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SUSTAINABLE SECONDARY EDUCATION IN TANZANIA: TEACHERS' PERCEPTIONS AND PRACTICES IN MOROGORO REGION IN TANZANIA

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1.0. CHAPTER ONE

1.0 Introduction

Secondary education in Tanzania is considered an important institution to achieve national sustainable development. This is because; it is in secondary education level that students start to make sense of the content to use to sustain their lives and those of their communities and society at large. In Tanzania, secondary education is a basic education and successful attainment of it allows one to go for further education, train for a profession or apply for a job. The world economies are increasingly based upon the availability of sophisticated skills and well- informed citizenry, and these are developed in secondary schools.

The connection between secondary education and the development of society has long been established (Townsend, 1993). The quality of secondary education determines the future of a nation, the quality of the people in the nation, the kinds of employment available, the political system, the manner in which the citizens behave and resolve conflicts, and the country's relationship to the global community (Townsend, 1993).

In Tanzania, secondary education is the level of education after primary education and the majority of students are between the years 14-20. At this age, students are prepared to decision makers because the world is becoming increasingly complex, dynamic and uncertain (Glasser, *et al.*, 2005). Therefore, central to the concept of sustainable secondary education is an educational environment that students can develop knowledge, skills, perspectives and values that will empower them to solve their problems, and that of their community.

1.2 Background of the Problem

Tanzania has long seen the importance of secondary education as a tool for critical and independent thinking of its citizens (Nyerere, 1968). Interest in secondary **e**ducation for empowering people to solve critical problems was taken up by the government of Tanzania when it made decisions to transform secondary schools from government reliance to self reliant in order for the graduates to meet development objectives of the country. According to Mushi, (2012), Tanzania inherited colonial education system, which was not enhancing the acquisition of necessary knowledge and skills to the learners. The colonial education aimed to impose the colonial cultures necessary for serving the colonial administration and it was not for sustaining the learners nor the nation. In such a situation, it is correct to say that the inherited system of education in Tanzania was unsustainable because it was not relevant to transform the social or economic condition of Tanzania (Mushi, 2012).

Thus, it was necessary to transform this education to introduce self reliance elements that can be termed as sustainability education. Sustainability education is the knowledge, skills, attitude and values that are imparted to the students to enable them to become more adept decision makers in an increasingly complex, dynamic and uncertain future (Glasser, *et al.,* 2005). Therefore, central to sustainable secondary education is to enable the learners contribute to sustainable development goals (SDGs).

Due to its contribution to the development of Tanzania, Education for sustainability is defined as a transformative learning process that equips students, teachers, and school systems with the new knowledge and ways of

thinking needed to achieve economic prosperity and responsible citizenship while restoring the health of the living systems upon which our lives depend (UNESCO, 2014). The goal of education for sustainable development is to enable people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both globally and locally, that will improve the quality of life now and without damaging the planet for the future.

Thus, the concept of sustainable secondary education in Tanzanian can be linked with the philosophy of education for self-reliance (ESR) in 1967 where learners were equipped with skills for work and life (Nyerere, 1968; Ishumi and Maliyamkono, 1995; Benson, 2006). The advocacy in the sustainability philosophy in secondary education was meant that this level of education would provide the learners with knowledge and skills that would equip them with critical thinking and necessary skills to transform their social, economic and natural environment. In a nutshell, secondary education within the ESR philosophy was to develop high-minded individuals who were creative, problem solvers, and who could adapt to different environmental and socio-economic contexts (Nyerere, 1968).

Interpreting from ESR, education and teaching had to link theory and practice (Ishumi and Maliyamkono, 1995). In secondary education, teaching and learning had to integrate practical activities that could provide students the opportunities to practice the knowledge and skills acquired in classroom. Now ESR is not at the forefront in education policy in Tanzania, as it is no longer discussed either in educational or in the politics. However, the Education

Policy of 1999 shows emphasis on sustainability by having one of its major objectives:

"…… to offer programmes that are geared towards responding to the changing world of science and technology and the corresponding ever-changing needs of the people, their environment, industry, commerce and the surrounding environment in general" (URT, 1999).

Several changes also took place between 1967 and 1978 in as far as implementation of the Education for Self Reliance policy was concerned. Self-reliance work was made integral part of the education system and the education policy emphasized that primary schooling was the cycle of learning rather than a mechanism for advancement to secondary education (Mushi, 2009). This was the time when the government launched second five-year plan (1969-1974) and the planning approach that was adopted was Human Resource Development Planning Approach (URT, 1995). It was during this time when the education Act of 1969 was enacted and then mandated the government to nationalize all schools the sole responsibility of the state. This aimed at ensuring that education opportunities were provided to all children without reference to their religions, gender and ethnicity (Galabawa, 2001).

However, it has been hard to delink secondary education from colonial education that was for colonial dependence. The teachers' mindsets are to teach for the world of employment. Even the materials used to teach such as textbooks and school infrastructure as well as the whole management of education still follows the colonial logic, education for dependent minds rather than for independent thinking (Murphy, 2017). In the whole of Sub-Saharan Africa, education is characterized by a mismatches between the projected

goals of sustainable development. While sustainable development The goal of sustainable development entails enabling people to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of others and of the future. Secondary education is generally geared towards improving pass rates in examinations (URT, 2006). For example, education literature is full of reports on success in the transition from secondary schools to higher education, and not from secondary education to self employment and solving critical problems.

The secondary school education in Tanzania is unsustainable for those who graduate at that level. This problem is evidenced from the graduates who in turn they don't show any critical contribution to the community development activities. It is very true that the secondary school graduates they can't even write an official letter neither for application nor for introduction of themselves. This situation relate to the findings of Kinyaduka (2014) who found the secondary school graduates are not made for either the world of work or self employment. Kinyaduka (2014) indicated the curriculum is too theoretical instead of being practical and suggested that technical and vocational education should be an integral part of general education in secondary schools and probably technical and vocational education is a social demand in today's Tanzania. This suggest for the comprehensive and diversified curriculum which can be a solution (MOEVT, 2010).

The introduction of secondary school education development program (SEDEP) in 2003 which aimed at widening access and equity in basic education through equitable distribution of institution and resources as well as improve the quality made the secondary education to be more unsustainable.

Though this was done through strengthened in service teacher training, adequate teaching and learning materials, rehabilitation of physical infrastructure still the education was unsustainable.

After independence in 1961, Tanzania educational reforms began almost immediately and initially made difficulties moves away from prior colonial education policies. With the introduction of the Education Ordinance by the Ministry of Education in 1962, a strong focus was placed on education as a solution the manpower problem within Tanzania, characterized by a national shortage of highly trained and specialized professions in Tanzania. It was during this time when education was vocationalized in the context of rural development and philosophy of Ujamaa.

Education for self – reliance (ESR) fit within the Ujamaa Policy as a key instrument in building the new Tanzania envisioned within the Arusha Declaration, as schools were given the mission to prepare students to become exemplary and self-reliant citizens of the new society (Dolan 1970). To this policy terms of ESR the curriculum was developed to include the so-called practical education elements that would prepare students for work through vocation skill. Vocational education within the educational system came to include agriculture, crafts, post primary technical centres, pre-vocational secondary schools and technical colleges.

SEDEP I and II

With these two phases of secondary education programmes the objectives didn't explain that graduate can be employed or self employed it was just to give them quality education for higher learning. It is not only SEDEP a way

of improving the quality of education, even the examinations council of Tanzania (NECTA), students are examined just to select those who pass for higher education.

From the Education and Training Policy (1995) and that of 2014 both they are theoretically good in gender, quality education, environment conservation, students achievement in examination but all these does not make the graduates to be critical in thinking independent, self employed and competitive in the community. Theoretically they are taught and get enough knowledge on the nature and how to make sustainable environment. Beside the knowledge they have, still graduates are not applying that knowledge to their real life. They do not fight against diseases, they are not planting trees to preserve water sources, malnutrition that shows unsustainable secondary education.

In Kenya, the secondary education seen to be not sustainable. The current 8-4-4 system of education was introduced in 1985 based on a guiding philosophy of education for self - reliance. There have been recurring complaints that the education system has been producing graduates who are ill-prepared to fit into the world of work. Evaluation of 8-4-4 system have revealed on overloaded curriculum, poorly equipped workshop to facilitate learning of practical skills and poorly trained teachers. Therefore the graduates at secondary school level have not been acquiring adequate entrepreneurial skills for self-reliance (Ayako, 2015)

These were driving factors that led stakeholders in education sector in Kenya to call for the introduction of a curriculum that would provide flexible education pathways (Ayako,2015). For identifying and nurturing the talents

and interests of learners early enough to prepare them for the world of work, career progression and sustainable development.

Currently, Kenya introduced the Competence Based Curriculum which focuses on competences as opposed to content under the 8-4-4 system (KICD,2017). Therefore Competence Based Curriculum provides an opportunity to nature every learner's potential through quality education. As a result, they will be enabled to contribute more meaningfully to the world around them economically, culturally, socially and politically.

The Malawian National Education Policy (NEP, 2013) established priorities, in this priority area number 4 is about quality and equitably accessed technical, Entrepreneurial and Vocational Education and Training. In order to meet this demand Malawi curriculum was reformed for quality and relevance which entails provision of TEVET based on standards according to industry demands (NEP, 2013). Beside these efforts, Technical, Entrepreneurial and Vocational Educational and Training (TEVET) system in Malawi is highly diverse, fragmented and uncoordinated, with multiple private and public provider systems. Access to the regular TEVET programs regulated and administered by the TEVET authority (TEVETA) and provided mainly as four – year apprenticeship training is very low compared to the demand (UNESCO, 2010).

In Finland, the reformation of the curriculum to meet the needs for sustainable secondary education was inevitable. The curriculum was revised in 2018 in which the largest amount of material relating to sustainable development was produced in science, but I was also treated in connection with home economics, art and crafts, humanities and languages (Halinen, 2018).

There are some schools in Finland that specializing in environmental sciences, natural science and there is a competence – based examination in environmental care. This reformation aimed at equipping the secondary school graduates with skills which will enable them to be self-employed and meet the world of work (Halinen, 2018).

Unsustainable secondary education is also found in Ukraine where the problem facing the country's education system go deeper namely outdated teaching methodologies (WB,2018). Students are taught without knowing how to use the gained knowledge in everyday life. On top of that, lessons are overburdened with theoretical knowledge and lacking in practical application, while textbooks are academically dry and overburden with secondary factual materials dampening motivation and curiosity among students.

Many scholars (Malekela, 2000; Swai, 2010; Mushi, 1998; Sumra and Rajan, 2006) in Tanzania have indicated low competencies in work for those students who graduate from secondary education and have blamed the curriculum for not exposing the students to the appropriate topics to help them develop competences needed to transform the society (MoST, 2016) .

Both Rush,(2006) and Rajan, (2007) found that the education system in Tanzania was characterized by lots of schooling with very little learning. This was also observed in a third year PEDP review that funds and majority of resources were availed but the quality targets were still unreachable (URT, 2007). The reviewers noted that the expected achievement was inflicted among other things by absence of competent and knowledgeable heads of schools, appropriate teaching and learning materials, in-service training and continuous professional development to teachers and non-teaching actors. This

contradicted the systemic transformation and ETP called for the government to ensure professional development for all teachers, availability of textbooks and other resources and better terms of service and working conditions for the teachers.

Education for all was another systemic education reform in Tanzania that was introduced to enhance access of basic education by all children of the school-going age (URT, 2001).With EFA policy Tanzania experienced the increase of pre-primary pupils from 554,835 in 2004 to 1,026,466 in 2013. This shows an increase in GER from 24.7 percent to 37.3 percent and NER increased from 23.7 percent in 2004 to 35.5 percent in 2013. This is an increase of 85 percent, implying that there has been an achievement in implementation of policy directive (Vargas, 2004; Mbise, 2001 and Mtahabwa, 2007). On the side of secondary education during EFA policy there was the increase of the Transition Rate. According to MoEVT transition rate is the number of students admitted to the first grade of a higher level of education in a given year expressed as a number of pupils students enrolled in the final grade of the lower level of education in the previous year (BEST, 2014) . Pursuit to the significant expansion of primary education between 2002 and 2008, coupled with the implementation of the first phase of SEDP (2004-2009), the availability of secondary schools more than quadrupled from mere 927 schools in 2002 to 4451 by 2013 (BEST, 2014). Consequently, the transition rate from primary education to Form I which had consistently remained under 25 percent throughout the 1990s and early 2000s tripled to 60 percent in 2013.

There were also noted weaknesses during the implementation of EFA policy. With the increase of student enrolment in all levels of education especially pre-primary and primary school the infrastructure remain a problem to accommodate those students, children aged 7-13 years from hard to reach areas and those with disabilities have limited chances to access education services due to absence of schools in their neighborhoods, lack of awareness among parent and child labour, shortage of teachers and teaching materials. Teachers were generally de-motivated by heavy workload, overcrowded classes, shortage and lack of accommodation facilities and limited opportunities for professional development especially for those living in rural areas (URT, 2015).

