



Assessment on the Implementation of Environmental Education in Secondary Schools in Arusha City

Onesmo B. Minja

University of Arusha

Email: minjaone3@gmail.com

Abstract: *This study investigated the assessment and implementation of Environmental Education in secondary schools in Arusha City. The study examined how environmental education is taught in secondary schools, activities regarding environmental education in school and challenges facing the implementation of Environmental Education in Arusha secondary Schools. The study used 110 respondents from five secondary schools in Arusha municipality where they were selected using non probability sampling. Several ways were used in collecting data, which were interview, questionnaires, and focus group discussion. Data was analysed using both qualitative and quantitative approaches. The study revealed that environmental education is taught as a topic or component within other subjects like geography, biology, agriculture, and physics. It also reveals that there are environmental activities and programmes in secondary schools like projects, environmental games, environmental clubs, campaigns on environmental concepts and collection of the solid waste that have the negative impacts to the environment. The following challenges were identified as facing school community: Financial, lack of support from the school administration, limited time for environmental education activities, lack of enough materials for teaching and learning of environmental education, Lack of cooperation among students, teachers, and between teachers and students, Unwillingness of some students and teachers. The study recommends that everyone is responsible in preparing students for the protection of the present and future environment.*

Keywords: Environment, School, Programs, Education, Arusha, City

How to cite this work (APA):

Minja, O. B. (2021). Assessment and implementation of environmental education in secondary schools in Arusha City. *Journal of Research Innovation and Implications in Education*, 5(4), 217 – 228.

1. Introduction

Man has been an inseparable part of the environment ever since his appearance on the earth, which was itself an outcome of environmental processes. In the beginning, limited needs of primitive men did not disturb the harmony of nature since the amount and quality of damages to the environment were insignificant. But in later years, growth of human population and its various needs as well as scientific and technological advancements, accelerated the pace of environmental degradation. Diminishing forests, loss of fertile soil due to salinization, soil erosion and urbanization, industrialization, depletion of mineral and power

resources, extinction of several living species, and growing pollution, are some of the examples which have led to present-day environmental crises (UNESCO, 1985).

In the 1960s, awareness of the negative impacts of mankind on the natural environment rose, and environmental policies and programmes worldwide were developed (Wagner, 2011). The organized global efforts started with the First United Nations Conference on Human Environment opened at Stockholm in June 1972. Consequently, United Nations Environmental Programme (UNEP) was formed and International Programme in Environmental Education (IEEP) was launched by UNESCO and UNEP in January 1975. Environmental

Education became centre of focus of environmental and educational movement after the Inter-Governmental Conference on Environmental Education held at Tbilisi in 1977 (Sonowal, 2009). It was later followed by the Brundtland Report 1987, the Rio Earth Summit 1992 and the Johannesburg Summit in 2002.

According to the National Environment Management Council (NEMC) 2004, environmental Education is a life-long process whereby individuals acquire knowledge, develop ethics and become environmentally aware/conscious, responsive and acquire relevant skills in identifying, managing, monitoring, evaluating and solving environmental issues and problems. Process that led to an environmentally informed and involved citizenry having the creative problem-solving skills, scientific and social literacy, and committed to engage in responsible individual and in cooperative actions.

Environmental education is more than learning about the environment. It is about changing behaviour in such a way that people will act for the Environment (New Southern Wales Department of Education and Training, 2001). The goal of environmental education is to aid learners in becoming environmentally knowledgeable and, above all, skilled and dedicated human beings who are willing to work, individually and collectively, toward achieving and/or maintaining a dynamic equilibrium between the quality of life and quality of the environment (UNESCO, 1994). This goal can be achieved through combining three approaches to environmental education, involving education ABOUT, IN and FOR the environment (Tilbury, 1995).

According to NEMC (2004) Environmental education matters in Tanzania were obviously proposed by the education and learning policy of 1995. This policy measured that issues entrenched in education for self-reliance and that these policies in practical terms should be implemented in schools.

