* (Nile perch), the tilapias (mainly *O. niloticus*, 'sato') and *Rastrineobola argentea* ('dagaa') Onyango (2007) as cited by Salehe (2008).

Fig. 1 shows the estimates of fish production in Lake Victoria from 1958-2004. The catch per unit effort (CPUE) of Nile perch started increasing in late 1980s where the highest value was reached in 1995 with production capacity of 19.22 metric tonnes per year and decrease to 16.07 metric tonnes per year in 2000. This indicated the declining in stock size (FAO, 2007). This is also evidenced from the decline of mean standing stock of Nile

perch from 1.29 million tonnes in 1999/2001 to 0.82 million tonnes in 2005/2006 from surveys conducted by the fisheries research institutes of partner states sharing the Lake Victoria resource (FAO, 2007).

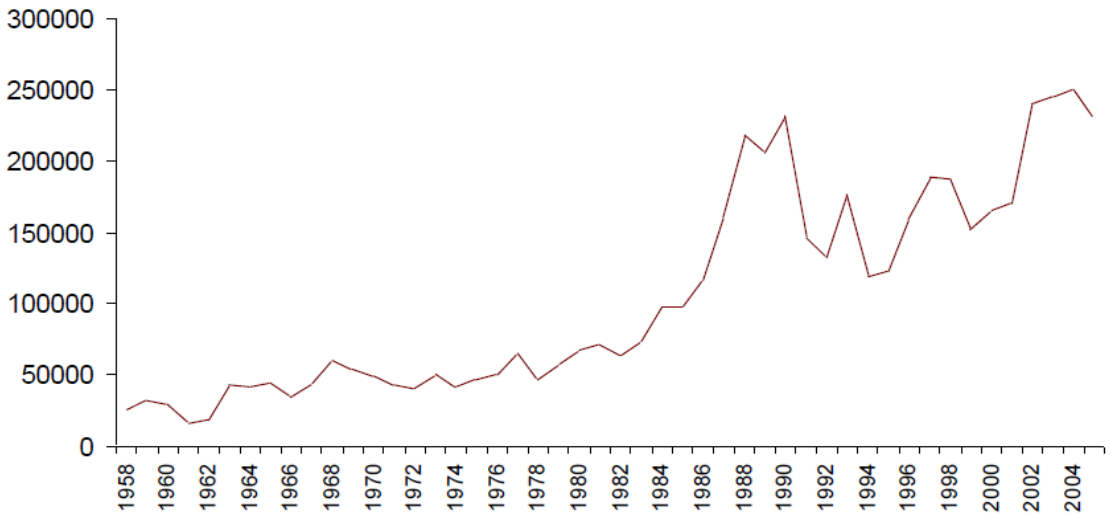

Figure 1: Lake Victoria fish production/harvest in metric tonnes in 1958 -2004.

Source: Salehe, 2008.

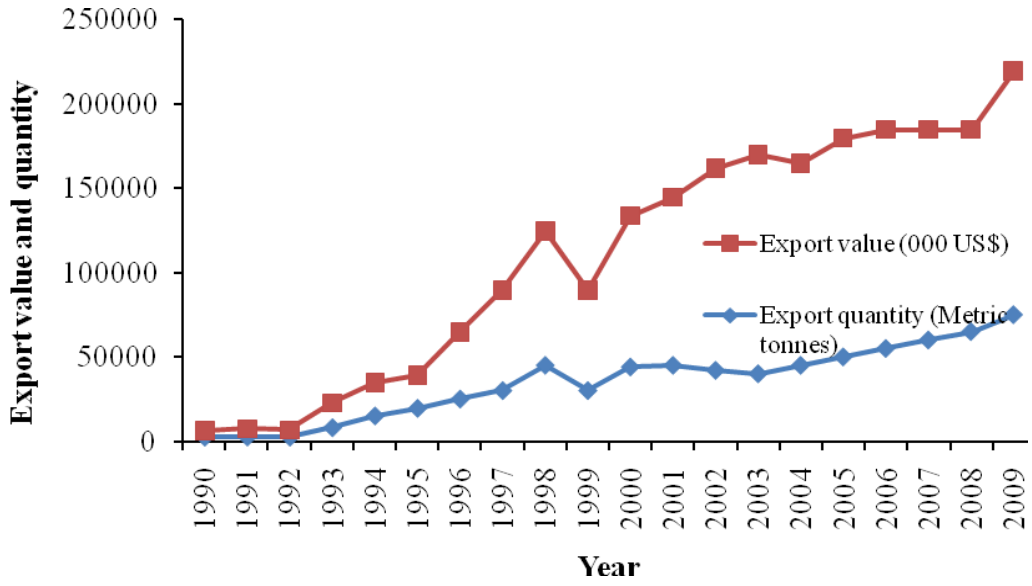

Figure 2: Export quantity and values of fish and fish products in Tanzania 1990-2009.

Source: URT, 2013.

Fig. 2 presents the export quantity and values of fish and fish product from 1990 to 2009. Both export quantity and value of fish increased from 1990 to 1997 but dropped in 1998/99 and then rose again in from 1999 to 2003/04. There was a small increase in both export quantity as well as export value of fish from 2004 to 2006 and a sharp drop in both quantity and value of fish export in 2007/08 then increased again 2009/10. The reason for rise was due to proper management, increased number of fish catches, decreased illegal fishing and increased revenue collection where as fall was due to decreased in fish catches and poor management of fish and fish production sites.

1.2 Problem Statement and Justification

The Government of Tanzania has been doing a lot of efforts to boost economy of the country to raise the gross domestic product (GDP). This is done through different initiatives in various sectors including agriculture. Forestry and wildlife are subsidized through government allocations to cover their current expenditures and through foreign grant allocations to finance their operational budgets (Kajembe and Mageri, 2009). Inspite of these initiatives being done by the government, still fishery sub-sector seems to have little contribution to the total GDP when compared to its resource potential (TRA, 2011). Tanzania, though endowed with abundant fresh water lakes, seas and oceans covering 6% of the total mainland area, has failed to maximally tap the economic potential of the significant natural resources (Masato, 2011). According to the Tanzania Revenue Authority (TRA) statistics (2011), the subsector yields 350 thousands metric tonnes of fish per year estimated to be only half of its potential with only 13% of the total export. This is minimal from the expected yields of fish per year. Worse still, catches per boat in the Lake Zone has been declining in recent years and so, growth may not be sustainable in the long-term (World Bank, 2005).

In addition, TRA report (2011) argued that the sub sector has failed to collect revenue effectively from the fishery subsector. This is supported by the argument by Masato (2011) that the sub sector's contribution of between 1.2 and 1.4 percent to the GDP in the past two years (2009 and 2010) is very small when compared to that of the past years' and regarded as scandalous to the sub sector. URT (2013) further claimed that, fishery sub-sector's contribution to the total government revenue was estimated to be about one percent which was low compared to the potential contribution expected from the subsector.

As a result of low contribution by the sub sector to the GDP several studies have been conducted assessing performance of revenue collection in the fisheries sub sector. These studies include Kowero (1990 and 1991), Silviconsult (1991), Chatterjee and Mushi (1999) as cited by World Bank (2005). Fishery is a sub-sector under the Agriculture GDP in the System of National Accounts. There are little statistics that account separately for the contribution of marine or freshwater Fisheries to GDP. However little information is available on the separate contribution of freshwater fisheries to GDP and hence assessing separately its performance in revenue collection from fresh water fishes (World Bank, 2005). Therefore, this study assessed separately the performance of revenue collection from fresh water fisheries.

1.3 Study Objectives

1.3.1 The overall objective

The overall objective of the study was to assess performance in revenue collection from the fishery sub sector at Nyamagana Municipal Council.

1.3.2 Specific objectives

The specific objectives were:

(i) To identify the sources of revenue and their contribution in revenue collection in the fishery sub sector at Nyamagana Municipal Council.

(ii) To assess collection gap between projected and actual revenue collection in the fishery sub sector at Nyamagana Municipal Council for 2000/10 years.

(iii) To determine revenue administration factors influencing revenue collection performance.

(iv) To assess the extent to which sub sectoral factors influence revenue collection in the fishery sub sector in Nyamagana Municipal Council.

1.3.3 Research questions

(i) What is the contribution of identified source(s) of revenue collection in the fishery sub sector in the Nyamagana Municipal Council?

(ii) To what extent do sub sectoral factors influence revenue collection in the fishery sub sector in Nyamagana Municipal Council?

1.3.4 Research hypotheses

(i) H_0: There is no significant difference in mean collection between projected and actual revenue collection in 2000/10 years.

(ii) H_0: Revenue performance is not partly affected by revenue administration factors.

1.4 Significance of the Study

The findings from this study suggest and recommend best ways to improve revenue collection in the fishery sub sector. By determining revenue administrative factors influencing revenue collection performance and assessing to what extent sub sectoral

factors influence revenue collection in the fishery sub sector at Nyamagana Municipal Council; the study is expected to come up with improved ways of administering revenue to improve its performance. By determining revenue collection gap the study findings suggest ways to reduce revenue gap. Such information is intended to guide policy makers, on ways to improve revenue collection in the fishery sub sector.

1.5 Scope of the Study

This study assessed performance in revenue collection from the fishery sub sector basing on fresh water fish. It used secondary data to assess performance in revenue collection for 2000/10 years and primary data in assessing the extent to which sub sectoral factors influence revenue collection in the sub sector. The study was done at Nyamagana Municipal Council in Mwanza, selected fish landing stations and Mwaloni fish Market. Information's and/or data on price, revenue and fish catch were obtained from Municipal Authorities as well as Tanzania Fisheries Research Institute (TAFIRI).

1.6 Organization of the Dissertation

The study is organized in five chapters. Chapter one is the introductory chapter, which provides the background information, problem statement and justification, overall and specific objectives, research questions, research hypothesis, significance, scope and organization of the study. Chapter two presents literature review; definition of key terms and empirical studies in relation to the current study. Chapter three discusses the research methodology. The results and discussion of the study are presented in Chapter four. Lastly, Chapter five presents conclusion and recommendations.

CHAPTER TWO

2.0 LITERATURE REVIEW

This Chapter critically defines important terminologies used in the study. It explains the reasons for doing performance assessment, gives brief explanations on revenue administration issues, the factors that influence revenue collections, contribution of fisheries to the country GDP as well as contribution and performance of other sub sectors in revenue collection. The Chapter generally reviews literature on revenue performance. It reviews empirical studies which knit together the literature review in the light of the objective of this study.

2.1 Performance Measurement in Business Organizations

Performance measurement is the process whereby an organization establishes the parameters within which programs, investments, and acquisitions reach the desired results (DRC, 2009). This process of measuring performance often requires the use of statistical evidence to determine progress towards specific defined organizational objectives (Schacter, 2008). Key Performance Indicators define a set of values used to measure against (Robert, 2007).

2.2 Importance of Doing Performance Measurements

2.2.1 Evaluation of business performance

In evaluating performance, organizations need to determine what has to be accomplished in order to formulate a clear, coherent mission, strategy, and objective. Then based on the information, it suggests best methods to be used in measuring those activities (Bacon, 2004 and Schacter, 2002). Evaluation processes consist of two variables: organizational performance data and a benchmark that creates a framework for analyzing that data. In

order for organization to evaluate performance it requires standards (benchmark) to compare its actual performance against past performance or from performance of similar agencies or industry standard or political expectations (Schacter, 2008).