In Tanzania various education policy reforms took place as follows: In 1990, the Government constituted a national task Force on Education to review the existing education system and recommend a suitable Education System for the 21st Century. Among the problem identified by this task force was the curriculum which did not meet the needs of school leaves and general society. Also it was found that teachers were demoralized, poor remunerated, under qualified and sometimes untrained. On management aspect, it was found that the system structures and integration process among education and training providers were unclearly defined (URT, 1993). Consequently, the task force urged for policy reforms and appropriate measures consonant to preparation of school leavers and graduands capable of facilitating the achievement of envisioned national development goals and objectives.

The recommendations of the 1990 Task Force were instrumental in the formulation of 1995 Education and Training Policy (ETP). The broad policies of education and training were now focused to enhancing partnerships, broadening the financial base through cost sharing and liberalization strategies, and streamlining education management structures by placing more authority and responsibilities to schools and communities. Another area of policy focus was the intent to provide quality education, curriculum review, improved teacher management and use of appropriate performance and assessment strategies. The issue of access was given prominence in the policy with the intention to bring about equity with respect to women and other disadvantaged groups. Vocational education and training were recognized by the policy as necessary ingredients in the curriculum that would equip the youth with the culture for job creation and self employment as learning outcomes (URT, 1995).

Arguably the most serious weakness that faced Tanzania education through ETP is poor learning outcomes. Increased schooling as a result of implementing of SEDP has not been matched by increasing learning. The efforts in the education sector concentrated on two things, access and inputs (UNESCO, 2013). There was poor teacher's preparation during their training as the result poor student's performance. These problems are compounded by poor teacher training, deployment, management and monitoring. The quality of education is directly related to quality of teaching and learning. The role of teachers in improving the quality of education is crucial (Coleman, 1966, Solomon, 1987).

The Education and Training Policy (ETP, 1995) has many objectives concerning student development of adaptive critical thinking skills and the propensity for self-led learning. Yet it remain that the teaching-learning process in secondary schools in Tanzania is mostly teacher-led denying the students the chance to actively participate in the learning process (Senzige and Sarukes 2003). This rigid pedagogy is unfavorable to the development of independent thinking and learning skills, and obstructs the achievement of work oriented education objectives (Senzige and Sarukes, 2003).

In 2014 the Ministry of Education and Vocational Training launched the new Education and Training Policy 2014 The Policy aimed at replacing all the previous education policies, including the Education and Training Policy of 1995. The new Education Policy comes at time when the global community is run by knowledge, known as knowledge economy. This is also the time characterized by an explosion and availability of knowledge through technological development. Secondary education is expected to usher Tanzania into 21st century where Tanzania is aiming to become an industrial economy country as economic development is a process of continous technological innovation, industrial upgrading, and structural transformation which makes it inherently beser with market failures. Technological change and innovation are essential sources of structural secondary education change. In Schurupete's (2013), view innovations lead to creative destruction whereby sectors and firms associated with old technologies decline and new sectors and firms emerge and grow (Verspagen 2000). Technological change is thus at a very centre of sustainable secondary education. Moreover, Cornwall (1976) saw technological change in certain manufacturing sectors as a driving force

for other sectors. It is an obvious fact that technological aspect is vital in the process of sustainable secondary education for industrial development (Syrguin, 1986).

Therefore, in the industrial economy type of people who can fit are those first who have been invested with technical education system that rivals the best in the world to stand alongside in the higher education system, those who are invested with technical education helping to address the shortage of science, technology, and engineering skills, and those who are capable of creating a new national re-training schemes that supports people to re-skill for digital and construction trainings (Cluk, 2017). Thus, in order secondary school education to produce people for industrial economy there is a need to make innovations on the curriculum because sustained economic progress is associated with a rapidly evolving skill profile of the labor force.

This is a long-term process largely by the entrance of better-educated generations of young people in the workforce. In order to meet this demand the secondary education curriculum must incorporate the vocational and technical programs. It is important to insist on Mathematics and the science subjects. The pervasive skills mismatch in many developing countries where a large number of University graduates remaining unemployed while shortages of skilled labor persist. This situation prevails much of Sub- Saharan Africa, given that the higher education programs undertaken by a majority of African students are not in fields such as science, engineering, and technology. There is solid theoretical and empirical evidence that education- especially tertiary and business programs have a strong positive effect in industrial development (World Bank, 2008). The policy aim at improving quality of education

through curriculum reforms to make education more relevant, ensuring improved teaching of science, providing basic services to children, improving school infrastructure, and reforming the examination system (URT, 2014).

However, nowhere in the policy where the idea of innovation of the technical education and entrepreneurship is mentioned, which could make secondary education sustainable for industrializing Tanzania. The policy only emphasizes the teaching of science subjects such as Physics, Biology and Chemistry with no direction on how these subjects should be taught to develop physists, biologists or chemists. It is thus, unclear from the foregoing, how secondary education in Tanzania can be transformed from unsustainable to sustainable. Some scholars have reported challenges to the practice of sustainability education. "Challenge" here is the idea that sustainability education is either not well known that many secondary schools appear to be reluctant and/or unable to grapple with sustainability issues in any systematic way.

Perhaps a failure to have a clear concept of sustainable secondary education is the reason why we continue to see an increase in poverty, unemployment, food insecurity, wars and violence, HIV/AIDS and environmental related diseases (Paden, 2007; UNEP, 2008; FAO, 2008). In current international research much attention is placed on how to improve education and make it of quality (Gropello, 2006; Filippakao and Tapper, 2008), and scholars (Jidamva, 2010) have tried to explain the concept of quality of secondary school education in Tanzania in terms of ‘effectiveness and capabilities’ without explaining what effectiveness or capability mean in any tangible manner. Because of that, not much has been done on the strategies that secondary schools can use to

implement sustainability education within the classroom as well as outside it. Little information in the literature to elucidate the strategies that teachers should use to create an environment for sustainable education. In this study, the researcher explores conceptions from secondary school teachers on understanding and the strategies to implement sustainable education in Tanzania. Many scholars (Malekela, 2000; Swai, 2010, 2014; Mushi, 1998; Sumra and Rajani, 2006) in Tanzania have indicated low competencies in work (Wedgwood, 2005) and have blamed the curriculum for not exposing the students to the appropriate topics to help them develop competences needed to transform the society (MoST, 2016).

It is a fact that worldwide and Tanzania in particular, many secondary school graduates are not critical on many social, economic and political issues, and many more, cannot employ themselves after graduation (Hakielimu, 2007). This means, the education that is gained from secondary school is not sustaining the graduates. This disjointed relationship is creating a sustainability gap between the government intentions stipulated in Education policies, which has led to many criticism lashed towards the secondary school systems are not effective, as a number of students are claimed to finish secondary education with low competence.This is an indication that sustainability education is in theory than it is in practice (Dipholo and Biao, 2013). Although sustainability education has been practiced worldwide and in Tanzania, there still is little agreement on the fundamental characteristics of sustainability education (UNEP, 2006). The differences in understanding have become an interesting area of research in the sub-Saharan Africa and similar

countries. Studies have been conducted mainly in higher education for the aims of improving education quality (Samoff, 2007).

Murphy, (2017) introduced a concept of systemic education reform when one wants to be free from education for dependent minds. He suggested that sustainable education is that which is provided to address the real issues that students face in everyday life (Murphy, 2017).

The concept 'systemic reforms' has been conceptualized differently by scholars. For example, Bana and Ngware (2006) defined it as systematic as permanent improvement in educational structures, processes and management. This implies that systemic educational reform is a fundamental educational system changes. Reformers believe that transforming the structure of the education system will allow schools to better meet the needs of students for their better future. Even though most countries' central goal for systemic reform has been to raise student academic achievement, they also want schools' support in equipping students with the skills required to become critical and independent thinkers.

1.3 Statement of the Problem

Most of the literatures available about secondary education indicated that there have been many calls and support for sustainable education. However, much attention has been on transforming curriculum, specifically from content based to competent based. However, transformation in other aspects, such as teacher professional development, change in textbooks and mode of assessment have not been touched (Mhando, 2012; Kongela, 2010). Furthermore, little information in the literature on sustainable practices in secondary schools is

available, which does not elucidate the strategies that can be used at this level of schooling. Therefore it is the intention of this study to assess the sustainability of secondary education in Tanzania by focusing on teacher's perception and practices so as to fill this gap in the literature.

1.4 General Objective of the Study

The intention of this study was to investigate the understanding and the provision of sustainable secondary education in Tanzania. Within this broad aim the study intended to establish the extent to which teachers in secondary schools are preparing students for sustainable future.

1.5 Specific Objectives

In view of the background and statement of the problem specific objectives of the study were to:

i. Examine the extent to which elements of Education for Sustainable Development have been included in secondary education curriculum in Tanzania
ii. Explore the secondary school teachers' conceptions onEducation for Sustainable Development
iii. Assess the elements of Education for Sustainability Development in classroom teaching
iv. Determine possible challenges in implementing Education for Sustainable Development in secondary education.

1.6 Research Questions

i. To what extent the features of Education for Sustainable Development reflected in secondary education curriculum?

ii. How do secondary school teachers conceptualize Education for Sustainable Development?

iii. How do Education for Sustainable Development elements reflected in classroom teaching?

iv. What are possible challenges in implementing Education for Sustainable Development in secondary education?

1.7 Significance of the Study

The study has significance to education policy and management practices. On the side of education policy contribution, the findings of the study will provide an in-depth understanding of factors essential for initiating and leading a successful change to foster sustainable secondary education. With respect to policy implications, the findings are expected to guide a formulation of new strategies for effective implementation of sustainability education. Finally, the findings may be used by school heads to emulate best practices that can be used to implement sustainable education in their schools.

1.8 Delimitation of the Study

The study dealt with the trend of sustainable secondary education in Morogoro as case study area. Thus, the result of the findings will be used in other regions in Tanzania because of the similarities of problems facing community members on the sustainability of secondary education.

1.9 Organization of the Study

This study intended to show the importance of having a sustainable secondary education in the country with the case study in Morogoro region. Chapter one is an introduction of this study. It presents the background to the problem, statement of the problem, objectives and significance of the study. The research questions, delimitations and limitations of the study has been discussed. Chapter two dealt with a literature review which consists of the meaning of sustainable secondary education, features which are found in secondary education curriculum, secondary school curriculum transformation, and secondary school Teaching and Sustainable Education.Chapter 2 presents conceptual and empirical literature related to this study, while chapter three is confined to the Methodology of the research Chapter 4, presents the findings and chapter 5 is on the recommendations.

2.0.CHAPTER TWO

2.1 Literature Review

Introduction

This chapter presents the literature related to this study. The first part presents the theoretical literature that is framed within theories: System theory and Sustainable development theory. The second part presents a critical review of empirical literature that revolves around the objectives guide this study

1. Sustainability elements in curriculum
2. Conceptions of sustainable education.
3. Sustainable education pedagogy
4. Challenges in implementing sustainable education.

2.2 Conceptual Framework

The adoption of multiple perspectives as implied in the view of literature requires investigating the curriculum and teaching in secondary school in relation to sustainable development out comes. In this sense the conceptual framework for this study focuses on the issues found in the empirical literature that relate to the theories that frame this study.