One of the major setbacks is how these policies are implemented in schools. For many years EE in Tanzania is being applied using sector-focused initiatives (programs) in Forestry, Agronomy (agriculture), and community development extension programs but little emphasis is seen on the ground especially the lack of knowledge among the instructors on incorporation of EE in social science subjects (NEMC,2004).

According to Jambiya (2003) people's knowledge of environmental conservation was little even though they had attended school. The study by Mtaita (2007) also discovered that despite the fact that EE is incorporated in almost all subject in secondary schools particularly social science subjects of the curriculum since it is engaged by Tanzanian education policy, the training of EE seems to be not applied efficiently in the education system.

2. Literature Review

The need for environmental education was realized and emphasized during the United Nations Conference on Human Environment held in Stockholm in 1972 where they initiated efforts to establish programmes of environmental education at all levels, primary, secondary and tertiary level of education system and also to motivate the general public rural and urban areas about environmental awareness (Kumar, & Kumar, 2004).

The perception about education has a glaring example in Chinese proverb.

“If you plan for one year plant rice,
If you plan for ten years plant trees,
If you plan for 100 years educate people” (ibid).

Despite the fact that environmental education has been integrated in school curriculum since 1980s in many countries of the world, its implementation has been down due to the continuous environmental problems that are seen in the world. This called attention of many scholars to investigate if the environmental education is implemented in schools as directed in the curriculum of specific countries. For instance, the study done by Monde (2011) in Zambia, reveal that integration of environmental education has only been a success in science related subjects such as chemistry, physics, biology and agriculture, the other challenges were limited finances in securing teaching and learning materials for environmental education, limited text books on environmental education, making it difficult to teach and learn, rural schools particularly government schools lack adequate water supply to carry out environmental education activities. Another study done by Yildiz (2006) in Turkey addresses lack of lack of interest in teachers and parents, poor conditions of schools and lack of financial and material resources as the other burdens.

Environmental education has a long history in Tanzania, in 1967, when the Arusha declaration was pronounced by the late Mwalimu Julius K. Nyerere, it had a strong bias on education for self-reliance. It had a motive of education for production. Schools were supposed to be centres of production, including farming and other artisanal skills. Environment and natural resources management was not given the emphasis it deserved. Environmental education initiatives in Tanzania began in the early 1990s through the programmes launched by National Environment Management Council (NEMC), Ministry of Education and Culture (MoEC), Ministry of Natural Resources and Tourism (MNRT) and the World Wide for Nature (WWF) – Tanzania. The overall goal of these programmes was to use education to bring about attitudinal change and environmental stewardship. The initiatives began with awareness raising programmes for officials of the Ministry of Education and Culture (MoEC), school inspectors, teacher educators, heads of schools and a few teachers. Thereafter the Tanzania Institute of Education (TIE)

incorporated elements of environmental education in the primary and secondary school curricula (NEMC, 2004).

Although environmental education has been included in the school curriculum in Tanzania from the 1960s, the condition of the environment has not improved. Recent studies have found that the implementation of environmental education has not been successful. Evidence of environmental degradation in the form of soil erosion, poor waste management, water pollution and many other problems can still be observed in many schools and also in the communities around the schools. The school is part of the community surrounding the school, therefore it is expected that what the pupils learn in school should be reflected in society. Also it has been found that environmental education is not taught as intended in the schools (Kimario, 2011). For example the study done by Water Resources and Energy Management (WREM) International (2008) about the Mara River Basin Investment Strategy says that Mara River Basin is facing serious environmental problems primarily created wide spread encroachment on protected forests and other fragile ecosystems for settlement and cultivation.

In 1990's, the ministry of education in Tanzania articulated EE topics and combined them in different subjects of the curriculum in all education levels. In Tanzania, Environmental Education topics are incorporated into social studies subjects responding to the global apprehensions (Makundi, 2003). The apprehensions aimed at incorporation of EE contents into school subjects like science and vocational skills.