2.2.2 Business control

According to modern concepts, control is a foreseeing action whereas earlier concept of control was used only when errors were detected. Control in management means setting standards, measuring actual performance and taking corrective action. Heads of organizations do not control their workforce mechanically but use measures to control, while allowing some space for freedom in the workforce. Any business has control bias because traditionally measurement system sprung from finance function which has a control bias (Ittner and David, 2003).

2.2.3 Organization budgeting

Budgets are crude tools used in improving performance (Robert, 2003). Sometimes budget increase could be the answer to improving performance (Robert, 2007). Efficiency is determined by observing performance output and outcome achieved (Gamble *et al.*, 2007). In most cases if revenue earned by a particular organization is less than the expected output then the whole budgeting process as well as budget itself is affected. Therefore there is a direct relationship between the revenue earned by a government sector and its budget (Ikiara *et al.*, 2008).

2.2.4 Motivation of personnel in the organization

Giving goals to achieve involves the use performance measures including interim targets to focus work, and to provide periodic sense of accomplishment of the work. Performance targets may also encourage better ways to achieve the goal. Output focuses on improving

internal process whereas outcome motivates people to look outside the agency to seek way to collaborate with individuals and organizations that may affect the outcome produced by the agency (Robert, 2007).

2.2.5 Celebration for goal achievement

Organizations need to commemorate their accomplishments as such ritual tie people together, give them a sense of their individual and collective relevance (Schacter, 2002). Moreover, by achieving specific goals, organizations gain sense of personal accomplishment and self worth (Schacter, 2008). Dedicated people who want to work for successful agency, potential collaborators, learning-sharing between people about their accomplishments and how they achieved it are such examples. Significant performance targets provide sense of organization and collective accomplishment. Targets could be used to motivate if achieved. Celebration helps to improve performance because it brings attention to the agency, and thus promotes its competence and attracts more resources to be invested (Schacter, 2008).

2.2.6 Promotion in recognition to a certain contribution or doing well

National Academy of Public Administration's center for improving government performance (NAPA) (2009) argues that, performance measures can be used to validate success, justifying additional resources, earn customers, stakeholder, and staff loyalty by showing results and win recognition inside and outside the organization (Robert, 2007). Recognition promotes competence and value of public agency in general. To convince that an agency is doing well, measures of those aspects of performance should be easily understood.

2.2.7 Learning performance trend of the organization

Learning is involved with some process of analyzing information provided from evaluating corporate performance (identifying what works and what does not) (Schacter, 2002). By analyzing that information, corporation may be able to know reasons behind its poor or good performance. Performance measures can describe what is coming out as well as what is going in, but they do not reveal what is happening inside. Benchmarking is a traditional form of performance measurement which facilitates learning by providing assessment of organizational performance and identifying possible solutions for improvements (Schacter, 2008).

Measurements that are used for learning act as indicators for organization to consider analysis of performance in measurement's related areas by revealing irregularities and deviations from expected data results (Mendibil and Macbryde, 2005).

2.2.8 Improvement point identifications

Van de Walle *et al.* (2008) stated that in order for corporation to measure what to improve first it needs to identify what has to be improved and develop processes to accomplish that. Improvement process is related to learning process in identifying places that need improvements. Understanding processes and their interactions need to observe actions taken to influence operations, environment, workforce and eventually an impact on outcome. After that they need to identify actions to take for improvements looking how organization will react to those actions.

2.3 Revenue Collection Performance

Revenue collection performance is defined as actual revenue as percentage of expected over budgeted revenue (Baingana, 2011). The performance of revenue is whether the

business or service results in the maximization of monetary earnings or commercial returns to the subsector (ABARE, 2000). It may also be referred to as realization of the set revenue targets. The accounts of businesses involved in the fishery are primary sources of deriving a measure of the apparent net returns to fishery resource (Rose *et al.*, 2000). Baingana (2011) noted that improvement in administration would lead to increased revenue performance. Naimeede (1988) as cited in Baingana (2011); further argued that, if a tax is well administered, then inevitably revenue collections have to increase. It is the only way one can be able to know whether a tax is well administered or not.

2.4 Revenue Administration

Silvani and Alberto (1992), and Mikesell (1998) as cited in Baingana (2011) point out what constitutes revenue administration internationally; however, revenue administration has not been defined. Revenue administration may be referred to as dealing with taxpayers' in order to collect revenue and sanctioning non-compliance. However it largely deals with gathering and processing information. That is sensitization and providing taxpayer services to keep compliance, assessment and revenue collection procedures (Baingana, 2011).

In Uganda, Oriaro (1997), Abigaba (1998), Chen and Reinikka (1999) and Mulindwa (2000) as cited by Baingana (2011) have also pointed out the aspects they consider relevant in Uganda, and in summary these include locating the taxpayer, checking on taxpayer compliance and collection of revenue. Although several writers have tried to explain the meaning of revenue administration, Mulindwa (2000) cautions readers not to confuse revenue policy, revenue collection, revenue management and revenue administration. Revenue or tax policy is like a law and its revenue administration that

brings tax policy into reality (Naimeede, 1998 and Mulindwa, 2000) as cited in Baingana (2011).

2.4.1 Revenue or taxpayer identification

Tax payer identification is one of the most important aspects of revenue administration. This is because, as more taxpayers are located and registered, the taxpayers that would otherwise evade are reduced. Hence, (Baingana, 2011) noted that if taxpayers are identified and registered, revenue collection would increases. Therefore emphasis should be on identifying new sources of revenue, including revenue or taxpayers' identification.

2.4.2 Revenue or tax assessment

Assessment is another aspect of revenue administration which is the process of ascertaining or estimating a tax liability (Bird *et al.,* 2000). This is done by assessors who are usually the technical people in the tax bodies responsible for revenue collection. It is necessary that these charges should be updated, to take account of inflation. Without such measures, there would be no prospect of enhancing its contribution to the total budget revenue.

2.4.3 Sensitization of taxpayers

Sensitization of taxpayers' refers to taxpayer education and it involves educating them as a means of shaping their attitudes. It is necessary to convince taxpayers' to comply so as to enable government do its duties (Baingana, 2011). Therefore, sensitizing the public may have an impact on revenue collection, even though the informed taxpayers' may evade the tax for their own reasons. The author further noted that, sensitization can go a long way to achieving compliance and improving revenue performance.

2.4.4 Revenue collection procedures

The most important aspect of revenue administration and its goal is revenue collection procedures (Joulfain, 2000). Collection procedures involve collecting money from taxpayers. In most of the developing countries, little revenue is raised due to poor administration of collection procedures (Baingana, 2011). Because of the weak administration, tax evasion is very dominant. Thus, there is need to strengthen tax administration through improving collection procedures so as to get better revenue collection performance.

2.5 Contribution of fisheries to Mwanza City Council Economy

URT (2002) reported that in 1999 and 2000, local fishermen earned TZS 182 million (US$ 182 thousand) daily from selling their catch to the fish processing plants. This was equivalent to a total of TZS 65.5 billion (US$ 65.5 million) annual sales of twelve fish processing plants that have sprung up around the lake (Kweka *et al.*, 2006). According to the 2001 economic development report issued by the Regional Commissioner, Mwanza City Council received about 1.3 billion TZS (US$ 1.3 million) in fish levy from the sale of fresh Nile perch processed by the fish plants between April and December 2001. Earnings for the central government in taxes and loyalty from the exportation of the Nile perch fillets were estimated at TZS10 billion (US$ 10 million) in 2001. Tanzania produced about 220 thousands tones of fresh and frozen fillets for export in 2001 worth TZS 77 billion (US$ 77 million) (DFID *et al.*, 2005).

2.6 Contribution of fisheries to the GDP and National Economy

The fisheries sector in Tanzania has recorded high growth rates during the 1998 and 2003 years (FAO, 2007). Whereas annual growth was averaging 3% to 4% during the 1990s, it jumped to a level of 6% to 7% in 2001. Hence, export of fish products was a major source

of foreign currency for Tanzania in 2001. In 2003, 11.9% of total export earnings came from fish products, making it the second most important source of foreign currency to the minerals sector (World Bank, 2005).

This growth was primarily driven by freshwater fisheries, especially harvesting of the Nile Perch in Lake Victoria for consumption in EU markets (URT, 2002). Fisheries exports totalled US$ 130 million in 2003, corresponding to more than 10% of total exports (Bagumire, 2009). The export value of Nile Perch was US$ 100 million in 2003.

In 2003/04 TZS 9.5 billion was collected in revenue from the fisheries sector. This represents roughly a 50 percent increase from revenue collected in 2001/02. About 20% of revenue originates from marine fisheries, with 80 percent coming from freshwater fisheries in 2003 where the sector registered a revenue over-collection of roughly TZS 3 billion in 2003/04 (URT, 2005).

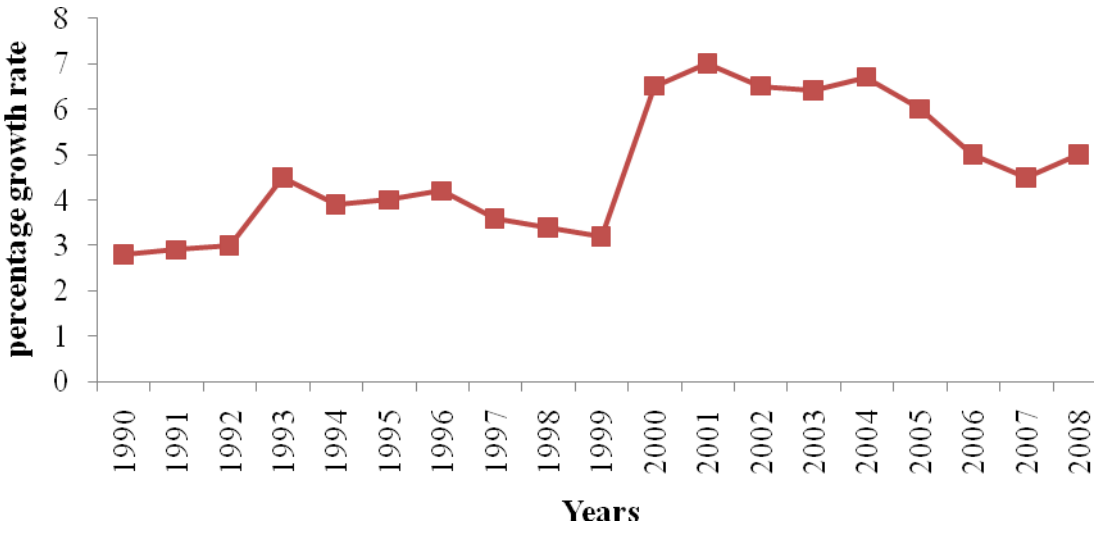

Figure 3: Growth rate of fishery sub sector in 1990 – 2008.

Source: URT, 2013.

2.6.1 Revenue collection from fishery sub sector in 2001 to 2004

Fisheries sub sector in Tanzania recorded over collection of revenue for the 2001/02 and 2003/04 financial years (Fig. 4). In 2003/04 the actual collections represented an over-collection of more than TZS. 3 billion vis-à-vis budgeted amount. The Ministry under Fisheries division explains this over collection as a result of increased foreign vessel compliance, due to aerial surveillance done under the on-going Southern Africa Development Cooperation- Marine and Coastal State (SADC-MCS) programme, and intensified patrols by revenue collectors (MNRT, 2004).