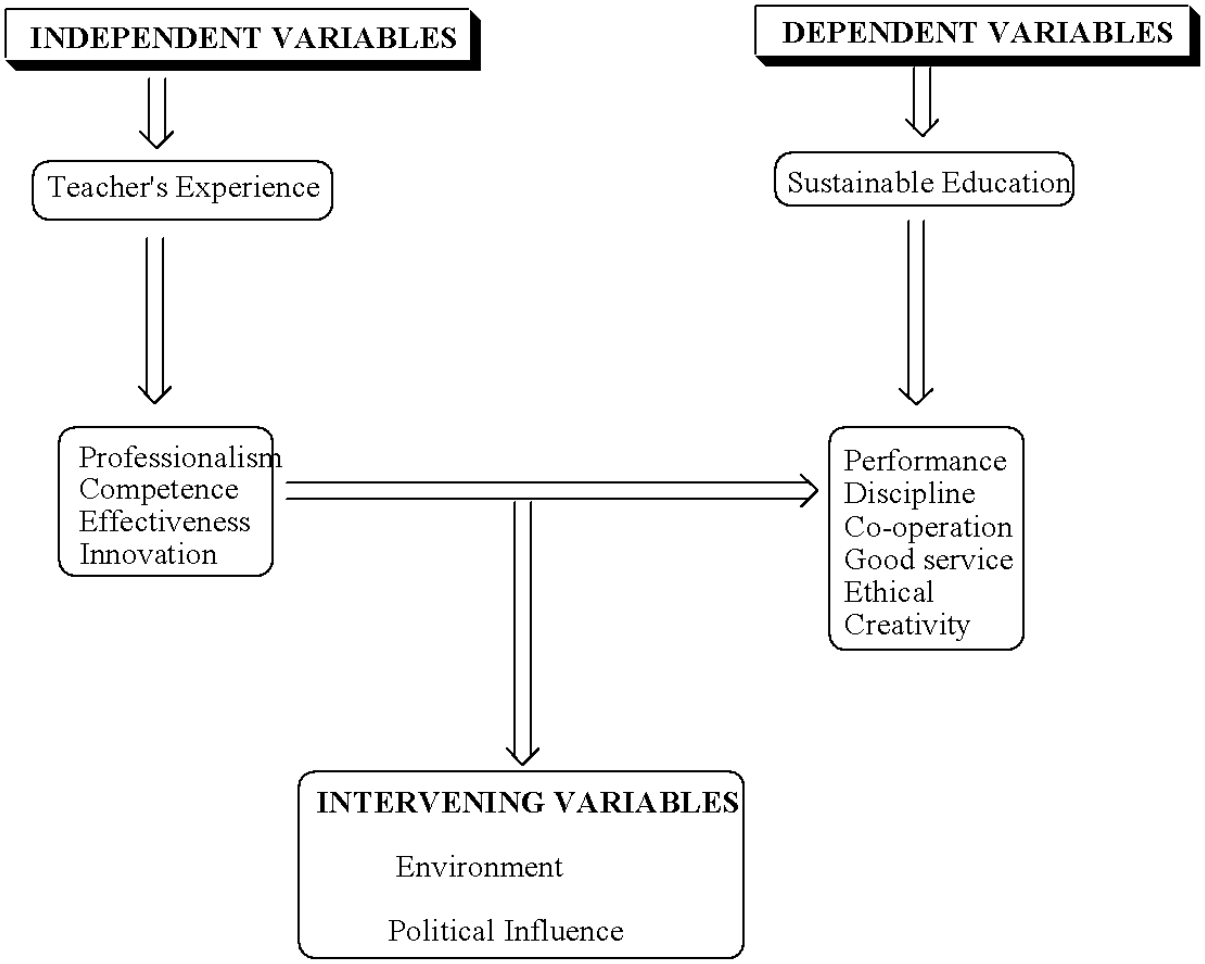

Fig 1: Conceptual Framework for Sustainable in Education

Following the framework presented above, this inquiry intended to study the sustainability of secondary education. The study inquire the extent to which the expected outcomes are being achieved by the graduants at this level. This is instructed by the literature on education for sustainable development (Kinyaduka, 2014) that there are variables which have a great contribution to the sustainability of secondary education namely professionalism, competence, effectiveness and innovation on one hand and performance, discipline, co-operation, good service ethical and creativity on the other hand. To this, the study looked at how each other helped to make secondary education sustainable.

2.3 Theories Guide Sustainability in Education

2.3.1 System Theory

The general systems theory is one manifestation of the fundamental changes in the nature of scientific analysis (Ackoff, 1981). Rather than investigating the universe in a cause and reaction frame of mind, researchers realized that any cause and reaction relationship take place in a more complex system of relationships. Nothing is analyzed in isolation, but in terms of their relationship with a larger system (Turner, 1991). These systems distinguish the difference between the whole from the sum of its parts. Amongst the modern scientists, Ludwig von Bertalanffy (1972) was the first to advocate for a General Systems Approach. Various other scientists joined in and the groundwork was established for the General Systems Theory (Turner, 1991).

According to Turner (1991), social organizations are open systems due to their material exchanges within the working environment. The school as a social organization is seen as a system built by input-output where the energy coming from the output makes the system active and productive. The general systems theory is applicable because it focuses on interactions of different elements of education such as teachers, facilities and supporting personnel to produce learnerd or educated graduates that are able to solve the social problem. This suggests that education within system theory is explained as that which draws inputs from the environment and is used to sustain the same environment. In such an explanation it should be possible to estimate educational production functions with statistical methods, such as multiple

regression analysis, that determine relations between input factors and outputs (Gustaffson, 2003).

Basing on the theory, Oyebade, (1995) came up with the findings that the theory has been used to draw inference on the educational system, especially in the search for genuine and long lasting solutions to students. Among them are solving conflicts and poor financial management in tertiary institutions. Moreover, Itika (2011), pointed out that, in a system the ineffectiveness or success of every component have overreaching impact to the school and society in general. For example at the input processing stage if there is inefficiency and errors, such as inefficient teachers or unqualified students, the same will be reflected in the quality of the graduates in solving the societal problems. Since academic advising is an important component for students' success. Bridgen (2015), in his study used the systems theory as a framework to examine description of the functions, purpose and identity of a university advising system through comparisons of ideals espoused by advisors and administrators with practice. He also used the system to determine the ways current advising systems behave in practice.

2.3.2 Justification of Using the System Theory

The systems theory is usually applied in managerial functions and as well as focusing specifically on knowledge, value, quality, environment, relationships, adaptation and complexity. Systems theory takes into consideration all possible sources of the problem and examines each individually and what role they play in the system.

Using systems theory in communication helps better to identify where a problem lies within an individual's life or within a group or organization.

The theory was used to analyze the possible challenges in the implementation of sustainable secondary education as it is found to be in objective number 4. This was used as the theory calls up on us to consider the dynamic nature of systems as constantly changing and open to the influence of multiple agents and circumstances. System theory focuses attention on issues of quality of the curriculum and teaching as well as the quality of the graduates.

Moreover, the application of the system enables to describe things as they are. When this theory is not put into practice we can find ourselves chasing ghosts of problems because we never truly identify the sources of problems and use possible means of solving the identified problems. The theory supports in examining the inputs and external forces and their effectiveness to the system as a whole. Finally, the system helps to study and understand the history and relationships of various components and their purposes and this is consistent with systems theory.

2.3.4 Sustainable development theory

Sustainable development theory was originally developed in relation to pre-serving marine resources as a way to ensure the maximum sustainable yield. This concept differed from the then conventional view that development was incompatible with the environment. Thus, through integrating development

and the environment, sustainable development comprised the idea that development could be promoted to the extent sustainable by the earth's ecosystem. The aim of this concept was to ensure that the present generation would not exhaust resources for future generations (intergenerational equity) and to close gap in resource use. That is the gap between rich and poor (intra-generational equity) (Cooper and Vargas, 2004).

Sustainable Development theory is based on the idea that communities and educational systems within communities need to fit together their sustainability efforts. As communities develop sustainability goals, local educational systems can modify existing curriculums to reinforce those goals. Education is a vital tool for achieving sustainability. The current economic development trends are not sustainable and that public awareness, education, and training are key to moving society toward sustainability. Beyond that, there is little agreement. McKeown, (2002), argue about the meaning of sustainable development and whether or not it is attainable. The author (ibid) has different visions of what sustainable societies will look like and how they will function.

2.3.5 The Need of Education for Sustainable Development`

The adoption of 2030 Agenda for Sustainable Development was considered to cultivate a global framework that redirected humanity towards a sustainable path (UN, 2015). The 2030 UN Agenda was embedded in promoting prosperity while protecting the planet in order to achieve sustainable development. Thus, with respect to the Sustainable Development Goals, all

countries can be considered as developing and all countries need to take urgent action.

According to UNESCO, Education is a top priority because it is one of basic human rights and the foundation on which to build peace and drive sustainable development. UNESCO is the United Nations' specialized agency for education and the Education Sector provides global and regional leadership in education strengthens national education systems and responds to contemporary global challenges through education with a special focus on gender equality and Africa. However, UNESCO continues to argue that, ESD does not only integrate contents such as climate change, poverty and sustainable consumption into the curriculum; it also creates interactive, learner-centered teaching and learning settings. Education for Sustainable development is thus a key supporter and enabling the attainment of sustainable development goals universally (UNESCO, 2017).

Despite this narrow application of ESD, researchers (Anand and Sen, 2000; Bonnett, 2002) recognize the widely held view that ESD involves using education to achieve sustainable development as opposed to learning about or being aware of sustainable development. Research shows that basic education is essential to a community's ability to improve its economy and environment, both of which are important to achieving sustainable development (Anderson, *et al.,* 1999). Therefore this study used a Systems theory in a way of elaborating increasingly complex systems across a continuum that encompasses the person-in- environment. Systems theory also enables us to understand the components and dynamics of client systems in order to interpret problems and develop balanced intervention strategies, with the goal

of enhancing the "goodness of fit" between individuals and their environments. Systems theory does not specify particular theoretical frameworks for understanding problems, and it does not direct the social worker to specific intervention strategies. Rather, it serves as an organizing conceptual framework or meta-theory for understanding (Meyer, 1983). Sustainable Development leads to solutions to the problems of the interconnected environmental, economic, and social spheres cannot be reduced to mere technical engineering, but must include social innovations, institutions, innovative governance mechanisms, and politics (Birch, 1993).

This study used both theories because they are concerning with society's development in the changing world. Not only that but also these theories complement each other. The System Theory deals with the whole human life activities the Sustainable Development Theory leads to the solution to the problems facing the human activities in life. Both System Theory and Sustainable Development Theory has been applied in the study for the purpose of discovering a systems dynamics, constraints and conditions that prevailing in the society so that solutions can be found. These systems led the researcher to make scientific based predictions of the outcomes of education system change efforts. The systems have many applications of which as a researcher used the applications within the system to make analysis of any discrete educational or learning system aiming at increasing student learning achievement and that our graduates will help improve the quality of life (Rogeison and Blick, 2000).

The System Theory and Sustainable Development Theory will enable to make comparative analysis across various elements of education such as curriculum,

teaching, and assessment. From a methodological standpoint, these theories can help to frame and address complex and messy problems. System Theory is useful in providing a framework in which to study complex variables influencing one another. The mentioned objectives seems to influence each other it is here therefore, becoming important to use these theories (Linda, 1982)

2.6 Critical Literature Review

2.6.1 Sustainability elements in curriculum

Stralin and Wiman (2009), explored sustainability values in syllabuses of different subject areas in some selected schools in Morogoro, Tanzania. They used in-depth interviews clarify what they had observed in the syllabuses and in classroom observations. They found that the most connections to sustainability issues were in the syllabus of geography. They also found that teachers had a general knowledge about sustainability education. Stralin and Wiman, (2009) suggested that the sustainable education be brought up as a subject of discussion in most topics of the syllabus and curricular and train all teachers on sustainability education.

Dumbudzo, (2015), studied the nature of the curriculum in primary and secondary schools in Zimbabwe with a view to identify sustainability issues,, the way the curriculum was delivered and whether learners experience contributed to sustainable development in. He used a case study design with semi-structured questions in seeking information from the teachers and students. (Dumbudzo (2015) found that the elements of sustainable education and implementation differed from school to school. His findings indicated that

some schools were more creative, implementing the curriculum in a manner that involved integration with the environment and industry, and developing competencies for the world after school using modern technology, while others did not bother to link education and the community. Dumbudzo (2015) suggested that teachers must put emphasis on learner centred strategies, and integrate academic work with industry.

2.6.2 Conceptions of sustainable education

Mukoni (2012), did a study on teachers' conception of Education for Sustainable Development (ESD), in Gweru Peri and Urban in Zimbabwe. There According to Mukoni (2012), there is a limited awareness and understanding of the concept of sustainable education among the teachers resulting in keeping teachers from recognizing the relationship between education and political, economic and social development. Mukoni, (2012), suggested that effort must be made to train teachers on sustainable education to better communicate ESD more creatively so that they can diversify sustainability issues in education and transform the behavior of pupils to actively interact, dialogue and reflect on the issues in the politics, social, economic and environment.

Jaspar (2008), examined teachers' perceptions and the practices of sustainable development in classrooms in Saskatchewan in Canada. Teachers lacked clear conceptions of Education for Sustainable Development (ESD). Challenge of lack of support and lack of resources as teachers saw ESD as a new concept (Jaspar, 2008). There is a need to equip teachers with internet facilities so as to

expose them to the concept of ESD. He further suggested the renewal of the curriculum to address the ESD issues.

Anyolo (2015), assessed on how and to what extent Education for Sustainable Development is integrated in the Namibian School curriculum. In her study Anyolo found that Education for Sustainable Development (ESD) was integrated in the Namibian curriculum as a subject and all teachers participated in the study acknowledged the teaching of topics that led to sustainability practices in their subjects. These included such topics as sustainable development, environmental issues, nature conservation and tourism.

Anyolo (2015) suggested that ESD can be integrated into the school curriculum by making use of different approaches as an independent subject or as an orientation in the curriculum. Watanabe (2015), studied how the Education for Sustainable Development was implemented in the secondary schools in Kesennuma City in Japan. The implementation strategy of ESD in Kesennuma City was emphasized from pre-school levels to high school levels supported by Kesennuma City Board of Education, alsothrough developing the curriculum of which the curriculum was revised several times in improving ESD in schools. Watanabe (2015) suggested that, there is a need for the Integrated Studies (IS) to share a common ground with other subjects in the curriculum.

Sina (2008), conducted a research on the importance of incorporating Education for Sustainable Development (ESD) into the secondary curriculum in South Tarawa.. Sina found that, the concept of Sustainable Development in education was well understood and accepted by teachers, students and

government officials but there was a challenge in its implementation due to lack of teaching resources and lack of the professional development needed to promote ESD teaching strategies. Sina, also found that because there was so much in the curriculum, it was hard for teachers to fit ESD as a serious subject.