In Tanzania EE concepts in the syllabus are not clear in some subjects. When teachers have to incorporate them in the classroom they search for contents from other bases such as books, magazines, newspapers, and other sources, to search for related EE concepts to involve in their lessons (Mtaita, 2007). For example, in the science syllabi of primary school on the topics concerning air, the concept of air pollution was not mentioned but instructors are supposed to connect that EE concept in their lessons (MoEVT, 2005). According to Da Silva (1996) Tanzania investigators critiqued the sectionalization of subjects in institutes. He also mentioned that the wrongness of the method is because of the interdisciplinary and general nature of environmental difficulties. These problems occur in many areas despite the fact that a number of people have acquired the primary and secondary education. This suggests that there is a problem as far as the teaching and learning of environmental education is concerned. Therefore this study intends to find out how environmental education is taught in Arusha secondary schools and its implementation in and out of schools environment.

3. Methodology

3.1 Research design

This study used case study design. According to Farquhar (2012) a case study design is concerned with investigating single or multiple units of study using familiar research methods for data collection. In using the case study researcher is able to look in depth at a topic of interest or phenomenon. This study used both qualitative and quantitative approaches in analyzing data. Qualitative approach based on the presentation of data by using words or explanations, while quantitative approach data were presented by using charts, pictures and tables.

3.2 Sample size and sampling procedures

The study sample was made up of respondents from 5 different schools. Purposive sampling procedure was used to select 5 secondary schools in Arusha municipality which were Edmuntrice, ngarenaro, Mairiva, Arusha girls and Sombetini secondary schools and the sampling procedure differed from one group of respondents to another but for the head of the school and non-teaching staff all of them were used as the sample.

Selection of school teachers was done with the aid of the head of the schools that provided the staff lists and then names of respondents were selected by a simple random sampling method. This was done by attaching a number to each teacher on the list. The numbers were then written on separate pieces of paper, folded and put in a box. The researcher carefully shook the box and randomly picked pieces of papers from the box one at a time depending on the number of the teachers in the school choosing 10% of them but for the schools with less than 20 teachers the researcher used the same method for of selection of five teachers. This method was used to provide equal chances for all the teachers to be sampled. A total of 25 teachers in different schools, teaching subjects and with different qualifications were sampled.

The pupils were selected with the aid of class teachers and a total of 70 pupils were taken as part of the study sample from the five schools, they were selected by using judgmental sampling. The class teachers considered the samples (students) that were known to be intelligent and have an ability of giving accurate data. The researcher selected 5% of the students in each school where the sample differed from one school to another according to the number of the students. The researcher selected the total of 70 students from all schools.

This makes the total of 110 respondents in all five secondary schools selected.

4. Results and Discussion

The results were obtained from the respondents who responded to the research questions as will be shown below.

4.1 Meaning of Environmental Education

When the respondents were asked if they understood the term environmental education they responded as the pie chart shows.