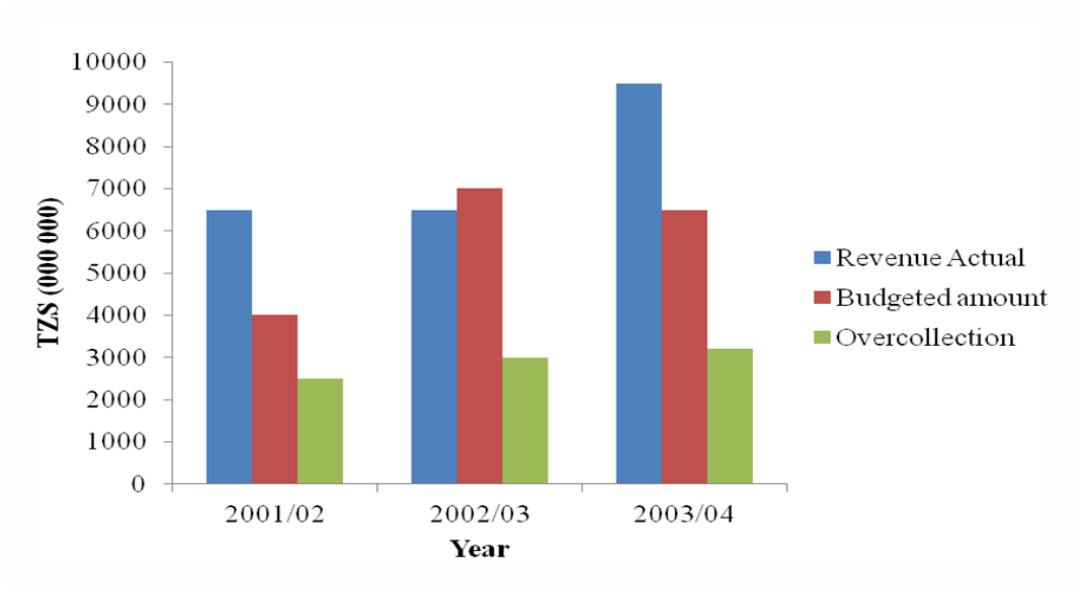

Figure 4: Revenue collection in the fisheries division 2001/02 - 2003/04.

Source: MNRT, 2004.

2.6.2 Revenue earned from marine water catch in 1993-2000

Revenue from marine-water catch increased between 1993 and 1995 and decreased between 1996 and 2000 whereas revenue from freshwater also increased during the early 1990 to 2000 (MNRT, 2004). World Bank (2005) statistics claimed that, in 2003 the increase in revenue from freshwater catch was 150 percent compared to marine water

catches due to increased in number of fish processing industries around Lake Victoria region in Tanzania.

2.7 Comparison of Fishery Sub Sector with Forestry and Wildlife Sub Sectors

In contrast to forestry and wildlife, a fishery sub sector has not recorded allocations or expenditures under the development appropriation account in the Medium Term Expenditure Framework (MTEF) (World Bank, 2005). There was hence no data readily available on the amount of foreign financing to the sector. In summary, fisheries operated with a smaller recurrent budget than Forestry and Wildlife while they record higher revenue. Therefore, being a revenue-earning sector, the key fiscal objective for Fisheries is to be self-financing. In other words, the cost of regulating and developing the sector is to be covered by the earned revenue. Moreover, revenue generated from fisheries on the mainland plays an important role in financing the sector and in raising revenue for the treasury and local administration (URT, 2004).

2.8 The Fisheries Policy and Strategy

The National fisheries policy of 1997 amended in 2007 (URT, 2013) aimed at regulating, promoting and developing the exploitation of fisheries resources in a sustainable manner as possible in order to provide food, employment, income and foreign exchange (URT, 2004). Clearly, the impressive performance of the fishery sector in the past years has partly been a result of the policy, which encouraged development of industrial processing in Lake Victoria. However, it should be noted that, effectiveness of the fishery policy is dependent on the focus and implementation of policies on related sub-sectors such as environment and trade (Bagumire, 2009).

The objectives of the National Environmental Policy 1997 amended in 2013 specific to the fishery sector are highly coherent with those of the Fisheries policy. These include (i) utilisation of fisheries in a sustainable manner by using appropriate fishing gear and processing methods, (ii) control of destructive fishing and processing methods by regulation and support, (iii) promotion of alternative fishing methods to avoid deforestation to fish smoking, (iv) Conservation of fish stocks with a view of maximizing maximum yield, (v) Control of the introduction of non-indigenous species, (vi) Reduction of post-harvest losses through improved processing and preservation techniques, (vii) Protection of fragile ecosystems and endangered species through proper fishing management, mitigation of coastal/waterways degradation and control of industrial pollution, and finally (viii) Integration of fish farming methods and other environmental methods of farming to enhance productivity (MNRT, 2004).

2.9 Factors Influencing Returns to the Fishery Sub Sector

ABARE (2000) discussed various factors that may influence revenue collection in the fishery sub sector. Such factors include fish stock, capital structure, market conditions, price of fish, illegal fishing, collection modality, weak governance in management of natural resources and failure to control illegal cross boundary fish trade. The same factors have been discussed by MACEMP (2009) and World Bank (2005).

2.9.1 Fish stock availability

Fish stock changes over time and the future stock depends on the survival of the current stock (ABARE, 2000). A measure of the net returns for single year may not be sufficient indicator of a long term rent. For example if the fish stock is being fished down the current net return including revenue from selling off part of the fish stock that will not be available over time for many fish species (Rose *et al.*, 2000).

2.9.2 Fish market conditions

Annual fluctuations in fish prices may also drive changes in revenue collection (DFID, 2008). Reliable measures of product prices are often likely to be essential to understanding the meaning of primary performance indicators. It is important to distinguish between price changes imposed by market fluctuations and those that results from changes in fishing, handling or marketing methods (ABARE, 2000).

2.9.3 Revenue collection modality

According to the study conducted by REPOA, many Local Government Authorities in Tanzania have reformed their revenue collection systems in recent years in order to increase their revenue (Ngalewa *et al.,* 2009). Many Local Government Authorities in Tanzania have outsourced their revenue collection system to private agents. This system is claimed to be more effective and efficient when properly managed and monitored compare to system under Government collection system (Kajembe and Marageri, 2009).

2.9.4 Status of tax governance in the Municipality

It is claimed that the status of tax governance in the Municipality is weak. This situation has continues to affect the sector and is one of the main causes of over-fishing (MACEMP, 2009). At the regional level, many of the institutions lack the resources and the power to control fishing effort and identify revenue flows to determine whether the benefits of fisheries captured go to the country of origin (Bagumire, 2009). At the national level, decisions on fishing effort are often based on political, rather than scientific considerations. This marred by conflict of interest situations, such as those between the Ministries of Finance, seeking to maximize revenues from licenses and foreign exchange earnings and Departments of Fisheries which seek to manage yields stock and introduce more sustainable limits to the level of catches (URT, 2004). Other factors affecting

revenue collection in the fishery sub sector include illegal fishing, corruption in public sectors, increased trans-boundary illegal fishing trade in great lakes, under-staffed fisheries officials as well as tax evasion.

Therefore, in summary, the Chapter has discussed about the theoretical and empirical literature review. Number of studies have claimed that performance in revenue collection from the fishery sub sector is below the expected output when compared to the sub sector potential (Kajembe and Marageri, 2009; Masato, 2011 and World Bank, 2005). Kajembe and Marageri (2009) claimed that only 30% of the accrued revenue from the fishery sub sector under the local government council in Tanzania is collected. Tanzania losses US$ 58 Million annually due to revenue under collection in natural resources (fishery, forestry, wildlife and hunting sub sectors) resulting in budget deficit (URT, 2010 and Ikiara *et al*., 2008). Factors behind revenue under collection have been claimed to be corruption, poor governance in management of natural resources, illegal fishing, under-staffing in the fisheries department, collection modality and poor environmental policies governing fisheries resource (Kajembe and Marageri, 2009; MACEMP, 2008).

CHAPTER THREE

3.0 METHODOLOGY

This Chapter explains the methods and techniques that were used in data collection, various sources of data, types of data collected, as well as the methods and techniques used in the data analysis. It describes the sampling procedures and states the main instruments used in data collection from the field as well as means of testing hypotheses and the Multiple regression model for determining how revenue administration affect revenue performance and means of assessing to what extent sub sectoral factors influence revenue collection.

3.1 Description of the Study Area

The study was conducted at Nyamagana Municipal Council in Mwanza where Lake Victoria, a freshwater lake with freshwater fishes, is partly found. The area was chosen as part of the study due to availability of fish traders at Mwaloni fish market and the fish landing sites within the geographical location of the Nyamagana Municipal Council. Other factors include accessibility of information on data price, revenue and number of fish catches from Municipal Council as well as from Tanzania Fisheries Research Institute (TAFIRI).

3.1.1 Location of the study area

Nyamagana Municipality is found in the Mwanza City and is located on the southern shores of Lake Victoria in Tanzania. It covers an area of 1325 square kilometres of which 425 is dry land and 900 square kilometres is covered by water. Of the 425 square kilometers of dry land area, approximately 86.8 square kilometres is urbanized while the

remaining areas consist of forested land, valleys, cultivated plains, grassy and undulating rocky hill areas (DFID *et al.,* 2005).

3.1.2 Climate and physical settings

Nyamagana Municipality in Mwanza City lies at an altitude of 1 140 metres above the sea level. Mean temperature ranges between 25.7^{0}C and 30.2^{0}C in hot season and 15.4^{0}C and 18.6^{0}C in the cooler months. The Municipality experiences between 700 and 1000mm of rainfall per year falling in two fairly distinct seasons i.e. between the months of October and December and between February and May. Nyamagana Municipality is characterized by gently undulating granites and granodiorite physiography with isolated hill masses and rock inselbergs. It is also characterized by well-drained sandy loamy soil generated from course grained cretaceous. The vegetation cover is typical savannah with scattered tall trees and tall grass. There are 21 hectares in Nyamagana Municipality which are suitable for irrigation (URT, 2002).

3.1.3 Population of Nyamagana Municipality

According to the 2012 Population and Housing Census, Nyamagana Municipality had a population of 363 452 with male and female population of 177 812 and 185 640 respectively. The current population is estimated to have average household size of 4.7 with a sex ratio of 96. The annual natural growth rate is claimed to be 3.2% and rural to urban immigration is almost 8% (National Population Census 2012) (URT, 2013).

3.1.4 Economic activities of Nyamagana

(i) Industries

There are different types of industries including fish processing, cotton seed oil industries, breweries, soft drink factories, bakeries and biscuits, medium and small milling machines, timber industries, garages, fabricating workshops, ginneries, foam and plastic industries,

soap factories, quarry sites and animal food industries. The number is expected to increase due to the Government's efforts to build good roads and the rapid growth of the information technology sector (URT, 2002; URT, 2013).