The findings of Sina has similar findings to Law and Tasker (2000) who found in New Zealand that one of the major limitations in establishing effective teaching for Education for Sustainable Development was clogged curriculum. Sina (2008) further suggested that Education for Sustainable Development (ESD) needs to be examined closely and it should be formalized into the syllabus. Also suggested that ESD should be compulsory so students can not escape the teaching and learning offered by ESD. Sina also suggested the need for the restructuring of the secondary school syllabus to incorporate ESD into different subjects in order for students to get inter-disciplinary views as she believes that integrating ESD into subjects will get students to learn about ESD without knowing that they are learning it, than establishing it as a new subject.

2.6.3 Sustainable Education Pedagogy

In classroom, Carol and Kim (2017) did a study on teaching sustainability in Higher Education specifically on pedagogical styles in Columbia. They found that, students perceived sustainability as mainly related to technology and saw little relevance in social and attitudinal aspects. They also found an increase in student knowledge about sustainable development from courses that apply a more community-oriented and constructive, active-learning. Carol and Kim

(2017) discovered a mismatch among the experts and students understanding of sustainability. Students' complexity index was very low, revealing that either they perceive sustainability as a complex issue. In calling for more systems and multidisciplinary thinking, with a greater societal focus they suggested the reorientation of the pedagogy and the learning processes. They also emphasized on the importance of the active involvement of learners in constructing knowledge for themselves, and building new ideas or concepts based up on current knowledge and past experiences while the teacher or lecturer acts as a facilitator who encourages students to discover principles for themselves and to construct knowledge by working to solve realistic problems. Chris (2010), studied the effectiveness of pedagogy to facilitate learning for sustainability in schools both primary and secondary schools in Scotland and England. He found that there were many different and effective ways r schools were undertaking learning for sustainability. He found there were specific areas of knowledge relating to sustainability. Chris (2010), suggested that there was a need to review national strategies to ensure that there is a requirement for pre-service and in-service teacher education provision to build capacity in the pedagogies identified. He further suggested that the governments should provide resources and support to help teachers ensure that during curriculum planning learning for sustainability is sufficiently well rooted in the content and skills of the curriculum.

Evans (2011), studied the extent to which sustainability education was being practiced in secondary and higher education in Durango, (in the United States of America), aiming at developing a theory of the critical pedagogy of sustainability and promote its application within education settings. She used

semi-structured questionnaire and documents to solicit information from teachers and students. Evans found that the critical pedagogy of sustainability education was not linked with political economic, social, cultural, and ecological facets of this global and local phenomenon. Evans (2011), suggested that critical teaching must be counter hegemonic and oriented toward revitalization of the concept of place and place-based living and critical teaching must call up on students to name the world and not for the teacher to name it for them.

2.6.4 Challenges in implementing sustainable education

In the study on how and to what extent Education for Sustainable Development is integrated in the Namibian School curriculum Anyolo (2015), found some barriers to the effective implementation of ESD. These included lack of learner's motivation, time constraints, unavailability of teaching and learning materials, lack of teacher training and limited ESD content in some syllabi. Anyolo (2015), suggested the Ministry of Education and the Institute of Higher Learning, and the University of Namibia (UNAM) in collaboration with the National Institute for Educational Development (NIED) those, should be responsible for supporting the implementation of the programs.

In his study on how the Education for Sustainable Development is implemented in the secondary school education in Kesennuma City. Watanabe (2015), found challenges for implementing ESD such as lack of the holistic understanding of ESD concept among the teachers, while the teachers are seeking to link ESD and regular subjects, such as mathematics and science, the

lack of fully understanding of the concept made it difficult to identify specific activities during teaching and learning process.

Watanabe (2015) suggested that, there was a need for the educational reform so that to integrate ESD as he named Integrated Studies (IS) to share a common ground with other subjects in the curriculum as it was stated that ESD is interdisciplinary and holistic, more specifically, learning for sustainable development is embedded in the whole curriculum, not as a separate subject. He also suggested that, ESD should be integrated, not only informal curriculum but also in various aspects in education including non-formal curricula, school policies and management including interaction between school and the community.

Armstrong (2011) made a general survey on the implementation of ESD and the challenges of its implementation. He surveyed different documents/literature. Armstrong, found many challenges most of them due to lack of concrete direction of the concept. For example, curricular were focused on problems related to subject matter, rather than the subject matter taken singularly. Armstrong (2011), suggested that, there was a need to reframe curriculum for sustainability. For example, subject matter must reflect sustainability and become a part of the curriculum. Also she suggested that, there was a need to develop skills and values that support sustainable development.

Kanyimba, *et al.,* (2014), made a study on barriers to the implementation of Education for Sustainable Development in Namibia's Higher Education Institutions. They used empirical investigation with mixed research design paradigm and open-ended questions. The study revealed that the

implementation of ESD faced with barriers that of dispositional, situational and institutional. Also it was learned that the ESD was not incorporated in the curriculum and not all lectures were involved in the implementation of ESD concepts in their respective subjects, courses and modules. They suggested that there was a need for Namibia Higher Education Institutions to lead the agenda for ESD, including training and resources that can be used to teach ESD concepts.

2.7 Research Gap

From the foregoing, it is clear that literature has covered a lot of grounds about the extent to which features of sustainable education are reflected in the curriculum and how sustainable education is conceptualized. Furthermore, literature has covered sustainable elements in classroom teaching and the challenges in implementing sustainable education in higher learning institutions. However, the literature is silent on the elements of sustainability in secondary school curriculum and in its implementation. Furthermore, the literature is silent on the effects of unsustainable education in transforming a country like Tanzania where we are talking of industrializing our economy.

Due to these reason there is a need to conduct a research for the purpose of getting to know teachers' perceptions and experience on sustainable secondary education in Tanzania. This will contributes to a deeper understanding and better rationale of the sustainable development discourse and establishes a framework for reflection and innovation of education during this period of social and economic change in Tanzania.

3.0.CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covered the methodology of the study which includes the area of the study, the research design, the target population, the sample and sampling technique, data collection methods, validity and reliability of instruments as well as data analysis plan.

3.2 Area of the Study

The study was conducted in Morogoro region (Fig. 2). The choice of these areas of study is based on two reasons: One is due to the fact that it is within the accessible for the researcher to collect data within scheduled time. Thus it becomes less costly rather than it has been somewhere else. The second reason is the importance of Morogoro in social and economic development of Tanzania that is, beside the agriculture and wildlife activities Morogoro enjoy a diversity of natural resources including; coal, iron, silver, limestone, mica, gemstone, and a lot of building materials and forests most of which are yet exploited. Natural resources in this region is seen as potential for income generation that will improve the regional economy, provide employment, reduce poverty and improve livelihood of people in Morogoro and contribute to the National economy as whole (Morogoro Regional Profile, 2012).To this, the study aimed to find whether the provided secondary education can equip the graduands to participate in exploiting these resources.

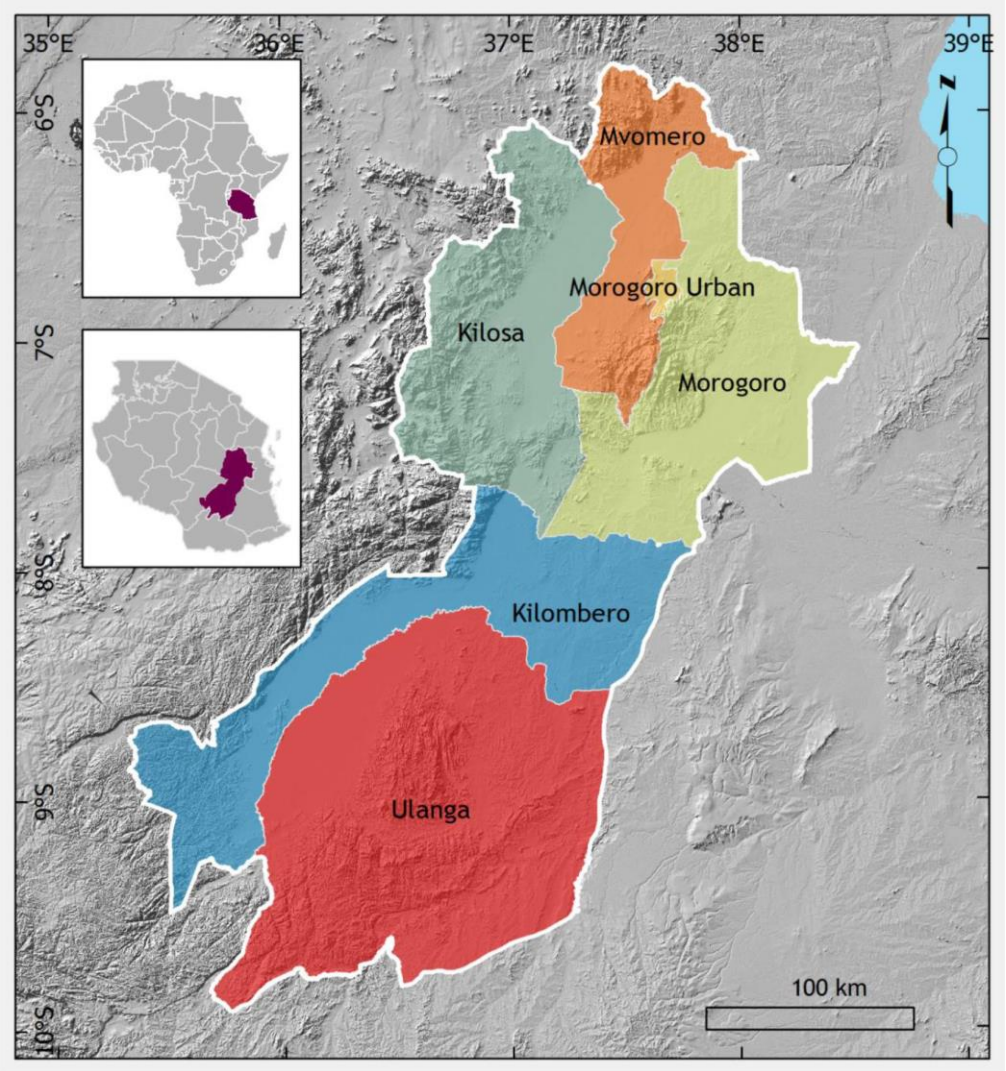

Fig 2: Map of Morogoro Region

3.2.1 Research Design

Research design is a plan, structure and strategy of investigation conceived so as to obtain answers to research questions and control variance. According to Kothari (1990), research design is a systematic arrangement and strategy of investigation in order to gather the requisite data. A design structures the research, showing how all of the major parts of the project work together to try to address the central research question (Kombo and Tromp, 2006). In this respect, the study employed principally a qualitative approach, applying a case study design. The reason behind this is due to the nature of the study, which

will generate an-depth investigation to the social dynamic that will be involved in the process of change in particular area.

Such approach required and rely on naturalistic phenomenological observations, an analysis of interactive community relations as well as an assessment of collective outcomes. It also used to enable the researcher to obtain and interpret informants' meaningful experiences in their natural settings (Denzin and Lincoln, 2000). The qualitative approach provided an opportunity for the researcher to make changes during the research. Cohen, Marion and Mours (2000) argue that qualitative research is reported in terms of verbal description rather than numerical form. According to Cohen (2000), the selection and employment of particular data collection, analysis and interpretation method depends on the way reality is apparent in a given study. If on one hand and objectivist (or positivist) view is adopted by looking at the world as natural, hard, real and external to the individual, the methods came from a range of options in the traditional approach (quantitative) which include survey and experiments. On the other hand the view stress the importance of subjective experience of individuals in the creation of social world, Cohen (2000) put forward that the approach may take on aspects from qualitative as well as quantitative research, that we should avoid choosing between all polar oppositions because they purely 'rational" cannot be filtered out from the "social". In this light, this study problem has a perception of sustainable secondary education in Tanzania as a natural and primarily based on manipulation of hard non-human resources.

However, data from various reviews and assessments signaled it is unlikely to meet the set targets. It is likely that the view of reality about reforms required

considerations of soft, subjective experiences of individuals to yield the desired results. This assumption therefore, instructs the choice of qualitative inquiry (dominant approach) without total disregard of quantitative methods. Thus it will incarcerate the subjective experiences of individuals in the conduct of sustainable secondary education in Tanzania.

Qualitative inquiry is defined by Merriam (2002) as one which is designed to uncover the meanings people have constructed about a particular phenomenon. This study's interest was in the ways of which educational reforms are planned and implemented and the perceptions of regional Head of Schools and Classroom teachers has on their places and roles in meaningful educational reforms.

In its attempt to learn the way past reforms were being executed as strategies for education changes in Tanzania, this study interpreted the perceptions, roles and uniqueness of the main actors in reforms of education. This require an in-depth understanding of sustainable secondary education as reform strategies, problems they sought to resolve, the targets indicative of their effectiveness, and critical resources at their disposal. This partly suggests a case study as an ideal design. According to Yin (1994), a case study allows an investigation to retain the holistic and meaningful characteristics of real life events. Likewise, Merriam (2002) defines a case study from the view point of a "case" which she calls A specific, complex, functioning thing". In the views of both writers, the design is less of a methodological choice than is what is to be studied, with a finite quality about it. By fixed quality, Merriam (2002), referred to time, like the education reforms which began in the late 1990s in Tanzania, or space, like coverage of the primary and secondary education sub-

sectors, and the components comprising the case like educational quality, access, capacity building and institutional arrangements. The selection of a case is done purposefully rather than randomly, due to its characteristics of interest to the researcher.