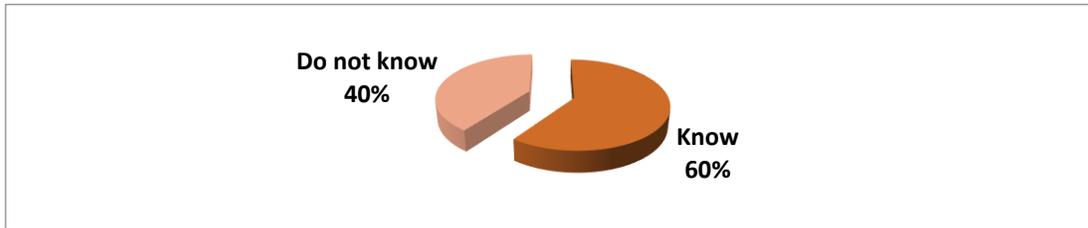


Figure 1: Understanding of the term environmental education

According to the data presented in figure 1 above, 40.1% of respondents did not understand environmental education while 59.9% of the respondents understood the term environmental education, whereby 20.6% understand it as a study of the environment or one's surrounding, where learners acquire knowledge on environmental benefits thereby making the learners to take care of that environment. 19 % of the respondents defined environmental education as using the environment sustainably. The other 15 % of the respondents understand environmental education as a component that gives Sustainable Development (SD) to an individual within social, cultural, economic, political and environmental set up in a given society. 10% understand it as an education about preservation and conservation of the environment and its natural resources. 35.4% understand it as the education for protecting the nature of our surroundings.

Hashim, (2015) stated that Environmental education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality.

4.2. How Environmental Education is taught in secondary school

This research question sought to establish how environmental education is taught in different secondary schools. Relating to this research question, the data collected showed that to high percent environmental education is integrated in other subjects in all schools.

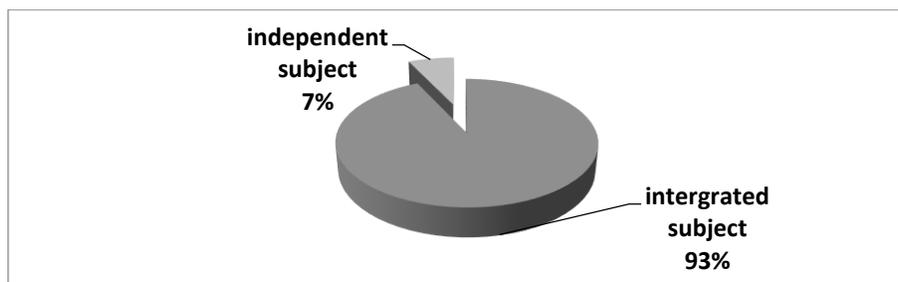


Figure 2: How Environmental Education is taught in secondary schools

According to the table above, 93% of the respondents said that environmental education is not taught as an independent subject, instead it is integrated in other subjects. While 7% of the respondents said that it is taught as an independent subject. Kimaryo (2011) commented that, This approach of integration has been adopted

following the deliberations of the international forums on how environmental education is to be included into the school curriculum. The approach also enabled schools to cope with an overcrowded curriculum and also to solve the problem of knowledge fragmentation.

4.3 Subjects environmental education is integrated with in school

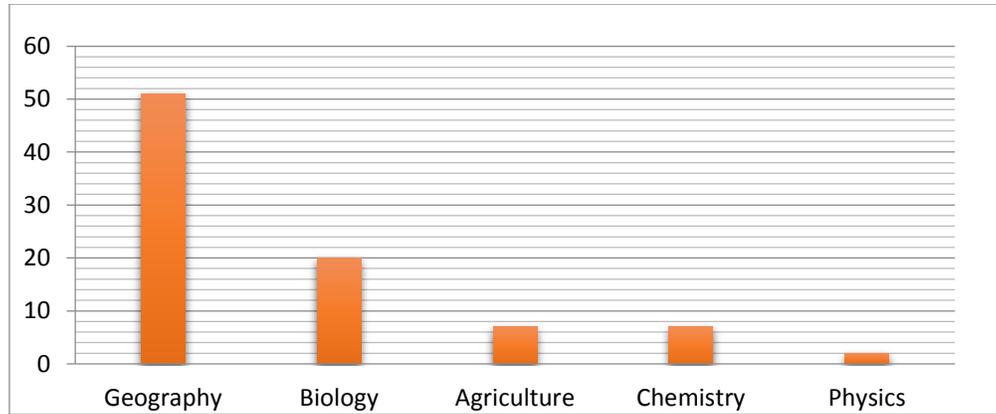


Figure 3: Subjects environmental education is integrated in school

Figure 3 above indicates that EE was not a single subject or component but rather made up of a number of other subjects and other aspects of life. Environmental education is incorporated in some teaching subjects in secondary schools. During the fieldwork the researcher discovered that 51 respondents said environmental education concepts are integrated in geography subject. 20 respondents said environmental education concepts are also integrated in biology subject. 7 respondents said that they are integrated in agriculture, 7 respondents said that it is integrated in chemistry subject, 2 respondents said it have concepts in physics. This indicates that EE has only been in some subjects and one respondent commented “*in subjects like civics which is the subject which is good at learning current issues that exists in the world, environmental education does not exist in the subject, the ministry in concern should try to reconsider this*”.