(ii) Agriculture

The Municipal undertakes different agricultural activities in both food and cash crops with a total land area of 5 787 hectares. In 2002 the expected output was 6 570 tonnes of food crops and actual output was 8 966 tonnes of food crops while cash crops expected output was 231.7 tones and actual output was 78 tones (Mwanza City Profile, 2002).The major food crops are maize, beans, cassava, groundnuts, millet, vegetables and fruits whereas the main cash crop is cotton (URT, 2013).

(iii) Livestock

Livestock kept includes goats, sheep, cows, pigs, hens' indigenous bread, Broilers, layers and donkeys. Most of the urban-based wards are practicing poultry farming and zero grazing livestock keeping. Other Economic activities include mining, forest, bee keeping, fishing and afforestation (URT, 2013).

(iv) Fishing

Fishing is another economic activity in the study area. A total of more than 19 thousand people are estimated to depend partially on fishing and or trading in fishing products. Fishing is done on both small and large scales. The types of fish caught include among others the Nile perch, Tilapia and sardines (*dagaa*). Fishing activities are mostly artisan and the remaining semi industrial. Fish from artisanal fishing is used for subsistence, sold locally to whole sellers/transporters or processing and marketing agencies. Harvests from semi industrial are sold to fish whole sellers, processors or packers (URT, 2012).

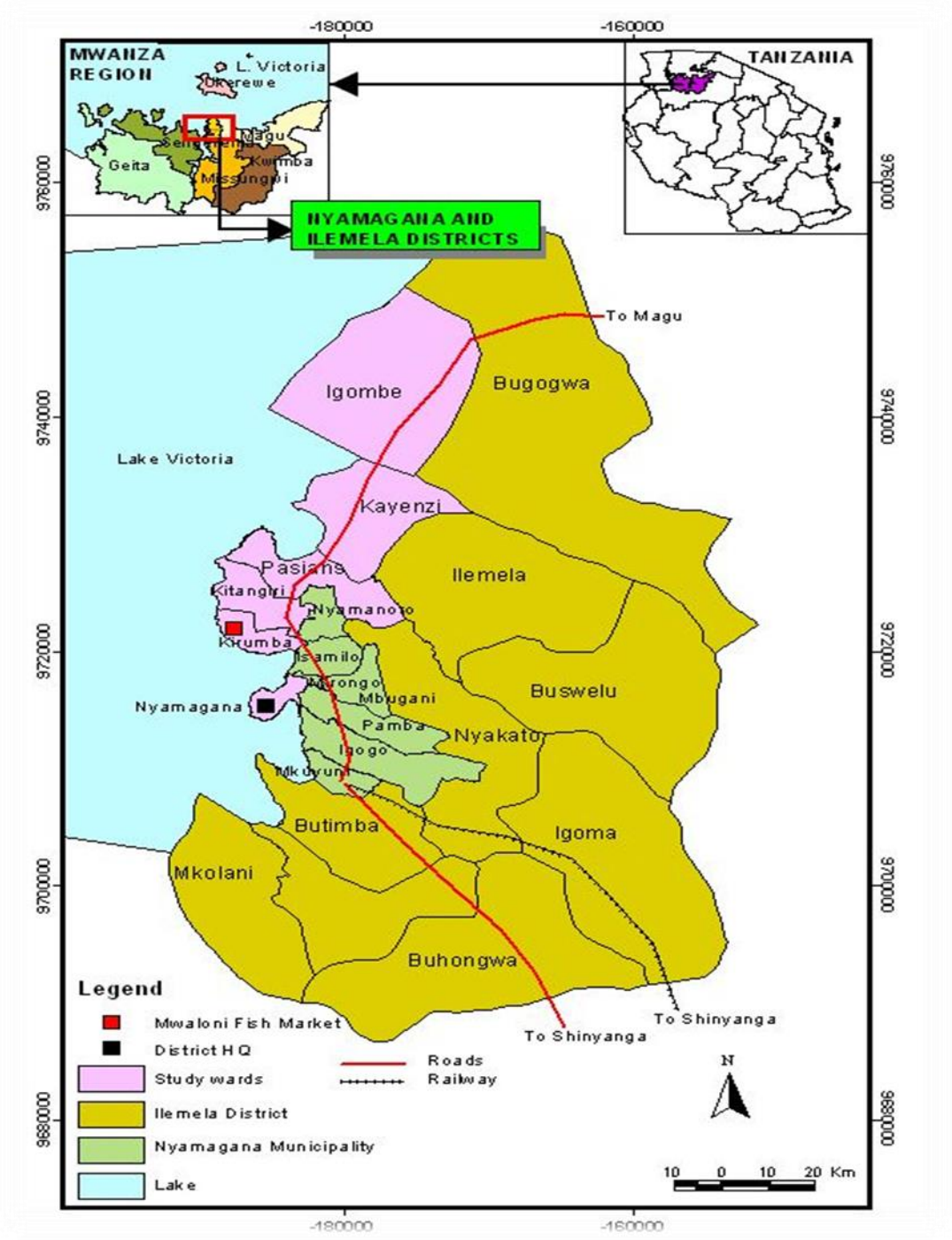

Figure 5: Map indicating Nyamagana Municipality and study wards.

Source: SUA Remote Sensing and GIS Laboratory, 2012

3.2 The Conceptual Framework

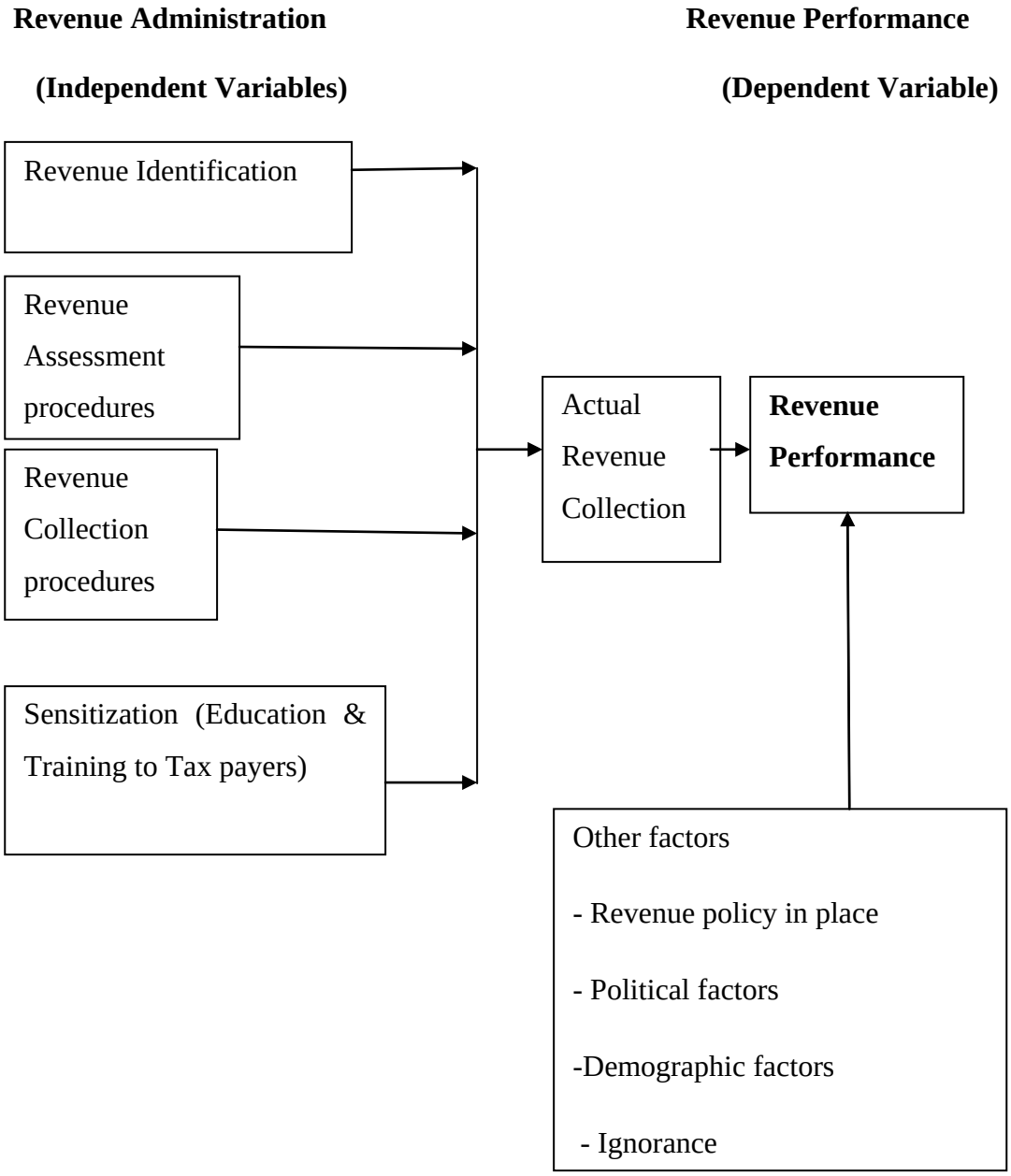

Figure 6: Conceptual Framework of the study.

Source: Baingana, 2011

3.2.1 Description of the model

The model used in this study is drawn from Bird (1992) as cited in Baingana (2011).Three basic tasks of any revenue or tax administration are, identification of taxpayer, assessing the appropriate tax on them and collecting the tax. In addition, other researchers like

Boidman (1983) and Thirsk (1991) as cited by Baingana (2011) assert that taxpayer collection procedures and sensitization as other aspects of tax administration. These tasks of administration have been used in Uganda as reported by Baingana (2011) found out, that effective administration can lead to collection of expected revenue, which is one of the measures of revenue performance. Revenue collection performance as defined by Nsamba (2000) cited in Baingana (2011) is the actual revenue as a percentage of expected over budgeted revenue. Budgeted revenue as was pointed out by Bird (1992) as cited in Baingana (2011) that, it encourages effective administrative procedures to be put in place.

Researchers like Musgrave (1980); Shalinzi (1991); Iga (1999) and Shotton, (2000) were quoted by Baingana (2011) that, they have significant relationship between tax administration and revenue collection performance. However, other factors that were pointed out include; the tax policy in place Musgrave (1980); Vasquez *et al.* (1992); Bird, (1992); Glepta *et al.* (1997); demographic factors, seasons and political interference and ignorance (Abigaba, 2000) are quoted by Baingana (2011).

3.3 Research Design

The study used cross-sectional study design. Data were collected once at one point (Kothari, 2009). In this type of research, the sub set thereof is selected from the entire population from which data were collected to answer questions of interest. The design is called cross sectional because the information about the respondents that is gathered represents what is going on at only one point in time.

3.4 Sampling Frame

The study involved fisheries officers, non-fisheries government officials from Nyamagana Municipal Council and TAFIRI, Ward Executives, Lake Victoria, fish traders from Mwaloni fish Market and Mwaloni, Bwiru, Kirumba, Kayenzi, Igombe and Buhongwa fish landing sites as study units.

3.5 Study Population

The study was carried out among tax payers (fish traders) and fisheries revenue officers. Total population for fish traders was 1500. This study was conducted on selected fish landing stations, Mwaloni fish market, Tanzania Fisheries Research Institute and Nyamagana Municipal Council in Mwanza, Tanzania. In this study, the population consisted of taxpayers (fish traders) and fisheries Revenue officials who are involved in the day-to-day management of revenue collection in the sub sector. Revenue officers were selected as respondents of this study. The purpose of choosing them as the respondent was that they are usually the personnel who interfaced with taxpayers and enforced the legal framework promulgated by legislators to administer and safeguard government revenue. In order to get balanced opinions, views of taxpayers were also sought since they were critical customers whose role in cherished success of revenue collection system was too important not to ignore.