Cases are intrinsically bounded entities, within which data are collected and analyzed (Merrian, 2002). A bounded case is sometimes referred to as a unit of analysis. Furthermore, the strengths behind the choice of case study design is numerous. Cohen (2000) categorized the design in the interpretive tradition of researches because of its ability which allow seeing through the eyes of participants. Yin (1994), recommended the design for examining contemporary events in situations where relevant behaviors are difficult to manipulate, and when "how" and "why" are the questions which the study tried to answer about the given set of contemporary events. In this case the study attempted to examine the ways the participation of sustainable secondary education will be improved for better outcomes.

3.3 Target Population

According to Bums and Grove (1997), target population refers to the entire group of individuals or objects to which a researcher is interested in generalizing the conclusion. The target population usually has varying characteristics and it is also known as the theoretical population. They also arguing that target population is the "entire aggregation of respondents that meet the designated set of criteria". The target population in this study constituted Secondary Heads of Schools, secondary School Teachers in the selected schools of Morogoro Municipal Council.

3.4 Sample and Sampling Techniques

3.4.1 Sample of the Study

Kothari (2004), Fraenkel and Wallen, (2000), asset that a sample is a smaller group of subjects from whom the researcher intends to obtain information and draw conclusions. It involves a process where a researcher extracts from a population a number of individuals who present adequately the large group. Miles and Huberman (1994) maintain that a small-sized sample characterizes studies in which the researcher selects a sample that is sufficient to provide maximum insight into and an understanding of population understudy. The sample for the study was largely strategic and purposive. For this case categories of respondents who provided the informationwere Secondary School Heads of School, and classroom Teachers. The selection of the sample was purposive because those were the key respondents to the researcher.

3.4.2 Sample Size

As the selection of the sample size was purposive, then 5 secondary schools from Morogoro Municipal Council namely Kihonda, Kingo, Uluguru, Kayenzi and Mwembesongo were involved of which each school provided 10 teachers to participate in the research as respondents. To this therefore, 50 teachers were involved in this study.

Table 3.1: Composition of the sample

S/No	Category	Projected Respondents
6	Secondary School Heads	5
8	Teachers	45
	TOTAL	**50**

3.4.3 Sampling Techniques

Sampling involves a process of selecting a sub-section of a population that represents the entire population in order to obtain information regarding the phenomenon of interest. A sample is a sub-section of the population, which is selected to participate in a study. There are two methods of sampling, one yields probability samples in which the probability of selection of each respondent is assured. The other yields non-probability samples in which the probability of selection is unknown (Polit & Hungler 1995). This study employed a convenience sampling method of the non-probability sampling design to select the clients to use as respondents and a simple random sampling of the probability sampling design was utilized for the selection of the government employees. A convenient sample consists of using the most readily available or most convenient 50 respondents of subjects for the sample (Cohen, 2000).

3.5 Data Collection Methods

In this study the researcher employed multiple methods in data collection known as interviews, observation, focus group discussion, documentary review and questionnaire.

3.5.1 Interview

An interview is a scheduled set of questions administered through verbal communication in face to face relationship between a researcher and the respondent (Kothari, 1990). The technique entails a set of structured, semi-structured or unstructured questions. According to Cohen, (2000), an interview allows respondents to provide their interpretation of the world in which they

live, and to express how they regard the situation from their own point of view. However, the technique is prone to subjectivity and bias on the part of the interviewer.

In this particular study, the researcher used structured interview to gather data from the Head of Schools and Classroom Teachers. This Method was chosen so that the researcher will get the first hand information on the ESD views. It allows flexibility as there was an opportunity to restructure questions as well as to provide an opportunity for the participant to expand his/her thoughts and introduce new ideas that will not necessarily be conceived by the researcher. The method was developed using structured questions which used to collect data from Head of Schools and Classroom teachers.

3.5.2 Observation

Observation is a fundamental and critical method in a qualitative inquiry for it is used to discover complex interactions on natural social settings (Marshal and Rossman, 1995). It gives a researcher an opportunity to look at what is taking place in the situation rather than relying on second hand information (Patton, 1990). In this study, an observation was used to observe the situation in the class room activities between the teacher and student interaction in order to reveal the presence of any elements of ESD in the teaching and learning process.

3.5.3 Focus Group Discussion

Patton (1987) points out that FGD is an interaction with a small group of people on a specific topic. Normally six to twelve people are brought together and encourage talking about the topic of interest. It promotes interaction among participants that stimulates them to air the feelings, perceptions and

beliefs that they can be exposed if interviewed individually (Bhalalusesa, 1998).

In this study, 5 participants were selected from each school due to their common characteristics relating to the topic under discussion. The method was used in the sense that it allowed the researcher to solicit information. It assisted the researcher in getting ideas on the sustainability of secondary education.

3.5.4 Documentary Review

Documentary review was selected as another major source of data. Yin (1994) emphasizes on the value of documents as they can provide more insight into the programme being studied by cross validating and augmenting evidence obtained from other source. Therefore, the method was applied for data gathering through record taking such as ministerial seculars, available educational policies and guidelines.

3.5.5 Questionnaires

Questionnaires are data-gathering instrument which a subject responds to questions or statements that generally require factual information (Best and Kahn, 1996). This technique was used to collect quantitative data which was not given off-hand during an interview. This method was used because it was easier to use questions prepared on paper. It was also gave the respondents mere time to think and consult documents. Questionnaires were used for both Head of Schools and Class room teachers..

3.6 Instruments' Validity and Reliability

3.7 No single instrument is adequate by itself reliable for data collection. Therefore, the researcher used multiple techniques in which instrument complemented the other.

3.8 Research Ethical Issues

The researcher observed all research ethical, what was needed was how you are going to analyze your data issues are including having a permission of conducting the research from The Selinus University. Also the researcher kept confidentiality where necessary to do so.

3.9 Data Analysis Plan

Data analysis is "the systematic organisation and synthesis of the research data and the testing of research hypotheses, using those data" (Polit & Hungler 1995). It will also entails "categorizing, ordering, manipulating and summarizing the data and describing them in meaningful terms" (Brink 1996). The completed questionnaires were analyzed to get the feedback from the respondents. Most of the questions included in the questionnaire were closed questions. The open-ended questions werecategorized by the researcher. The findings were discussed and the data will be presented.

4.0.CHAPTERFOUR

4.0 DATAANALYSISANDPRESENTATIONOFTHEFINDINGS

4.1 Introduction

The primary data that were collected in the field were thoroughly analyzed, presented and discussed. However, before presentation, analysis and discussion of the empirical findings, the characteristics of respondents are presented, and analyzed due to the reason that they were ways significant with regard to the validity and reliability of data which was collected. Perception and practice of teachers on Education for Sustainable Development in secondary school are also analyzed basing on the specific objectives that were presented in chapter one.

4.2 Categories of the Respondents

As it was indicated in the research methodology; Morogoro Municipal Council (MMC) has 23 Public secondary schools and 27 private secondary schools. Questionnaires were distributed to 50 respondents from the 5 selected secondary schools, respondents and the schools involved were randomly selected. Moreover; structured and unstructured interview were conducted to 4 respondents from the group of head of schools. These were within the targeted sample for the population of the study which was 50 respondents. However, data from the field showed that, only 59 (98%) teachers managed to participate in the study as shown by table 4.1 below.

Table:

School	Frequency	Percent
Kihonda	8	16.0
Kingo	9	18.0
Uluguru	7	14.0
Kanyenzi	11	22.0
Mwembesongo	10	20.0
Head Master	4	8.0
Total	49	98.0
Missing System	1	2.0
Total	50	100.0

The researcher failed to conduct interview and get response from 1 (2%) head of school because he was not in the office when the researcher went for conducting the interviews and collect the questionnaire. There was even no single ordinary secondary school teacher who did not participate in the study as shown in the previous table 4.2 above.

4.3 CharacteristicsoftheRespondents

Initially, both questionnaire and interview sheets had a number of variables which were used to determine the characteristics of the respondents. However, in this part few variables were picked and analyzed due to their significance in relation to the study. These are gender, age, academic qualification, Teaching/working experience. These are analyzed as follow:-

4.4 GenderoftheRespondents

Data from the field showed that from the overall number of the respondents (N=49) who participated in the study; about 28 (56%) respondents were female and 22 (44%) were male as indicated by table 4.3 here under.

Table4.3: GenderoftheRespondents

Sex	Frequency	Percent
Male	22	44.0
Female	28	56.0
Total	50	100.0

Source:Field Data: 2014

These results as shown by table 4.3 above are not accidental but factual in that generally there are more female teachers than male in the secondary schools in the district and countrywide. This reflects the historical gender inequality in education in urban schools compared to that of rural in many countries south of the Sahara including Tanzania (Ngimbudzi, 2009). This picture would be noted different if the study was conducted among Heads of Secondary Schools we could found more male than female. The study could also found many male teachers than female if it was conducted in rural schools.

4.5 Age of Respondents

The research showed that, 22 (44 %) of the total participants were aged between 25 and 35 years, 18 (36%) of the participants were between 36 and 45 years,5 (10%) were between 46 to 60 and 1 (2%) aged above 60 years. The statistical data indicate that the majority of the participants in study area were aged 25-35 years **(**Table 4.4**).**These figures are due to the fact that the majority of teachers were trained and employed between 2004 and 2008 following the implementation of the Secondary Education Development Plan (2004-2009). The plan contributed to the establishment of many Community-Government Secondary Schools in the country commonly known as ward school. This implies that a similar picture would be seen if a larger sample was studied in any district in the country. However; if the same study will be

conducted in private secondary schools a differentpicture could be seen in the sense that the high percentage could be between 31-40 years old, simply because the majority of these schools mostly do recruit those teachers with experience, than those who are fresh from the colleges and universities.

Table4.4: Respondents'Age

Age of respondent

Age of respondent	Frequency	Percent
25 – 35	22	44.0
36 – 45	18	36.0
46 – 60	5	10.0
60+	1	2.0
Total	46	92.0
Missing System	4	8.0
Total	50	100.0

Source: Field Data; 2021

4.6 Education Level

The categorization of participants by their educational qualifications is as follows: Data from MMC showed that; 2(4%) respondents had attained secondary education, 6 (12%), completed Diploma in education,and 42 (84%) of the respondents had Bachelors and Masters Degree in Education majoring in various disciplines as indicated by table 4.5below.

Education level

Education level	Frequency	Percent
Complete secondary	2	4.0
Complete Diploma	6	12.0
Complete University Degree	42	84.0
Total	50	100.0

Source: Field Data; 2021

Table above, portray that; the teachers with a Degree in Education constituted the majority in the study sample. This is due to the fact that the availability of government and non government Universities gave an opportunity for more secondary school leavers to be admitted for further studies which give

more chance of being employed as secondary teachers.

4.7 Number of Years involved in Teaching

The years of experience of the respondents were requested by the researcher whereby each respondent was required to provide a number of years that he/she has been working as teachers. The data revealed that 3 (6%) of the respondents had been working between 1-5 years, 25 (50%) has been teaching between 6-10 years, 12 (24%) have been teaching experience between 11-15, 2 (4%) have teaching experience between 16-20 and 4 (8%) has an experience in teaching between 20+ years as clarified by the table 4.6 below.

Table4.6:Number of Years involved in teaching

Number of Years involved in teaching	Frequency	Percent
1-5	3	6.0
6-10	25	50.0
11-15	12	24.0
16-20	2	4.0
20+	4	8.0
Total	46	92.0
Missing System	4	8.0
Total	50	100.0

Data from the table above shows that a large percentage of teachers have worked for more than 6 years. These was due to the fact that the majority of teachers were trained and employed between 2004 and 2008 following the implementation of the Secondary Education Development Plan (2004-2009). The plan contributed to the establishment of many Community-Government Secondary Schools in the country. On the other hand there has been teacher's

retention and employment from one secondary school to another for the purpose of looking for better payments and other fringe benefits. The implication of the teachers working experience among the respondents is that, they were in position to give out their ideas related to the study as it is popularly argued that experience remains the true teacher of history.