During the field, the researcher found out that despite the fact that environmental education concepts are taught within other disciplines, it is taught appropriately in some schools. Different methods are used when teaching students, one respondent said “*We use methods like, debates, group discussions, group work to co-produce reports (in geography) and presentations, practical works within the school environment. We find that at the end of the topic students can demonstrate and use the knowledge they have acquired and some have been using that knowledge to protect their environments at home*”

Yetisir and Kaptan, (2018) explained that keeping environment green using the curricula, the form of the institute as well as the relation between associates of education society have to be reliable in EE that has been suggested the whole education society like schools have to contribute in moving forward in inclusive functioning assurances,

4.4 Availability of environmental education teaching and learning materials in schools

One other item in the field was on the availability of teaching and learning resources such as books, pamphlets, journals, internet materials, video and audio materials to assist in the process of teaching and learning of

environmental education. The respondents were asked to indicate whether there were teaching and learning resources on EE in their schools.

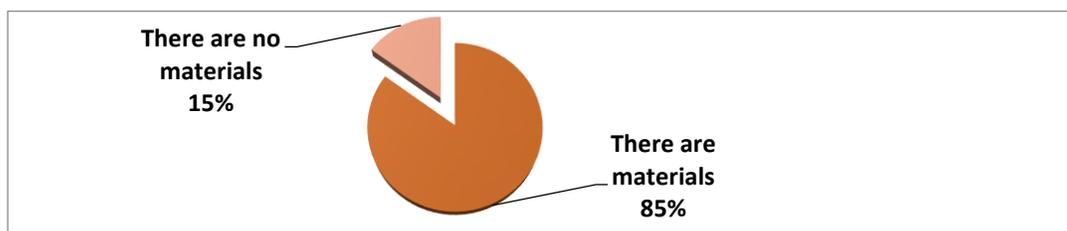


Figure 4: Availability of the materials for teaching and learning of Environmental Education in secondary schools

According to the findings, 85% of the respondents agreed that there were teaching materials on environmental education in their schools. However, all the 85% respondents indicated that these resources were environmental education topics which could only be found in the text books of already existing subjects. Other respondents explained that resources such as text books could be there in some subjects while in other subjects they could be lacking.

The 15% respondents indicated that there were no teaching and learning materials on environmental education in their schools. These respondents had commented earlier that EE was not being offered in their schools. The respondents indicated that this was one of the main barriers in successfully implementing EE in

secondary schools. One thing that was also clear was that there were no books specifically meant for environmental education because environmental education was integrated in already existing subjects.

The respondents also mentioned the kind of the materials that are found in their schools to assist them in teaching and learning environmental education concepts. 75% respondents said there are books, 14% said there are pamphlets, 4% said there are journals, 5% respondents said they use internet materials, and 2% respondents said that they use video and audio materials for teaching and learning. This indicate that there are materials available for EE teaching and learning but not independent materials but materials for other subjects that EE concepts are found.