3.6 Sampling Procedure

The sample size was chosen using Krejcie and Morgan model of 1970 in Baingana (2011). The study was based on responses of 120 respondents (30 fisheries officials and 90 fish traders who are taxpayers. The 90 fish traders (tax payers) were chosen under simple random sampling. Ten study elements were selected from each revenue station (fish landing station). After selection of identified sample elements, the researcher followed

their business premises to observe and interview them as he noted down observations and responses got.

To supplement questionnaire of individual taxpayers, the researcher also solicited views of 30 (thirty) fisheries staff using structured and semi-structured questionnaire. The participants were chosen under purposively sampling with particular interest in those whose routine work involved handling revenue tax matters, those who were knowledgeable and experienced in the phenomenon under study. This purpose sampling technique was found useful as it saves time and resources by concentrating on officers who had hands-on experience in revenue collection in particular and who routinely interfaced with taxpayers in revenue collection and day to day management and administration of fisheries resources.

The sample size was determined by using a formula for finite population (Baingana, 2011) the computation was made based the formula:

$$n = \frac{Z^2 . N . P . (1 - P)}{(N - 1) . e^2 + Z^2 . (1 - P)} \quad \ldots\ldots\ldots (1)$$

Where:-

N=respondents' population

n = sample size

e = acceptable error (The study used 5%)

P = expected proportion of the total population (30% as per Kothari, 2009)

Z = the value of standard variation at 95% (1.96)

Following Boyd and Westfal (1981) cited by Baingana (2011), a sample size (n) is chosen such that it is at least equal to or greater than 5% of population size identified in the study area. According to the author, regardless of the population size a sample of 30 respondents is a bare minimum to allow the statistical analysis.

3.7 Data Sources

The study used both primary and secondary data.

3.7.1 Primary data

Primary data were collected through interviews using structured questionnaire with closed ended questions (Appendix 1 and 2). Observations were also used in collecting primary data from field survey at Mwaloni fish market and fish landing sites where fish are weighed and sold.

3.7.2 Secondary data

Secondary data on contribution of different sources of revenue, revenue collection and projection was collected from Nyamagana Municipal Council whereas data on fish catches were obtained from Tanzania Fisheries Research Institute (TAFIRI), Nyegezi Centre.

3.8 Data Analysis

The study used both descriptive and inferential statistics. The descriptive statistics involved the use of frequency distribution and percentages. Meanwhile, inferential statistics (Multiple Regression Model) (Gujarati, 2004) was used to determine revenue administrative factors influencing revenue collection performance. The data on descriptive statistics were analyzed using Statistical Package for Social Science (SPSS) computer package whereas data on inferential statistics was analyzed using Microsoft Excel.

3.8.1 Contribution of identified sources of revenue

Revenue collection sources were identified from government revenue books, government revenue files records, field visit and internal revenue records sources of the Municipal Council and their contributions to total revenue collection was assessed using the following formulae:

$$TRC = RCS_1 + RCS_2 + RCS_3 \ldots\ldots \sum_{i=1,2,3\ldots n} TRCS \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where: TRC is the Total Revenue Collection

RCS_1 is the Total Revenue Collection from Source one

RCS_2 is the Total Revenue Collection from Source two

RCS_3 is the Total Revenue Collection from Source three

n=Number of Sources

Also Percentage contribution of each source was determined and given by the following formula:

$$\%\ Collection(\%\ C) = \frac{RevenueSource(RS)}{TotalRevenueCollection(TRC)} \times 100 \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

3.8.2 Performance Index (PI)

Performance Index (Index numbers) is used to measures the performance or strength of collection between actual and projected revenue. This was done using Microsoft Excel.

$$\text{PI} = \frac{\text{Actual Revenue Collected (ARC) in each base year in TZS}}{\text{Projected Revenue (PRC) in each base year in TZS}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

If PI>1 it implies revenue over-collection and if PI<1 there is revenue under-collection. Further if PI=1 then the revenue collection target has been achieved or actual collection equals to projected revenue (DRC, 2009 and Baingana, 2011).

3.8.3 Mean Performance Index (MPI)

Mean Performance Index was used to calculate the average Performance Index in eleven years period from 2000 and 2010 to evaluate if the set collection targets in eleven years were achieved (DRC, 2009). This is given by:

$$\text{MPI} = \frac{\text{Total Indices in all eleven years (TIY)}}{\text{Total number of years evaluated (TYE)}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .. (5)$$

3.8.4 Determination of mean revenue collection gap

In determining mean revenue collection gap, MPI between projected and actual revenue collection a paired *t*-statistical test was used for testing whether there is significance difference in mean collection between the projected and actual revenue. The method was adopted from Villeneuve (2010) and Mkondya (2009). The null hypothesis is stated as:

H_0: The mean revenue projected is equal to mean actual revenue collection in 2000/10 years.

$$\text{H}_0 = \mu_1 = \mu_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .. (6)$$

$$\text{H}_1 = \mu_1 \neq \mu_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

Where H_0 and H_1 are null and alternative hypotheses

μ_1= mean for projected revenue collection

μ_2= mean for actual revenue collection

3.8.5 Revenue administration factors that influencing revenue performance

The questions were designed using Likert Scales such that: 1. represent I strongly agree, 2. I agree, 3. I do not know, 4. I disagree and 5. I strongly disagree, (Appendix 2). The total score for all respondents per each variable (from all questions guiding the variables) was determined and regression analysis was conducted using Micro-soft Excel. Multivariate regression Model (Multiple regressions) (Saunders *et al.*, 2009) was used to assess how

revenue administration issues (revenue identification, Assessment, Collection Procedures and sensitization) influence revenue collection performance. The model is given by the equation below as adopted from Gujarati (2004) and Malte (2012):

$$Y = \alpha + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + \varepsilon_i \quad \text{.....(8)}$$

Where:

Y= revenue collection performance as the total sum of Likert Score

α is the constant or intercept

b_1 is the slope (Beta coefficient) for x_1

x_1 is the revenue identification as the total sum of Likert Score

b_2 is the slope (Beta coefficient) for x_2

x_2 is the revenue payers assessment as the total sum of Likert Score

b_3 is the slope (Beta coefficient) for x_3

x_3 is the revenue payers sensitization as the total sum of Likert Score

b_4 is the slope (Beta coefficient) for x_4

x_4 is the revenue collection procedure as the total sum of Likert Score

ε is the standard errors for b_1, b_2, b_3 and b_4

3.8.6 The extent to which sub sectoral factors influence revenue collection in the fishery sub sector

The questions were designed such that the respondents tick the most prominent sub sectoral factor by ranking with order of preferences. In determining the extent to which sub sectoral factors influence revenue collection the data from the field questionnaire were coded and analyzed descriptively using SPSS. The extents to which these factors influence revenue collection in the fishery sub sector are presented in frequencies and percentages.

3.9 Limitation of the Study

Some fish traders were reluctant to be interviewed because they were busy and that very little has been done by the government to improve their livelihood in return to the tax they pay. Due to limited time and finance, only Mwaloni fish market and ten fish landing sites were covered. The information generated was enough to cover the subject under investigation. If more time and money were available the study would have covered wider geographical area of the Municipality and more fish landing sites would have been surveyed with large number of respondents. Also several fish processing industries would have been surveyed.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This Chapter presents and discusses the research findings from both primary and secondary data using descriptive and statistical analysis. The findings present general characteristics for both fish traders' and fisheries officials (Table 1-5), performance indices (Fig. 8), revenue collection gap (Fig. 9) with hypothesis testing, findings for administrative factors influencing revenue collection performance (Regression Analysis in Table 11) as well as the extent to which sub sectoral factors influence revenue collection in the fishery sub sector are presented (Table 12-14).

Generally revenue collection performance (Fig. 7) was assessed using Performance Index (Fig. 8), Mean Performance Index, mean difference between projected and actual revenue collection. Study findings present identified sources of revenue and their contributions to total revenue collection in Nyamagana Municipal council in 2000/10 (Table 6). Findings also presents revenue collection gap between projected and actual Revenue collections using paired t-test (Table 8). The Municipal expected a total collection of TZS 3.24 billion but only collected a total of TZS 2.15 billion between 2000 and 2010 which is a gap of TZS 1.09 billion. The study findings summarize regression output (Table 11) that was used to determine administrative factors that influence revenue collection performance in the fishery sub sector.

Lastly the study findings show to which extent sub sectoral factors influence revenue collection as presented by both fish traders and fisheries officers (Table 12-14) because both are key actors in the fishery sub sector.

4.1 Socio-economic Characteristics of the Respondents

4.1.1 Age of fish traders

The age of fish traders are presented here under together with other social characteristics including gender and education level.

Table 1: Socio-economic characteristics of fish traders

Age (Years)	**Frequency**	**Percentage**
20 – 25	2	2.20
26 – 30	6	6.70
31 – 35	19	21.10
36 – 40	34	37.80
41 – 45	20	22.20
46 – 50	8	8.90
51 – 55	1	1.10
Total	**90**	**100.00**
Gender		
Male	87	96.70
Female	3	3.30
Total	**90**	**100.00**
Education level		
Primary	43	47.80
Secondary	34	37.80
High school	7	7.80
University	6	6.60
Total	**90**	**100.00**

The study findings (Table 1) show that most of the respondents were aged between 20 –55 years. The results also show that most of the respondents were between 31 to 45 years of age with 36 – 40 age group that accounts for higher percentage (37.8%) followed by 41 - 45 years age group (22.2%) and lastly by 31 – 35 (21.1%). The minor represented age groups were between 20 – 25, 26 – 30, 46 – 50, and 50 – 55 years accounting for 2.2%, 6.7%, 8.9% and 1.1% respectively. This implies that most of the respondents are within reproductive age group. This was also highlighted by Jari (2009) and Salehe (2008), claiming that age is a determinant of experience in certain agriculture activities. Further the author argued that most young generations show higher participation in agriculture activities especially in fish trading because they are at the reproductive age group and need to boost self as well as family income. The author also argued that fish trading not only is limited to young productive age group but also to other age groups such as elder person to show their experiences in such an activity.

4.1.2 Gender of fish traders

The study findings (Table 1) shows that gender participation in fish business shows that male dominate higher as compared to females. Males account for 96.7% whereas females account for 3.3% of the respondents in the category of fish traders. Findings presented indicate that, males participate higher in fish business as compared to females. Kwaku (2008) argues that, considering gender perspectives, the fishery sub sector employs a lot of women when compared to men. Most males are engaged in the main fishing activity whereas the women are involved in the on-shore post-harvest activities such as processing, storage and trading.

4.1.3 Education level of the fish traders

Study findings (Table 1) shows that majority of respondents have attained primary education that accounts for 47.8%, 37.8% attained secondary education, 7.8% attained high school and 6.6% attained University education. Education may be used as a tool to improve fish business through understanding of production cost, net income, forecasting price of commodity as well be aware of different market commodities. In addition education should be considered as an important tool in contributing towards improved revenue collection in the fishery sub sector. People with higher educational levels are more able to interpret information than those who have less education or no education at all (Jari, 2009).