4.8 Perception about Education for Sustainable Development

The findings following the items asked to get information on how teachers perceive the concept of ESD reveal that most teachers have little concrete awareness and understanding of the concept of Education for Sustainable Development this is because of the fact that 98% are in the concept that ESD is about balancing human, economic, cultural and natural resources wellbeing while 34% are moderate which is a misconception from the real given concept of ESD globally. This result collarets exactly with what Mukoni, (2012) findings. It is ten years since these findings but up to now some teachers in Tanzania schools still have no clear understanding on the concept of ESD as it shows in the table below:

A: Perception about Education for Sustainable

s/n	Perception	Least		Less		Moderately		Highly		Very highly	
		n	%	n	%	n	%	n	%	n	%
1	Emphasize on culture and peace	3	6.0	4	8.0	23	46.0	13	26.0	7	14.0
2	Deals with economic, social, environmental development	3	6.0	9	18.0	19	38.0	12	24.0	6	12.0
3	Balancing human, economic, cultural and natural resources well being	10	20.0	20	40.0	17	34.0	2	4.0	49	98.0
4	Emphasizes the gender equality	1	2.0	4	8.0	16	32.0	18	36.0	6	12.0

5	Emphasizes on environmental degradation	3	6.0	15	30.0	9	18.0	17	34.0	5	10.0
6	Much more about future generation needs			9	18.0	20	40.0	17	34.0	4	8.0
7	Minimizes the use of natural resources and reduce waste products	2	4.0	12	24.0	19	38.0	10	20.0	6	12.0
8	Helps people to be out of poverty	1	2.0	9	18.0	20	40.0	18	36.0	2	4.0
9	Does not require business to behave responsibly			12	24.0	21	42.0	17	34.0		
10	Support culture diversity	2	4.0	6	12.0	24	48.0	15	30.0	2	4.0
11	Can help young to get employment	4	8.0	8	16.0	16	32.0	15	30.0	7	14.0

In the respect of the concept of ESD the findings show that teachers did not understand the concept and could not integrate sustainability into an already existing curriculum. This suggests that more effort is needed in training teachers on sustainable education so that they can diversify sustainability issues in education and this is due to lack of source of materials such as reference books and internet facilities as one of the teachers claimed that:

> *"I haven't attended any seminar or training on ESD now how one could expect me to teach ESD effectively while I don't understand even the definition of ESD? Had I have related books or internet I could probably make an effort to such materials on my own using my own laptop".*

This concurs with what Jaspar (2008) found in his study on teachers conception about ESD that teachers must be well equipped with enough related facilities to make them motivated to look for more information about ESD through internet.

It can be said that nearly all teachers can be classified as those who perceive ESD as teaching about the fragility of the environment and its resources and its importance to the future generations. These teachers demonstrated a lack of understanding of the concept and the importance ESD places on developing peoples values and attitudes necessary for the development of a sustainable and caring use of the environment for their benefits and that of the future. This may result in a relatively narrow end product, typically involving the learning of specific knowledge and skills.

4.9 Inclusion of Sustainable Development Elements in Education Curriculum

The researcher intended to know if the current secondary curriculum has ESD elements included. The collected data from the field reveal that teachers are not very sure which topics covers the concept of ESD as to most of the respondents have moderate understanding on which subjects and areas in their daily teaching talking about ESD as it is shown in the table below:

B: Inclusion of Sustainable Development Elements in Education Curriculum

s/n	Inclusion of ESD	Least		Less		Moderately		Highly		Very highly	
		n	%	n	%	n	%	n	%	n	%
1	Attended workshops on education for sustainable development	13	26.0	8	16.0	21	42.0	3	6.0	5	10.0
2	Curriculum of formal and informal teaching and experiences provided by a school	3	6.0	5	10.0	24	48.0	14	28.0	4	8.0
3	The school curriculum considers the need of the	4	8.0	6	12.0	24	48.0	12	24.0	4	8.0

	students' knowledge and values										
4	School calendar consider the community activities for students' participation	6	12.0	6	12.0	19	38.0	14	28.0	5	10.0
5	Teachers are flexible and skilled in accessing and integrating knowledge from different sources and disciplines	2	4.0	5	10.0	18	36.0	18	36.0	6	12.0
6	Ministry and School board emphasize teaching about sustainable development	2	4.0	11	22.0	17	34.0	13	26.0	7	14.0

The table above shows that 24 (48%) are at the opinion that curriculumof formal and informal teaching and experiences provided by a school, 24 (48%) are on the opinion that the school curriculum consider the need of the students' knowledge and values, 21 (42%) are moderately attended workshops on ESD , 19 (38%) are at the opinion that the school calendar considers the community activities for students participation and 13 (26%) are least attended workshops on ESD. Due to this findings it shows that most teachers has a little idea of which subjects and topics are included in the existing curriculum because they are at a moderate and least knowledge about the curriculum and the incorporation of ESD.

During an interview one of the head of schools said;

> *"I can remember that in the Geography and Chemistry subjects there is some topics related to ESD, but the problem we face here not all teachers have an idea on which topics reflect sustainability education and only two teachers attended a one week seminar on ESD in my school, so still it is a problem".*

This statement relate to what Stralin and Wiman (2009) found in their study that the most connections to sustainability issues were in the syllabus of Geography.

The findings revealed that the implementation of ESD is not the same in the

visited schools during the research. In some schools the ESD topic is agued to be found in geography subject while other schools found it in science subjects particularly in Chemistry and Agriculture respectively. This findings concurs with that findings of Dumbutzo, (2005)

4.10 Classroom Teaching about ESD

From the findings it is an obvious fact that teachers have mixed ideas on the implementation of ESD in classroom activities. As it is reflected in the table that only 22% who can easily point where to include issues of ESD in the curriculum and only 20% of the respondents who in highly noted to know that sustainable development issue included in course objectives and students needs considered. The findings reveal a mixed experience on the classroom teaching activities, in other words there is no common understanding on the classroom implementation of ESD. The table below shows the mixed ideas from the respondents:

C: Classroom Teaching about Sustainable Development

s/n	Classroom Teaching	Least		Less		Moderately		Highly		Very highly	
		n	%	n	%	n	%	n	%	n	%
1	Can easily point where to include issues of SD in the curriculum	5	10.0	5	10.0	16	32.0	11	22.0	3	6.0
2	Sustainable development issue included in course objectives and students needs considered	1	2.0	15	30.0	19	38.0	10	20.0	1	2.0
3	Students subject clubs mostly discuss issues pertaining sustainable development	5	10.0	6	12.0	20	40.0	11	22.0	4	8.0
4	Teaching methods	5	10.0	6	12.0	14	28.0	17	34.0	3	6.0

	encouraged inclusion of sustainable development issues										
5	Class teaching sessions normally emphasizes critical and creative thinking	2	4.0	6	12.0	13	26.0	22	44.0	3	6.0
6	Teaching aids used in class emphasize on critical and creative thinking	3	6.0	9	18.0	14	28.0	17	34.0	3	6.0

The study revealed that 22 (44%) teachers they were on the opinion that class teaching sessions normally emphasize critical and creative thinking while 17 (34%) teachers were on the opinion that the teaching aids used in class emphasize on critical and creative thinking. The difference of 10% makes an arguable due to the fact that without enough teaching aids the learning process cannot take place effectively. On the issue of teaching methods of ESD 17 (44%) teachers were on the opinion that the methods encouraged inclusion of sustainable development issues. This suggests that there is a need to think on how the ESD can be taught in the classroom. The study also found thatTeachers,11 (22%) were on the opinion of using student subject clubs at highly rate while 20 (40%) teachers at a moderate rate recommended the use of subject clubs. These ideas suggests for use of different approaches in teaching ESD.

During an interview one teacher commented that;

> "*Currently our classes are overcrowded of which it makes very difficult to help individual student, what we normally do is either through debate or sometimes in clubs or lecture method which is not recommended at this level but the situation forces us to use it otherwise you can't afford to complete the syllabus*".

Similarly, the research of Anyolo (2015), suggested that ESD should be taught through different approaches. In an interview conducted during the research some teachers lamented that;

> "*we have a little knowledge of ESD with the current curriculum it will be very difficult to teach a new subject because the one we have*

is very compressive full of demand"

This lamentation suggests with the current curriculum it is not easy for to teach ESD as a new subject. These findings are similar to what Watanabe (2015) findings and he suggested that teachers with little knowledge on ESD found it hard to be taught because of the overcrowded curriculum. It becomes very difficult for them to accept the inclusion of ESD as a separate subject.

4.11 Challenges in Implementing Education for Sustainable Development

Participants were asked to respond on the challenges in implementing sustainable secondary education in their schools, it was noted that the most challenges on this are the community who are not aware about what sustainable education means to this therefore, there is no cooperation between the school and the community. It was also noted that the concept of ESD is very complex in which among teachers themselves are not having a common understanding. The findings revealed that teachers see that it is very expensive to implement ESD following with 14% who see there is no policy which emphasize for the sustainable development and again 14% said sustainable education is not prevalent in popular cultures as shown in the table below.

SECTION D: Challenges in Implementing Sustainable

s/n	Challenges	Rank in percent									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Community is not aware about sustainable educational	18	10	6	8	10	10	2	6	4	8
2	The concept of ESD is very complex	18	12	12	18	6	2	2	2	4	12
3	It is very expensive in implementing ESD	18	6	6	2	12	10	6	6	4	4
4	There is no policy which emphasize for the sustainable development education	14	14	10	2	6	2	18	4	2	8
5	Sustainable Education is not prevalent in popular	14	6	8	10	12	6	2	8	12	2

	cultures										
6	The ESD is not featuring in the Curriculum	10	6	18	12	8	12	2	10		2
7	ESD Program with Community Participation have not been done	8	12	6	24	20	4	10			2
8	Issue of responsibility among ministries and who have a stake in ESD	8	8	18	2	10	6	8	6	4	4
9	Engaging Traditional Disciplines in a Trans-disciplinary Framework is difficulty	6	8	16	6	10	8	2	4	8	6
10	Develop realistic strategies to quickly create knowledgeable and capable leadership	6	4	6	10	6	8	4	4	6	20

Data from the table showed that 18% are on the opinion that the community is not aware about sustainable education. To this therefore, it becomes difficult for the students to translate what they lent at school to the real life in the society. Nevertheless, the policy on ESD is silent there is no clear guidelines on the implementation of ESD from the respective ministries. Following this situation two teachers of different schools commented that;

> "*I know that currently there are two ministries which overseeing education. One is dealing with policy formulation while the other is dealing with the daily follow-up and evaluation. But up to now neither the Ministry of Education, Science and Technology nor the Ministry of President's Office Regional Administration and Local Government Authorities has produced any document concerning ESD now, how can we implement it?"*
>
> *"Our responsible ministries in running the education they haven't supply a clear guideline on how we can implement ESD in our schools, we just read and hear over TVs and radios. Some teachers are not scientists are for other social subjects it is impossible to identify where can I find the ESD related topic to be taught"*

With the second teacher ideas it revealed that there is a need of a new curriculum which ESD can be included. These findings is similar to that ofArmstrong (2011) who found the lack of concrete direction of the concept and the curriculum focuses more on problems related to subject matter, rather than the subject matter taken singularly.

During the interview one of the head of schools has claimed to find some barriers in implementing ESD. He said that even the students are not in favor of the new ESD idea as a subject to be taught because their teachers have no interest so even the students are not motivated. He added some other barriers which he thought to hinder the implementation of ESD such as time constraints, unavailability of teaching and learning materials, lack of teacher training and limited ESD content in some syllabi. This argument relate with that of Anyolo, (2015). This suggests that, there is a need of integrating ESD in other subjects informal and formal curricular.

The table above showed that 18% were on the opinion that the concept of ESD is very comlex of which made them to find the implementation to be complicated. This suggests that they lacked with holistic understanding of ESD concept among the teachers, to this it more difficult also to identify specific activities during teaching and learning process as reflected in Watanabe (2015) findings.

4.12 Other main constraint for implementing sustainable secondary education

From the study it was learnt that 12 (36%) consider that the implementation of ESD is not easy due to lack of inadequate fund to run the programme while 11 (33%) again agreed that the community is not aware on the ESD which makes difficult to be implemented and 8(24%) found the implementation of ESD faces lack of teaching materials and education facilities as an obstacle as the whole picture of the noted constraints be noticed in the table below.

Other main constraint for implementing sustainable

Other Main constraint for ES	N	Percent	Percent of Cases
Inadequate fund to run the Programme	12	15.2	36.4
Community not aware on ESD	11	13.9	33.3
Lack of teaching materials and education facilities	8	10.1	24.2
Shortage of skilled teachers / personnel	7	8.9	21.2
Poor community engagement in education issues	7	8.9	21.2
Poor infrastructure	4	5.1	12.1
Lack of teaching professionals for ESD	4	5.1	12.1
Poor method of implementation of the ESD	3	3.8	9.1
Poor technology at school	2	2.5	6.1
Lack of important tools for secondary school education	2	2.5	6.1
Shortage of social services	2	2.5	6.1
Political interferences on education matters/ programme	2	2.5	6.1
The concept of ESD is very complex to the society	2	2.5	6.1
Teachers not involved in development of curriculum, but implementations	2	2.5	6.1
Language barrier to the students	2	2.5	6.1
Plans for ESD not consider the role of expertise in ESD	2	2.5	6.1
Low number of secondary school teachers	1	1.3	3.0
Shortage of laboratory equipment	1	1.3	3.0
Low privilege in education/ low budget for ESD	1	1.3	3.0
Implementation of ESD is very expensive	1	1.3	3.0
Low follow up made by Government on the important of education	1	1.3	3.0
No policy that emphasizes on education as icon of life	1	1.3	3.0
Policy based more on planning over the implementation	1	1.3	3.0
Total	**79**	**100.0**	**239.4**

4.13 Other opinions necessary for the ESD

Respondents were asked to provide their opinions on how better can the ESD be implemented in schools. Their opinions are given in the table below.

Other opinions necessary for the ESD

Opinion on ESD	N	Percent	Percent of Cases
Increase awareness on sustainable education	6	17.6	19.4
Provision of ESD to all education stakeholders	4	11.8	12.9
Involve all stakeholders in planning and implementing ESD	4	11.8	12.9
Government should pay attention on engaging community and their opinion on ESD	3	8.8	9.7
Government should allocate more resources to implement the programme	3	8.8	9.7
Improvement of working environment for teachers	2	5.9	6.5
Provision of equitable services for all students to improve learning process	2	5.9	6.5
Insure implementation of education plan are done by all stakeholders	1	2.9	3.2
Poverty is an opinion for ESD	1	2.9	3.2
Education system should prepare for self-employment	1	2.9	3.2
Education should be provided for all stakeholders	1	2.9	3.2
Help both teachers and student to be creative	1	2.9	3.2
Government should provide short courses for teachers on ESD	1	2.9	3.2
Government should make a follow up on running education	1	2.9	3.2
Improve curriculum to reflect the reality and technology	1	2.9	3.2
Teachers should be engaged in developing curriculum	1	2.9	3.2
Education should be provided via publication and seminars to emphasize the teachers	1	2.9	3.2
Total	**34**	**100.0**	**109.7**

The outcome of the questionnaire showed that 19% were on the opinion that there is a need to increase awareness on ESD concept so that teachers and the community are well informed and make sure that all education stakeholders are provided enough knowledge about ESD. It was also noted that it is necessary to involve all stakeholders in planning and implementing ESD

instead of just being given instructions on how to implement.

The study reveals that the concept of ESD for teachers of secondary school in Morogoro urban is not clear to both of them. Since most of them (98%) are highly at the perception that ESD is all about balancing human, economic, cultural and natural resources wellbeing, 46% are on the perception of ESD is emphasizing on culture and peace, 38% perceive that ESD deals with economic, social and environmental development, there are also 36% who perceive that ESD deals with the gender equality with only 8% got the correct definition of the Education for Sustainable Development.

5.0. CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

This chapter discusses the results of this study in light of the research questions and the literature reviewed in chapter two. Relevant themes that merged from the findings will form the basis of the discussion, supported by the literature.

According to the System Theory, regards the nature of scientific analysis needs to be changed (Ackoff, 1998). It is through ESD those changes can be achieved. The theory regard schools as the social organization which built by input-output where the energy coming from the output can make the system active and productive (Turner, 1991). The findings of this study revealed teachers' lack of understanding on the concept of ESD. With this, it is very difficult to expect changes to be achieved in the society. In order to achieve this the government should take ESD as a national project and learn from the successful counties on the implementation of ESD.

The present generation should be taught not to exhaust resources for future generations and close gap in resource use. In order to meet this teachers should be equipped with enough knowledge on ESD and brought it up as a subject of discussion in most topics of the syllabus and curricular and train teachers on sustainability education. Not only that but also make the communities develop sustainability goals, local education systems which can modify existing curriculum to reinforce those goals. Teachers are among the society they can contribute positive ideas on how to enrich the curriculum so as to meet the intended goals of ESD.

Education for Sustainable Development is thus a key supporter and enabling the attainment of sustainable development goals universally. The findings of this study showed that the ESD is not included in the existing curriculum due to this end, effort should be made toreview the curriculum and include ESD so as to train teachers during their teacher training courses and develop syllabuses and teaching and learning materials which meet this need following with the reorientation of the pedagogy and the learning process.

5.2 Teachers' Perceptions and Experience on Education for Sustainable Development in secondary education

During classroom observations it was noted that some students had a little bit idea on the ESD while others (majority) not. It is therefore, the concept should be introduced from pre-schools levels to high schools and in orderto make this understandable let the local government be involved on how the ESD can be implemented according to their surroundings.

The data on the secondary school teachers' perception and experience for Education for Sustainable Development, classroom ESD teaching, ESD inclusion in the curriculum in the whole school activities were discussed and presented.

On the table shown in chapter four presents that teachers` awareness, knowledge, experience and perceptions on ESD is something related to balancing human, economic, cultural and natural resources as well as being with cultural traditions and respect for the earth's natural resources. In this finding, show that secondary teachers` on some aspects of ESD is at somewhat level, inparticular, the teachers perceive that ESD promotes culture

and peace, minimizes the use of natural resources and reduce waste product, help young to get employment, deals with economic, social and environmental development. Cultural values like solidarity, equality, democracy, respect, tolerance, and social justice and interdependences. They also understand that ESD encourages learners to look at the roots of an issue before taking action and that ESD considers environmental damage to be reversible. On the other hand, only 4 (8%) of the participants were at the global agreed definition of the concept of ESD. This suggests that ESD is not very clear to all teachers and it's very difficult for changes to take place in Tanzania. It also suggests through teachers' in-service training is very important in order to entails learners to forecast possible futures based on different scenarios; ESD is mostly teaching about natural surrounding and information about sustainable development. These results clearly show that secondary teachers participated in this study demonstrate their incomplete understanding of ESD concept.

With these misconceptions of teachers on the term ESD they could not therefore, integrate sustainability in an already overcrowded curriculum. To engage teachers in integrating sustainability into the curriculum they also need to be active curriculum planners themselves. Furthermore, active curriculum planners need to be equipped with adequate professional knowledge and personal practical knowledge (Kabadayi, 2016).

The overall findings of this research are in line with the research of Tomas et al., which supports the inclusion of Education for Sustainability for teacher education at pre- service stage. According to their research the students of B.Ed. have shown positive change in their attitude and knowledge about

issues of sustainability after completing the course on education for sustainability (EFS) during their first semester of B.Ed. program and the students also found it relevant to their training program. Similarly, the research of Andersson, Jagers, Lindskog and Martinsson (2013) also reported a positive effect on the attitude of student teachers towards social and environmental problems after studying the course on SD during their pre-service teachers training program. This research further argued that ESD can be easily transferred to communities through teachers as teachers play effective role in molding the opinion of students towards a positive change. To this, Tanzania would also have to think on how the existing curriculum can adopt and include such knowledge as teachers suggested during this study.

The research of Symons (2008) also reflected positive concerns for training of teachers about ESD (Education for Sustainable Development) during their education before service. Their research has reflected that the poor knowledge of the components of sustainable development aroused from the lack of training of teachers, therefore they cannot train the students properly for issues of environment of their local context. Similarly, the study of Tuncer et al., highlighted the importance of environmental literacy for pre-service teacher education. They conducted research on students of pre-service teacher education and found that the problems of pollution, poor utilization of natural resources and wastage of water are the serious issues to be addressed in teacher education at the stage of pre-service. Research of Chinedu et al. (2018) also supported the need of reorienting teacherstraining programs by integration of Economic social, and environmental elements of ESD in curriculum of vocational teachers training programs. The study of

Jumnai&abbasi (2015) also reflectedthat the concept of ESD is missing in the objectives of teachers training programs and teachers have inadequate knowledge about ESD (education for sustainable development), their research supported the revision of teacher education programs in the light of current social and economic needs as low level of tolerance and extremism have adversely affected the society. This is also true to Tanzania schools. Teachers who participated in this study has shown a great concern for Tanzania government to start thinking on how the ESD concept and its applicability can be included in the Teacher training package at all levels.

Despite being positive attitude towards ESD, the teachers` teaching skills to integrate ESD concept into their teaching subjects are not at satisfactory level as shown in chapter four tables. It is only 4 (8%) participants with very highly responded that they are using students' subject clubs mostly to discuss issues pertaining sustainable development. While only 3 (6%) they were agreed very highly that teaching methods encourage inclusion of sustainable development issues and 3 (6%) respectively responded very highly that teaching aids used in class emphasize on critical and creative thinking and again only 3 (6%) responded very highly that class teaching sessions normally emphasizes critical and creative thinking. This findings replicating a former research on In-service teachers' perception towards Education for Sustainable development (ESD) in Myanmar (S. Aye et al. 2019).

The differences of how the teachers perceive the concept of ESD, having their willingness to teach ESD themes and their teaching skills in accordance with their teaching subjects are presented. According to the findings, science and geography teachers use more teaching techniques than the teachers who teach

other social science subjects at secondary school level. This finding is in line with that of Deghaidy (2012) who found science teachers implementing ESD through individual subjects. In his study he suggested that for learners to make meaning, either individually/ and/or shared, they need to reflect on their own experiences, leading them to develop more abstract understandings of their experiences (conceptualizing). Arriving at individual and shared meaning (constructing), learners need to get involved in a shared inquiry enriched through continuous reflection, re-conceptualization and active experimentation Deghaidy (2012).

5.3 The featuresof Education for Sustainable Development (ESD) in thesecondary education Curriculum

Educationfor Sustainable Development (ESD) is concerned with equipping individuals, communities, and governments to live and act sustainably and understand environmental, social, and economic aspects of sustainable development (Reid,2002). It focuses on improving the quality of environment, quality of life and a more equitable economic growth for sustainability.

In the study it was found that every subject teacher had it specific strengthens and weakness in ESD. Teachers of Chemistry, Geography, Physics and Civics considered in either way but different sustainability magnitude.

In this study, teachers in most cases has suggested the importance of the includingtopics on Education for sustainable development in teachers training which they think can bring positive effects on their awareness, training and practical classroom activities. This is lies with what Michail, Stamou and Stamou (2007) learned in their study conducted in Greece that the primary

school teachers in Greece have less knowledge of environmental component of ESD which resulted in their misconception of that ozone layer depletion is associated with greenhouse effect. Dealing with secondary school teachers in Tanzania, in this study they showed the same level of that of Greece besides being secondary school teachers. The concept of ESD is very unfamiliar to the teachers participated in the study, hence there is a need to develop a new Tanzanian curriculum which will include ESD as teachers' suggested during this study following the current shortfalls of the curriculum which is equipped with theoretical than practical knowledge which can make graduates to engage in various field work at their societies.

5.4 Education for Sustainable Development in the Classroom Activities

In the past Tanzania had Technical and agricultural secondary schools which ment for preparing students with practical knowledge after their completion of their school. These schools are Ifunda Technical School, Iyunga Technical school, Moshi Technical school Tanga Technical school, Mtwara Technical School and those of agriculture such as Kilosa, Ifakaara, Ruvu and Kibiti. Changes of policy has brought a negative effects to these kind of schools where by the school leavers are no longer equipped with practical knowledge on neither technical nor agriculture practices. As a result of this the curriculum is set in such a way that students are prepared for higher education and being dependant for government employment rather than for looking the available opportunities within the society. The teaching and learning process does not make the students to be critical thinkers, independent and self employed. Instead they become the ones who dewtroy the nature. There is a

need to prepare teachers before so that they can bring up the society to a positive change towards the nature. This is what Evans et al. (2012) research suggested that inclusion of a course on Education for Sustainable Development in programs of pre service teachers training is important for inculcating the concept in the minds of students in schools.

According to the findings of this study Tanzania needs to think of conducting In-service Training to teachers of every level first on the concept of ESD and make them knowlegible on how to implemet the concept in their daily teaching activities on incopareting ESD issues in the present subjects whether science or social sciences. It is here where the components of ESD namely extremism, peace and war, environmental issues, tolerance, hunger, poverty and other issues which threat the life and peace which is very important to be addressed by the teachers in class rooms. This is lies in line with what Jumani& Abbasi, (2015) found in their study conducted in Pakistan where they suggested to have a proper training for pre-service teachers during their course. The study of Anderson (2013) supports with what has been found in this study where teachers has suggested that the course on ESD can have positive effects on the perceptions of prospective teachers that how to teach the issues related to ESD to students in classrooms. Therefore, the shift of ESD to communities is essential to be held through teaching. The study of Esa (2010) also emphasized on inclusion of ESD in post service teachers training. This is true due to the fact that there are several ongoing changes within the culture of the environment and the human activities which leads to the unbalance of the nature.

It was learnt in the study that teachers had a different perspectives according to their teaching subjects but no one specialized in teaching ESD as a separate subject. In an interviews and questionnaires teachers acknowledge the teaching of topics that led to sustainability in their subject, such topics include sustainable development, environmental issues, nature conservation, tourism, and agriculture and gender issues. The findings relate to that of Anyolo (2015) who found the different teachers perspectives in the teaching of ESD.

During an interview teachers feared the introduction of a new separated ESD subject in the curriculum but they were in favor of integration of ESD within the existing subjects. This views could be the result of some lucking knowledge on teachers training in ESD, teaching method and poor students involvement in ESD activities in classroom and outdoor activities. To this, teachers failed to integrate ESD with other subjects most of them it was unknowingly. This still suggests the need of training. As it was noted earlier that teachers were not attended any known training on ESD, it is true therefore, teachers were teaching sometimes without knowing whether it is an ESD topic and sometimes they taught without knowing how it was to be taught.