4.1.4 General characteristics of government officials (GO)

Thirty Government Officials were interviewed using both closed and open ended questions involving fisheries officers (FO) and Municipal Officials (MO). The results were summarized and expressed in frequencies and percentages.

4.1.5 Occupation of government officials

The study interviewed thirty fisheries and other non-fisheries Municipal officials. The result findings are presented in Table 2.

Table 2: Distribution of government officials by occupation

Occupation	Frequency	Percentage
Fisheries Officer	17	56.70
Non-fisheries Officer	13	43.30
Total	**30**	**100.00**

The study findings (Table 2) show that fisheries officers dominate by 56.7% whereas non-fisheries Municipal officials account for 43.3% of the government officials. The number of fisheries officers is higher than non-fisheries Municipal officials (Table 3). This shows higher participation of fisheries officers than other non-fisheries Municipal officials because the study wanted to capture leading and guiding information for the study. Kwaku's study on "Aquaculture in Ghana; Prospects, Challenges, Antidotes and Future Perspectives" indicated more than 75 percent of government officials interviewed were from fisheries department and remaining percent from Water Research Institute (WRI), Environmental Protection Agency (EPA) and other department.

4.1.6 Age of government officials

The age of government officials are presented in here under Table 3.

Table 3: Distribution of Government officials by age group

Age (Years)	Frequency	Percentage
20 – 30	8	26.70
31 – 41	12	40.00
42 – 52	10	33.30
53 – 63	0	0.00
Total	**30**	**100.00**

The study findings (Table 3) show that majority of the government officials were aged between 31 – 41years and account for 40% followed by 42 – 52 years that account for 33.35%, the least participating age group 20 – 30 by 26.7% no respondents were found in 53 – 63 age group. URT (2013) ages for government employee are aged between 18 years and 60 years which is the age retirement for government employees.

4.1.7 Gender of government officials

The result findings from the study on gender distributions of government officials is presented under Table 4.

Table 4: Distribution of government officials by gender

Gender	Frequency	Percentage
Male	23	76.70
Female	7	23.30
Total	**30**	**100.00**

The study findings (Table 4) show that the number of male employees in the Municipal Council is higher than that of female employees. Males account for 76.7% whereas females account for 23.3%. Therefore this may be an indication that the number of male employees in the fishery sub sector and the public sector in general is higher than that of female employees (Salehe, 2008).

4.1.8 Education level of government officials

Education levels of government officials are presented here under.

Table 5: Distribution of Government officials by education level

Education level	Frequency	Percentage
High school	1	3.30
Diploma	11	36.70
University Degree	18	60.00
Total	**30**	**100.00**

The study findings (Table 5) show that government officials have attained different education levels. Of the mentioned education levels University education accounts for the highest by 60% followed by Diploma 36.7% and the least high school or secondary education by 3.3%. This indicates that most of the government officials are professional university graduates. People with higher educational levels are more able to interpret information than those who have less education or no education at all (Jari, 2009).

4.2 General Revenue Collection Performances

4.2.1 Revenue Performance Index (RPI)

The study findings show that the performance Index (PI) increased between 2000 and 2003 then fell between 2003 and 2005. PI increased again between 2005 and 2007 then decreased between 2007 and 2009 and slightly increased between 2009 and 2010. URT (2013) in *Hali ya Uchumi* claimed that, the increase in PI is due to controlled illegal fishing, increased in number of fish catches, as well as controlled and monitoring in fish reproduction sites. Findings from the study show that highest PI in 2007 was contributed by revenue over-collection in that year. The lowest PI was due to poor administration in revenue collection, illegal fishing, corruption and poor management of natural resources as well as tax evasion due poor administration of natural resources.

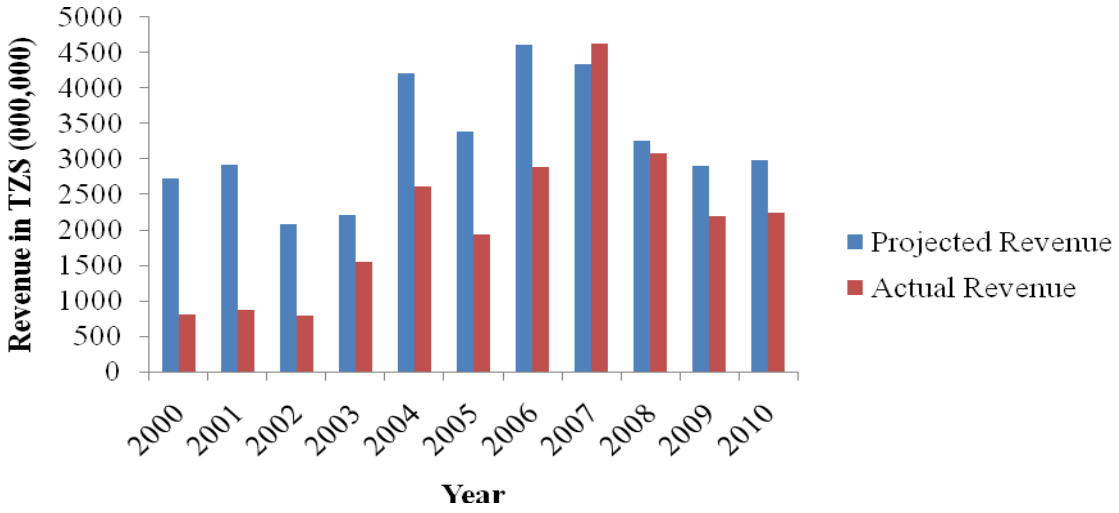

Figure 7: Revenue collection for projected and actual between 2000 and 2010.

Source: Nyamagana Municipal Council, 2012.

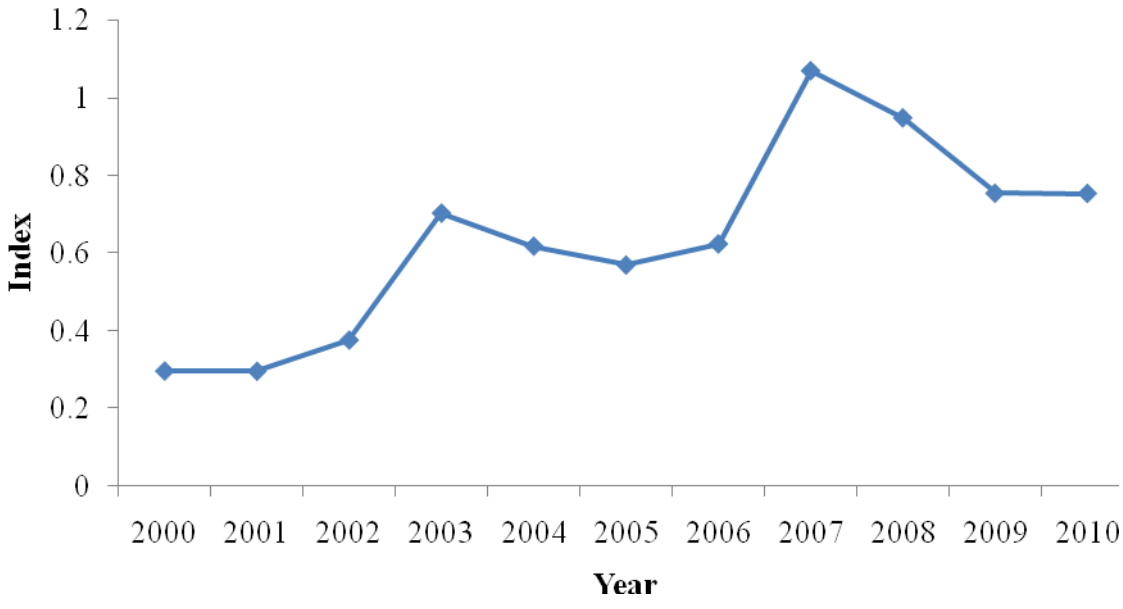

Figure 8: Performance indices versus reference base year.

Source: Nyamagana Municipal Council, 2012.

4.2.2 Contribution of identified sources of revenue at Nyamagana Municipal Council

(i) Identified sources of revenue

The sources of revenue in the fishery sub sector at Nyamagana Municipality were identified from government revenue record books and government receipts. The sources of revenue identified include registration fee, handling fee, boat parking fee, fishing license fee, market levy, export fee and other export taxes. Other source like the ward service fee was identified during field visit to Mwaloni fish Market and Kayenzi fish landing sites. This fee is collected by Ward Executives under Village and Ward by laws to cover cost of services provision at the ward level. Of the mentioned sources all are collected by the Municipal Council with exceptional of export fee, loyalty fee, registration of commercial marine vessels and commercial fishing licenses which are collected by the Central Government.

(ii) Contribution of the identified sources of revenue

Table 6: Contribution of identified sources of revenue in Nyamagana Municipal Council

Type of Revenue	Registration Fee (RF)	Fishing License Fee (FLF)	Levies (L)	Handling and Parking Fee (H&PF)	Other Fee (OF)	Total
Total Contribution (TC) in TZS (million)	3776.23	6136.38	11564.71	1416.09	708.45	**23601.45**
Average Total Contribution (ATC)in TZS (million)	343.29	557.85	1051.34	128.74	64.37	**2145.60**
Overall Percentage Contribution (OPC) (%)	16	26	49	06	03	**100**
Average Percentage Contribution in (%)	1.45	2.36	4.45	0.54	0.27	**9.07**

Source: Nyamagana Municipal Council, 2012

Table 6 represents of the identified sources of revenue, levies contributed the highest (TZS 11.56 billion) between 2000 and 2010 with a percentage contribution of 49% of the total collection. This is an average of TZS 1.05 billion collection per annum (TZS 87.61 million per month) which is an average of 4.45% per annum of the total collection from 2000 to 2010. Fishing license contributed a total of TZS 6.14 billion (26%) from 2000 to 2010 with an average of TZS 557.85 million per annum (TZS 46.49 million per month). Registration fee contributed about TZS 3.78 billion (16%) of the total collection from 2000 to 2010. This is an average of TZS 343.29 million per annum (TZS 28.61 million per

month). Handling and parking fee contributed a total of TZS 1.42 (06%) from 2000 to 2010 which is an average of TZS 128.74 million per annum (TZS 10.73 million per month). The least contribution is from other sources (including Ward Executive fee). Other sources contributed TZS 708.45 million equivalents to 03% of the total collection from 2000 and 2010 years. This is a total of TZS 64.40 per annum, an average of TZS 5.37 million per month.

4.3 Revenue Collection Gap Between Projected and Actual in 2000/10 Years

In assessing revenue collections gap the study findings show the mean difference between projected and actual revenue (Fig. 7) is TZS 1.09 billion with the mean performance index (MPI) of 0.64. This means that the Municipality did not meet the collection target by 0.36 (36%) on average in 2000/10 years. The findings show $t = 0.002$ (Table 8) which is statistically significant. This reveals that there is revenue under-collection and hence under-performance in revenue collection in the Municipality. The collection target only reaches 64% on average with reasons summarized under paired t-test results.