Beside the little knowledge they had about ESD, still teachers managed at least to grasp ESD knowledge through various ways which it helped them to teach ESD most of them unknowingly.

Some teachers were claimed to use subject and students clubs to teach ESD. It was not noted during the study, in most cases lecture method was the dominant. This was due to the fact that student were not able even to describe what was ESD meant.

The Findings of this research revealed that the three major ESD components i.e. are environment, economic, social and culture were not aligned in most of the courses of two years Diploma in Education course and three years B.Ed. at the university in Tanzania. Head of schools interviews strongly supported that the courses of B.Ed. three years need to be revised and the main three components of ESD needs to be incorporated. The overall findings of this research are in line with the research of Tomas et al., which supports the inclusion of Education for Sustainability for teacher education at pre- service stage. According to their findings the students of B.Ed. have shown positive change in their attitude and knowledge about issues of sustainability after completing the course on education for sustainability (EFS) during their first semester of B.Ed. program and the students also found it relevant to their training program. Similarly, the research of Andersson, Jagers, Lindskog and Martinsson (2013) also reported a positive effect on the attitude of student teachers towards social and environmental problems after studying the course on SD during their pre-service teachers training program. This research further argued that ESD can be easily transferred to communities through teachers as teachers play effective role in molding the opinion of students towards a positive change.

This findings support the views given by the Head of schools during an interview conducted to gathering their what comments they give through their experience in ESD teaching in the existing teaching and learning process in the classroom activities for the current situation.

" it is not easy to teach ESD in our classrooms, we as teachers we know

nothing so do our student has no even a mere idea on the concept, what do you expect to be done on this ground? We just receive orders and we remain as usual because there is no clear and common understanding among teachers what should be taught " (one of the head of school commented)

The findings of this research have revealed that there is no clear teaching and learning materials produced for ESD in all sample schools participated in this research. It was learnt to be harder for teachers to impart ESD concept and knowledge to the students. It was found that only geography and chemistry books contain at least some little ideas of ESD which can be used to relate the concept and the environment activities within the society. Some teachers suggested to in-corporate Economic social and environment so that they can be taught to students for sustainable environmental conservation. This idea was also the findings of Chinedu et al. (2018). Teachers with lack of component of sustainable development knowledge they can't train the students properly for issues pertaining environment of their local areas, more effort is needed to equip teachers on the concept and practability of ESD.

5.5 Teachers' opinion on the implementation of ESD

Teachers see the ESD is not well known to teachers and the community at large, to that they suggested to introduce a very wide country campaign in building awareness to the community. This kind of campaign should involve all stakeholders right from the planning stage so as all to have a common understand and what goals to be achieved. This idea is valid with the reason that, there are some leaders also they have no facts about ESD and make them

aware of current social and economic needs for sustainable development.

Teachers had an opinion that, there is a need for the government to see how ESD can be sustainable. For this therefore, there is a need of creating more sustainable future by reviewing the content and relevance of the current existing education offered to the students. A clear statement with a standing political will should be announced and make it compulsory to all stakeholders and the community. In other words the government has to develop a public understanding and awareness of ESD.

The concept of ESD seems to be unclear to not only teachers but also to other education practioners and stakeholders as well, it is important for the government to provide training to all working sectors so as to develop a positive attitude which will lead them to perform their work basing on sustainable manner and make this as a critical component of education for sustainable development as a concept and it's applicability. The concept of ESD seems to be strong at secondary school level, by this there is a weak foundation. It should be known from the primary schools through practical things such as having environmental clubs, subject clubs and some sort of an academic debate on ESD. This kind of strategy should be insisted by the government with clear guidelines.

The research of Symons (2008) also reflected positive concerns for training of teachers about ESD (Education for Sustainable Development) during their education before service. Their research has reflected that the poor knowledge of the components of sustainable development aroused from the lack of training of teachers, therefore they cannot train the students properly for issues of environment of their local context. Similarly, the study of Tuncer et

al., highlighted the importance of environmental literacy for pre-service teacher education. They conducted research on students of pre-service teacher education and found that the problems of pollution, poor utilization of natural resources and wastage of water are the serious issues to be addressed in teacher education at the stage of pre-service. Research of Chinedu et al. (2018) also supported the need of reorienting teachers training programs by integration of Economic social, and environmental elements of ESD in curriculum of vocational teachers training programs. The study of Jumnai&abbasi (2015) also reflected that the concept of ESD is missing in the objectives of teachers training programs and teachers have inadequate knowledge about ESD (education for sustainable development), their research supported the revision of teacher education programs in the light of current social and economic needs as low level of tolerance and extremism have adversely affected the society.

5.6 Challenges to effective Implementation of ESD in Tanzania

Lack of teachers' motivation can also be a result of lack of awareness and interest in the environment on the side of the teachers. The findings of Majundar (2012) found the same to the students, in this study teachers had the same opinion. It is therefore suggests that to motivate the teachers in any possible ways is very important because this could make teachers self awareness on the sustainability issues such as environment, hunger and gendar.

Teachers didn't consider that the present time in their daily school/class timetable can be utilized effectively with the inclusion of ESD in their current

subjects and topics. They were on the lack of time as an obstacle. Such ideas could be resolved by conducting seminars and in-service training.

Teachers found lack of teaching and learning materials as a big problem for them to teach ESD effectively. This found to be a problem from the curriculum. Books can't be produced without outlining the needed books from the curriculum. The findings of this study suggests that the availability of books as it was used to be, the teaching and learning process could result to lecture method rather than participatory or student centered method.

Teachers found themselves incompetent in teaching ESD because they haven't attended any training to be equipped with clear knowledge on ESD. With this the following are the also the found challenges on the implementation of ESD.

1. ESD faces the challenge of being unclear to most of the teachers and education stakeholders, hence it makes difficult to be implemented as it was supposed to be delivered to students.
2. ESD is not included as a separate subject in the current existing curriculum neither in science nor in social subjects.
3. As education in Tanzania operating under two different ministries it is unclear which one is responsible to insist and make a follow on what to be done as far as ESD is concern.
4. The introduction of ESD in schools will need extra funding for material production and in-service training hence it makes it something in debate and budget by the responsible authorities.
5. There is no clear policy which emphasizes on Education For Sustainable Development (ESD).
6. ESD program with Community Participation have not been done

The study shows that there are some other related challenges to teachers experience in successful implementation of ESD in schools. Teachers were complaining the overcrowded classrooms will make them to be overworked if some other elements will be introduced in their curriculum in other words, they will have no enough time to implement. This view concurs with the findings of Kanyimba (2002) who found the same experience in the research conducted in Namibia. It was also revealed during the research that teachers lack knowledge and skills and resources to effectively implementation of ESD in class activities. Since the ESD is looks to be like a new concept for teachers they need training and equipped with enough resource for better and effective implementation of ESD in schools.

5.6 Conclusion

This study explored Tanzania Secondary School teachers' perception and experience on Education for Sustainable Development (ESD). The findings of the study revealed that teachers had very low knowledge on ESD. Not even a single teacher managed to give a clear definition of the concept of ESD. On the other hand, teachers experience on the teaching of ESD the study discovered that classroom activities were not clear whereby some teachers claimed to find some elements of ESD in Geography and Chemistry subjects while others mentioned other subjects and the least had known nothing. It was also noted that the application of an appropriate pedagogical on teaching ESD was poor due to the fact that teachers themselves were having poor knowledge on the concept of ESD.

Due to this it is suggested that ESD should be taught as a topic in various subjects which are in the package of secondary curriculum with bearing in mind to start with training the teachers after reviewing the current curriculum.

Teaching ESD need participatory and practical works which will help the students to clutch more internalization of the concept than lecture method as student needs to be developed in independent learning of which they can echo from what they learnt in class to the community which will also lead them to improving welfare.

The findings have shown that even with the ease of use of local resources it is not enough to prepare teachers to transfer their perceptions into practical activities. Thus, there is a need for longitudinal studies and holistic curriculum development to further survey and overcome teachers' internal and personal berries and pedagogical knowledge.It is true that ESD is best if every stakeholder has an insight about it and be implemented when issues are addressed in multidisciplinary ways and across curricular.

6.0 CHAPTERSIX

6.1 RECOMMENDATIONS

This chapter presents the recommendations on how ESD can be improved and implemented in general terms.

The findings based conclusion revealed that the concept of ESD is still something unclear to head of schools and classroom teachers. To this the government has to think of reviewing the current curriculum and include this concept in both primary and secondary academic package as teachers' strongly recommended the revision and inclusion of the concepts and components of ESD in the courses of B.Ed. 4years elementary program and that of Diploma in Education for Primary School Teachers. The found ESD elements in some topics within the existing curriculum do not meet the intended achievements. The sustainability should focus on the environmental conservation, social & cultures along with its sub components are not aligned in the teachers' courses.

The issue of ESD needs community participation, due to this fact there is a need of increasing community awareness on what it means of Education for Sustainable Development. This will make the community to create an effective ESD environment that will integrate the classroom theories on ESD and real practical in life.

It is better to make sure that the two responsible ministries for education launch ESD campaign all over the country so as the concept of ESD is clear to all education stakeholders. Currently it seems the ESD knowledge is only

within the ministerial officials while most teachers and other implementers they know nothing.

The implementation of ESD needs collective participation among the people, it is recommended therefore all stakeholders are involved from the planning stage instead of just asking them to implement something which is not clear to them neither teachers nor the community.

It is also recommended that the government should pay attention on engaging community and their opinion on the implementation of ESD.

ESD looks to be a new concept to the majority. Due to this fact more time is needed for senstanization of the people. So, inorder to implement this the government should allocate more resources in the implementing this program.

ESD is a new concept; hence it needs equitable services for all students to improve the learning process. This is including improving of the working environment for teachers so as they can deliver the intended knowledge in classroom activities.

Critical pedagogy of sustainability education should link with political economic, social, cultural and ecological facets of this global and local phenomenon.

ESD should be taken as a tool for raising levels of nutrition and standards of living, environmental conservation, improve the conditions of rural populations eradicate hunger, wand make university graduates independent by having full capacity of independent than depending on public employment.

Currently access to education is no longer an issue, stakeholders should now put an effort on promoting quality education through ESD national strategies which will lead to the overcoming of the global climate change.

School and ministerial leaders should adopt ESD management practices to complement and support ESD in the curriculum. With teacher education and training opportunities in place, there is also a need for strong educational leadership of principals and teachers, including high expectations towards teachers and management support.

School administrators also need to adopt new management practices and structures of which will give them an insight on what to evaluate if the intended goals have been achieved.

It is important therefore, to review national strategies to ensure that there is a requirement for pre-service and in-service teachers' education provision to build capacity in the pedagogies

6.2 Final Remark

This study was qualitative. Therefore, cannot be generalize out of its context. Thus, the findings are contextually and socially indispensable for the developing countries especially south of Sahara in overcoming the future generation and its activities in this planet.

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5 OTHER RELEVANT INFORMATION

5.5 Financial arrangements

5.5.1 Source of the required funds for the study

This study is self-sponsored and is expected to be accomplished in four (4) phases. The whole study is expecting to cost 28,000,000/=Tanzanian Shillings as direct cost to the researcher.

Table 2 Study budget

ACTION	COST ITEM UNIT/RATE	AMOUNT
1. Prepare proposal 2. Consultations	1. DSA 20 days (Field, Dar - Researcher 100,000/= a day 2. Transport 300,000/= (lump sum) 3. Secretarial services 300,000/=	2,600,000/=
1. Orientation for research assist. 2. Finalizing proposal	1. DSA 10 days (Field, Dar) -Researcher 100,000/=	4,800,000/=

Consultation	-Research asst. 3 @80,000/= a day 2. Transport 1,000,000/= 3. Secretarial services 400,000/=	
1. Data collection I 2. Data processing and analysis I 3. Data collection II (filling data gaps) 4. Data processing and analysis II 5. Consultation	1. DSA 50days -Researcher 100,000/=a day/50 -Research asst.3@80,000/=a day/20 2. Transport 2,000,000/= (lump) 3. Secretarial services 600,000/= (lump)	14,400,000/=
1. Data presentation (writing thesis) 2. Consultations	1. DSA 20 days -Researcher 100,000/= 2. Transport, 800,000/=(lump) 3. Secretarial services 600,000/=(lump)	3,400,000/=
1. Refine thesis 2. 2.Consultation 3. Submit thesis	1. DSA 10 days (Dar) Researcher 100,000/= a day 2. Transport 300,000/= (lump) 3. Secretarial services 1,500,000/= (lump)	2,800,000/=
		28,000,000

5.2 **Duration**

The proposer time-table for the sequence of activities in conducting the research is presented in Table 3

Table 3 Tentative research work plan 2020- 2022

Action	**Jan - May**	**Jun**	**July -Dec**	**Jan- May**	**June**	**July**	**Aug**
1. Proposal write up							
2. Proposal defense							
3. Data collection, processing and analysis							

4. Thesis Writing							
5. Submission for Exam							
6. Thesis Defense and Incorporate comments							
7. Submission of final thesis							