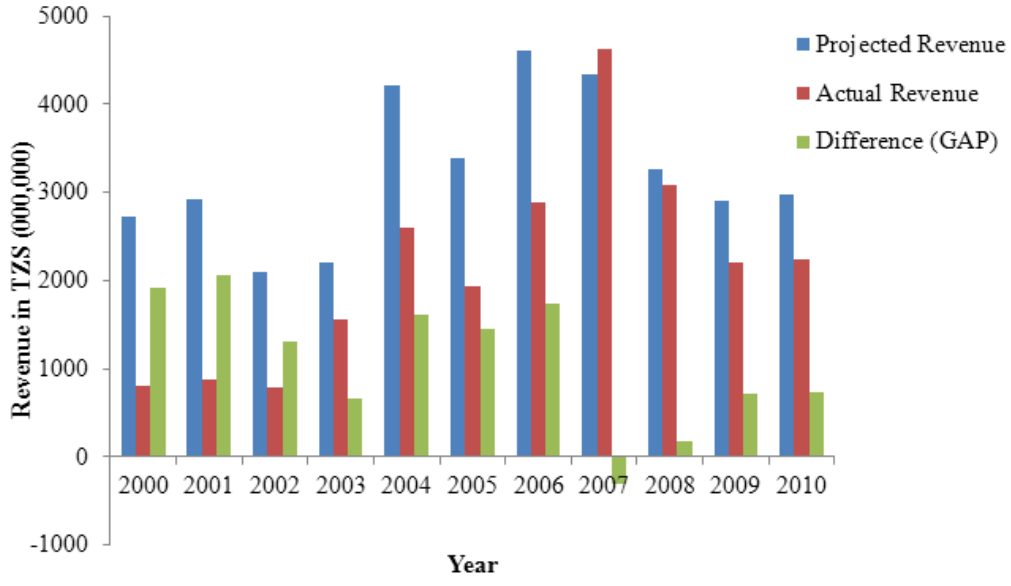

Figure 9: Revenue collection gap between projected and actual from 2000 to 2010.

Source: Nyamagana Municipal Council, 2012.

4.3.1 Mean and standard deviation between projected and actual collection

The mean collection and standard deviation between projected and actual revenue collections are presented in Table 7.

Table 7: Mean and standard deviation between projected and actual revenue collection

Variable	Mean	Standard deviation
Projected Revenue in TZS	3.24E9	8.36E8
Actual Revenue in TZS	2.15E9	1.16E9
Difference	1.09E9	8.40E8

Source: Nyamagana Municipal Council, 2012.

The mean for projected revenue is higher (TZS 3.24 billion) than the mean for actual revenue collected (TZS 2.15 billion) in eleven years (2000-2010). This indicates that the Municipality lost TZS 1.09 billion in revenue collection from the sub sector between 2000 and 2010.

4.3.2 Mean performance index (MPI) between projected and actual revenue

The MPI was obtained by dividing the total indices in all reference base years by total number of years (like 7.02/11=0.64). The MPI of 0.64 is less than 1 that indicates the variance of 0.36 in revenue collection. This is equivalent to a gap of TZS 1.09 billion behind the expected output (Projected revenue collection). The PI was above one in 2007 year, this indicates over-collection of revenue in that year whereas in other years the assessed performance index (PI) was below one. This means that only in 2007 indicated over collection whereas other in other years there was revenue under-collection.

4.3.3 Paired t-test

Paired T-test statistics was used to assess whether there is significant difference between the actual and projected revenue collection in the fishery sub sector at Nyamagana Municipal Council. Paired T-test result findings are presented in Table 8.

Table 8: Paired T-test results

Variables Pair	*t*	Df	Significance (2-tailed test)	Lower limit	Upper limit
Actual Revenue - Projected Revenue	4.314	10	0.002	5.285E8	1.658E9

Source: Nyamagana Municipal Council, 2012

The study findings show that (t = 0.002) implying that there is strong significant differences between the actual and projected revenue collection in the fishery sub sector at Nyamagana Municipal Council at 0.05 confidence interval. This gap is statistically significant by TZS 1.09 billion. Therefore this paired T-test statistical findings result failed to accept the null hypotheses that "There is no strong significant difference in mean between the actual and projected revenue collection at Nyamagana Municipality". The revenue collection gap is claimed to be contributed by poor management and administration of natural resources, corruption illegal fishing, motivation to fisheries workers, education to revenue-tax payers', as well as collection procedures. This is supported by Baingana (2011) who claimed that the revenue under-collection is due to poor administration and under-capacity of staff in fisheries revenue department and that revenue collection procedure were among the contributing factors. Because of the weak administration, tax evasion and corruption are dominant. Thus, there is need to strengthen tax administration through improving collection procedures so as to get better revenue collection performance. Ikiara *et al.* (2008) and URT (2013) claimed that only one to two percent of revenue is collected from natural resources and that, the government losses

significant amount of revenue of more than TZS 58 billion annually from natural resources.

4.4 Regression Model

Regression Model was used to determine administrative factors influencing revenue collection Performance. Variables involved in the regression model are found in Table 11. Regression Model is always associated with the problem of multi-collinearity therefore testing multi-collinearity was done.

4.4.1 Testing for multi-collinearity

Many difficulties tend to arise when there are more than five independent variables or using time series data in a multiple regression equation. One of the most frequent is the problem that two or more of the independent variables are highly correlated to one another. This is called multi-collinearity. If a correlation coefficient matrix with all the independent variables indicates correlations of 0.75 or higher (Oxford, 2011), then there may be a problem with multi-collinearity. In this study the correlations were analyzed using Micro-soft Excel and results were found to be below 0.75 hence no problem of multi-collinearity associated in this study since the number of variables are below five (Table 9).

Table 9: Correlation results

Variables	Intercept	Identification	Assessment	Sensitization	Collection procedure
Intercept	1				
Identification	0.684686	1			
Assessment	0.664187	0.60608	1		
Sensitization	0.614488	0.544325	0.589134	1	
Collection procedure	0.580804	0.48662	0.525279	0.506827	1

4.4.2 F-statistics and adjusted R^2 (Coefficient of Determination)

Table 10: Summary of F-value and adjusted R-square

Model	R-square	Adjusted R^2	F-value	Significance F
1	0.622917	0.605171	35.10357	0.000

These tests were used to find out the relationship between administrative factors and revenue performance. The administrative factors variables involved are indicated in Table 11. The study analysis shows that F-value (Table 10) is significant meaning that all results coefficients obtained are true ones. Adjusted R^2 is 0.60 meaning that the Model has expressed all independent variables by 60%. Therefore the Model is good for the question under investigation because it has shown strong fitness.

4.4.3 Regression results for revenue collection performance

Table 11: Summary of regression output

Variables	Coefficients	Standard Error	P-value
Intercept (Constant)	3.34125	0.838624	0.000142
Identification (X_1)	0.199059	0.0520950	0.000252
Assessment (X_2)	0.118133	0.044508	0.009489
Sensitization (X_3)	0.121142	0.057453	0.037927
Collection procedure(X_4)	0.118541	0.051726	0.024394

The study findings (Regression analysis) for revenue collection performance are presented in Table 11. The questions were designed such that: 1 represents I strongly agree 2. I agree 3. I do not know 4. I disagree 5. I strongly disagree. The total score for all respondents per each variable was determined and regression analysis was conducted using Micro-soft Excel. Regression results reveals that revenue or tax payers identification is significant

factor (*p=0.000*) influencing revenue collection performance. The positive coefficient of *0.000* suggests that revenue payers' identification contributes to revenue collection performance. In order to improve revenue collections revenue from the sub sector tax payers must be identified in order to increase revenue collection performance. There is a need for all tax payers dealing with fishing trade to be given identification number in order to facilitate collection process.

Tax payers' assessment is also a significant contributing factor (*p=0.01*) influencing revenue collection performance with a coefficient of 0.12 which is also positive. Also both sensitization to tax payers and collection revenue procedures are significant factors influencing revenue collection performance with p-values of *0.04* and 0.024 respectively. Their coefficients are also positive: Sensitization to tax payers 0.12 and revenue collection procedure is 0.12. The overall result reveals that revenue administration (identification, revenue payers assessment, sensitization of revenue payers and revenue collection procedures) has significance influence on revenue collection performance since their p-values are below 0.05 alpha 5% and all coefficients are positive implying that both variables contributes positively to revenue collection performance.

Baingana (2011) claimed that revenue administration factors influence revenue collection performance. According to Frost (2000) cited in Baingana, there is a strong relationship between collection procedures and performance. The actual amount of revenues flowing into the hands of any government depends on the effectiveness of its revenue administration (Bird, 2000). Katusiime (2007) as cited in Baingana (2011) argued that tax payers' identification is the most important factor to facilitate the collection procedure and improve revenue collection performance. Baker (2005) argued that sensitization of tax payers has a positive relationship to revenue collection performance.

4.5 The Sub Sectoral Factors Influencing Revenue Collection

4.5.1 Factors presented by fish traders

The respondents were asked to tick the most dominant factor from the listed factors in the questionnaire. The dominant sub sectoral factors were fish catch, laws and By-laws governing revenue collection, worker motivation, corruption, market condition and price of fish, collection modality, poor governance, illegal fishing, transparency in amount of revenue collected and tax evasion (Table 12)**.**

Table 12: Factors presented by fish traders

Factor	Frequency	Percentage
Illegal fishing	6	20.00
Poor governance	5	16.70
Collection modality	5	16.70
Corruption	4	13.30
Transparency in the level of revenue collected	3	10.00
Tax evasion	2	6.70
Workers motivation	2	6.70
Fish catch	1	3.30
Laws and bi-laws governing fisheries resources	1	3.30
Market condition and price of fish	1	3.30
Total	**30**	**100.00**

The study findings (Table 12) shows that illegal fishing accounts highest by 20%, both collection modality and poor governance accounts for the same by 16.7%, corruption 13.3%, transparency in the revenue earned 10%, also both workers' motivation and tax evasion account for 6.7%, lastly both fish catch, laws and bi laws governing revenue collection and market condition and price of fish account for 3.3% (Table 12). The study

findings show high illegal fishing, poor governance in management of natural resources, collection modality, corruption and transparency in the amount of revenue earned or collected as the most contributing factors that affect revenue collection in the fishery sub sector. If these factors would be controlled the amount of revenue earned will be higher.

4.5.2 Factors presented by government officials

Table 13 gives factors stated by government officials. The respondents were asked to tick the most dominant factors from the list of sub sectoral factors. The interviewed factors include illegal fishing, tax evasion, insufficient working tools and personnel in the fisheries division, fishermen mobility and other factors such as shortage of fund to support the sub sector, geographical distribution of the lake, few patrol boats and inadequate fisheries supporting staffs in marine patrol which make control of illegal fishing very difficult.

Table 13: Factors presented by fisheries government officials

Factor	Frequency	Percentage
Illegal fishing	13	43.30
Tax evasion	5	16.70
Insufficient working tools and personnel	9	30.00
Fishermen mobility	1	3.30
Other factors	2	6.70
Total	**30**	**100.00**

The study findings (Table 13) show that illegal fishing contribute for 43.3%, tax evasion 16.7%, insufficient working tools and personnel 30.0%, fishermen mobility 3.3% and other factors 6.7%. Fishermen have tendency to migrate from one area to another

depending on the fishing seasonality hence making management and control of the illegal fishing somewhat difficult due to large fishing geographical area of the Lake Victoria.

4.5.3 General suggestions presented by fish traders to the Government of Tanzania

Fish traders were asked to present their views or opinions to the government. The respondents views or opinions assessed include good governance in management of natural resources, establishment of price range of fish to all fish processing companies, build good Government-Tax payers' relationship, fight against corruption, transparency in real amount of revenue charged and earned to the government and other contributing factors (Table 14).

Table 14: Opinions of fish traders to the Government of Tanzania (GoT)

Views or Opinions	Frequency	Percentage
Good governance in management of natural resource	55	61.10
Establishment of price range of fish	22	24.40
Build good government-tax payers relationship	5	5.60
Fight against corruption	5	5.60
Transparency in the real amount of revenue earned	2	2.20
Others	1	1.10
Total	**90**	**100.00**

The study findings (Table 14) show that, good governance in management of natural resources and returns to the sub sector accounts for the highest by 61.1% followed by establishment of price range of fish to all fish processing companies by 24.4%, fighting against corruption and build good Government–Tax payers relationship accounts for 5.6% while transparency in the real amount charged and collected accounts for 2.2% and other

factors accounts for 1.1%. This gives emphasis to the Government on good Governance in management of natural resources and returns to the sub sector. There must be established price range of fish in all fish processing companies in order to protect both fish traders as well as fish processor who buys fish from fish traders. Emphasis on the war against corruption should emphasized by tightening laws governing fishery sub sector.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study assessed performance in revenue collection in a fishery sub sector based on fresh water at Nyamagana Municipal Council in Mwanza City. The study findings show several sources of revenue collection identified are levies, registration of marine vessels, parking fee and Ward Executive fees. Findings from the study showed the mean differences between projected and actual revenue indicated a gap of approximately 36% in revenue collection between 2000 and 2010. Furthermore T-test revealed significance gap in collection ($t = 0.002$ at 5% Confidence Interval). With this fact the actual mean revenue collected was less than the mean revenue projection. This is an indication of a gap of TZS 1.09 billion (under-collection) of revenue from fishery sub sector at the Nyamagana Municipal Council. From the discussion point of view several factors including illegal fishing were among contributors to the revenue collection gap (Chapter 4).

Regression output indicates administrative factors influencing revenue performance is significant (P-values are less than 0.05 at alpha 5%). All variable coefficients are positive indicating positive relationship between administrative variables and revenue collection performance. Education and sensitization of tax payers' have positive contribution on revenue performance. If tax payers' are well educated and sensitized on importance of paying revenue this could contribute positively to revenue collection performance. Also collection procedures, Identification of tax-payers' have a positive contribution on revenue collection performance. If all fish traders are well identified this will facilitate collection procedures and contribute positively to the revenue collection performance.

Study findings on: to what extent sub sectoral factors influence revenue collection shows that illegal fishing accounts for the highest by 20%, both collection modality and poor governance account for the same by 16.7%, corruption 13.3%, transparency in the revenue earned 10%, also both workers motivation and tax evasion account for 6.7%, lastly both fish catch, laws and by laws governing revenue collection and market condition and price of fish account for 3.3%. Based on these facts, the study comes up with several recommendations and suggestions to both key actors and policy makers on how to improve revenue collection in the fishery sub sector.

5.2 Recommendations to the Government on Effective Revenue Collection

5.2.1 Recommendations to the actors in the fish sub sector

In the view of the foregoing discussions and conclusion, this study recommends the following in order to improve revenue collection:

(i) Strengthening revenue administration through sensitization (provision of education and training) of tax payers on importance of paying revenue to the government and proper management of natural resources.

(ii) Improve revenue collection procedures by identifying all potential fish traders in order to facilitate revenue payment to the government.

(iii) The Municipal should provide sufficient tools and equipments as well as increase human resources capacity of the fisheries department to facilitate and increase revenue collection.

(iv) Educating all actors/stakeholders' in fish value chain by collaborating with fisheries officers in conservation and management of fish resource in order to increase government income.

(v) To identify all tax loopholes that contribute to revenue collection gap by working with collaborating partners to identify causes.

(vi) Review, amend and tighten laws and bi laws governing revenue collection and management of natural resources in order to control corruption in the fishery sub sector.

5.2.2 Recommendation to the policy makers

The fishery sub sector faces revenue under-collection due to several factors including illegal fishing, corruption, poor governance in management of natural resources, under-staffed revenue collector, insufficient patrol boats and lack of Special Task Force Marine Control and Patrol Unit. In order to improve revenue collection level in the fishery sub sector the government has to amend laws and regulation governing revenue collection in the fishery sub sector as well do the following:

(i) Emphasis must be kept on effective administration of revenue in order to improve revenue collection performance through sensitization of revenue payers', improved revenue collection procedures, identification and frequent assessment of revenue payers. This should emphasize on policy review amendment of policies govern revenue collection in the fishery sub sector.

(ii) Increase the number of fisheries staff and patrol boats to control illegal fishing

(iii) Establish Special Task Force for Marine Control and Patrol Unit on permanent basis to control illegal fishing.

(iv) Review and amend the law penalty for illegal fishing by increasing penalties and number of years in jail for destruction of natural resources.

(v) Control corruption through increased workers' salaries and incentives and as well as improve good governance in Management of natural resources by collaborating with other stakeholders' such as Non-government organizations and local communities.

5.2.3 Recommendations for further research

Due to the fact that our country's national budget is mostly donor-dependent budget recent study are suggested to be done on "Identification and assessment of loopholes in tax revenue evasion in the fishery sub sector" to curb the revenue collection gap found in this study. Other studies are to be done on outsourcing revenue in the fishery sub sector: Does it create loopholes for revenue evasion? Additional studies are suggested to be done on "Performance assessment of revenue collection within the potential sectors of the economy" thereby coming up with policy suggestions on improvement of the sector performance in revenue collection to support the national budget hence reducing the budget deficit gap. This study recommends further research on the following sub sectors: Marine fisheries, forestry, hunting, tourism, telecommunications industry and the mining sector.

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APPENDICES

Appendix 1: General questionnaire for fish traders

A: Characteristics of respondent

1.0 Name of respondent……..

2.0 Occupation……

3.0 Contacts……

4.0 Age of respondent……

5.0 Gender of respondent: Male= 1 Female=2 ( )

6.0 Education level of respondent…….

7.0 Date of Interview……

B: Factors that influencing revenue collection in the fishery sub sector

1.0 Tick one among the following factors:

a). Corruption

b). Illegal fishing

c). Collection Modality

d). Motivation to revenue workers

e). Tax evasion

f). Laws and Bi laws governing revenue collection

g). Fishing Seasonality

h). Market condition and fish price

i). Others

C: Government support in your fish business/trade

1.0 How does the Government support in your fish business to support revenue payment system or process?

a). Provision of Business Training to tax payers

b). Provide education on the important of revenue payment to the government

c). none has been done by the government to support fish business

d).Others

(Specify)……

2.0 What constraint do you face in revenue payment system?

a). Corruption

b). Multiple taxes

c). Bad approach by tax or revenue collectors

d). Transparency in the revenue charged in connection to business size). Others(Specify)……

……..……

D: Opinions or views of the fish traders to the government

What is your view or opinion to effective revenue collection level?

……

……

……

……

Thanks for your Cooperation

Appendix 2: Questionnaire for Measuring Revenue collection Performance

Evaluate the following statements using these alternatives

I agree 2. I strongly agree 3. I do not know4. I disagree 4. I strongly disagree

1. REVENUE PAYERS IDENTIFICATION

The process of registration is clear	
I have business license with Tax Identification Number	
The revenue collection points are located within the fish processing company and charged per kilogram of fish sale	
The revenue is collected at the fish collection centre and charged per kilogram of fish sale	

2. REVENUE PAYERS ASSESSMENT

Taxpayers can appeal for excess charges endorsed for each kilogram of fish sale	
The assessment system is clear	
The method of revenue collection is transparent	
The extra charges by local ward executives is fair and clear	
Fisheries revenue officers are free from corruption and other unethical conduct during revenue collection	
The fisheries Officers are well qualified and capable of assessing the revenue liability	

3. SENSITIZATION

Sensitization of revenue collection is effectively done by fisheries officers from the Nyamagana Municipal Council through workshops	
Sensitization of revenue collection is done by Ward fisheries officers	
Sensitization on revenue collection is done by Ward Executive officers	
Sensitization of revenue collection is done by local leaders	

4. COLLECTION PROCEDURES

Laws, Rules and Procedures are adhered during revenue collection	
Taxpayers are threatened by revenue collector	
Revenue payment system is clear	
Revenue collectors have fair treatment to all taxpayers	
All collection personnel are well trained to perform their tasks	

5. REVENUE COLLECTION PERFORMANCE

Government do not use the collected revenue properly	
Illegal fishing contributes to low revenue performance	
Corruption contributes in loss of revenue	

Thanks for your cooperation

Appendix 3: Questionnaire for Municipal and fisheries officials

A: Characteristics of respondent

1.0 Name of respondent……..

2.0 Occupation……

3.0 Contacts……

4.0 Age of respondent……

5.0 Gender of respondent: Male= 1 Female=2 ( )

6.0 Education level of respondent……

7.0 Date of Interview……

B: Sources of revenue collection in the fishery sub sector

What are the sources of revenue collection in the fishery sub sector in your area?

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C: Factors that influence revenue collection in the fishery sub sector

a). List factors that influence revenue collection in the fishery sub sector

……

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……

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……

b): **The most listed factor that affects revenue collection in the fishery sub sector**

1.0 Tick one among the followings you think is the most dominance factor

a). Corruption

b). Market condition and fish price

d). Collection Modality

e). Illegal fishing

f). Workers Motivation

g). Tax evasion

k). Laws and By-laws governing revenue collection

D: Challenges faces GO's in revenue collection

What challenges do you face in revenue collection?

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E: General Comments by the fisheries officers

What are your general views or opinions to the government to effective revenue collection in the fishery sub sector?

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Thanks for your cooperation

Appendix 4: Paired Sample t-test output

Paired Samples Statistics

	Mean	N	Std deviation	Std Error Mean
Pair 1 Projected revenue	3.24E9	11	8.356E8	2.519E9
Actual revenue	2.15E9	11	1.161E9	3.500E8

	Paired Differences					
	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Projected revenue - Actual revenue	1.093E9	8.403E8	2.534E8	4.314	10	.002

Appendix 5: Regression summary output

Regression Statistics	
Multiple R	0.78925061
R Square	0.62291653
Adjusted R^2	0.60517142
Standard Error	1.23174934
Observations	90

ANOVA

	Df	SS	MS	F	Significance F
Regression	4	213.04	53.26	35.10	0.000
Residual	85	129.00	1.52		
Total	89	342.00			

	Coefficients	**Standard Error**	***t* Stat**	**P-value**	**Lower 95%**	**Upper 95%**	**Lower 95.0%**	**Upper 95.0%**
Intercept	3.34	0.84	3.98	0.000	1.674	5.009	1.674	5.009
Variable 1	0.20	0.05	3.82	0.000	0.096	0.303	0.100	0.303
Variable 2	0.12	0.04	2.65	0.010	0.030	0.207	0.030	0.207
Variable 3	0.12	0.06	2.11	0.040	0.007	0.235	0.007	0.235
Variable 4	0.12	0.05	2.29	0.024	0.016	0.221	0.016	0.221

Key: variable 1 = Revenue Tax Identification, variable 2 = Revenue Tax Assessment

variable 3 = Sensitization of taxpayers', variable 4 = Collection procedures