Table 1: Available materials for teaching and learning of environmental education

Responses	Frequency	Percent (%)
Books	75	75%
Pamphlets	14	14%
Journals	4	4%
Internet materials	5	5%
Video and audio materials	2	2%
Total	100	100%

The table 1 above indicates that books are the most available materials for teaching and learning of environmental education followed by pamphlets. One respondent commented that *“other materials like video and audio are not available in most schools due to the fact that many schools have no enough money for buying them and even if they are available they are very local equipments to fulfil their destiny of applying them in teaching and learning”*. It also indicates that the use of resources like internet materials is not used in many schools. One respondent said, *“Despite the fact that internet materials are the most significant resources for current issues pertaining environmental protection, conservation and management, the lack of computers in this school hinder learning and teaching of environmental education concepts.”*

Kimaryo (2011) in her study said that, Since environmental education contents are not stated clearly in the syllabi for different subjects, when it comes to the actual teaching in the schools, teachers have to search for environmental content from different sources like books,

magazines, newspapers, and other sources, and find relevant environmental education content that are deeply explained to be included in the different topics and individual lessons.

4.3 Environmental education activities in secondary schools

Two items were addressed to the respondent with the aim of fulfilling this objective of the research. One was to find out if the EE activities existed in secondary schools and another was to find out if the school administration supported these activities that are carried out in their schools.

4.3.1 Presence of EE activities in secondary schools

It was also necessary to find out the occurrence of EE related activities and programmes in their schools. The aim of the question was to find out if there are EE activities in schools due to the fact that the EE needs to be more practical than theoretical.

Table 2: Percentage of EE activities in secondary schools

Responses	Frequency	Percent (%)
There are EE activities	73	76.8%
There are no EE activities	22	23.2%
Total	95	100%

The findings in Table 2 above shows that 76.8% of the respondents indicated that they had been exposed to EE activities and programmes in their schools where as 23.2% of the respondents indicated that they had never been

exposed to EE activities and programmes in their schools. Most of the respondents who said that EE activities and programmes are not available in their school are the ones who said earlier that EE does not exist in their schools.

Table 3: Activities that exist in Arusha secondary schools

Responses	Frequency	Percent (%)
Clubs	56	59%
Games	3	3.2%
Projects	13	13.7%
Campaigns within the school	4	4.3%
Collection of solid wastes	19	20.1%
Total	95	100%

The table 3 above shows the EE activities that exist in Arusha secondary schools. During the field the researcher discovered that 59% of the respondents say that clubs exist in their schools. The time is reserved once per week for clubs in many schools, in their clubs they are taught different issues concerning the environment, during the discussion, one respondent said *“concepts like how to conserve the environment, protect and managing the environment are covered in our clubs through field trips, discussion with expert and teachers, group discussions, projects and practical activities in schools environment like planting trees around the school and in the school ground”* the club that exists in many schools is root and shoot which was designed to operate in secondary schools in Tanzania.

Despite the fact that the time was reserved for clubs, the time was still limited thus the practical works and discussion were not accurately. One respondent said *about field trips we normally go during holydays and some activities pertaining conservation and taking care of the environment we perform during the weekend due to the fact that there is no enough time given during the school days to accomplish our works and get intended knowledge.*

According to the findings, 20.1% of the respondents said that there is collection of solid waste in their schools. This was usually done every day in the morning. All students are the participants of the act under the supervision of the teacher on duty and prefects. During the interview one respondent said, *“Every morning the students do cleanness around the school and make sure that his or her area is clean and neat. Some times when the school environment gets dirty during the class hours, before the departure of students they collect all the wastes and leave the school environment clean.”* All the solid wastes are placed in the pits. 13.3% of the respondents proved that different projects are done in their schools. These projects are conducted in the biology and geography subjects, students are taught the EE concepts and assigned to conduct the project on the issue. Also the projects were done by the environmental clubs that exists in the schools. One respondent during the interview commented, *“The projects that are conducted are not seriously assessed by the club leaders and teachers subjects. They are not taken seriously as it was supposed to.”* this indicates that, despite the perfection of this activity in implementing EE concepts through practice, lack of seriousness in encountered in secondary schools.

During the field, 3.2% of the respondents said that there are environmental games that exist in their schools. These

games were existing only in environmental clubs. During their club time they conduct different games to enable them to develop their understanding on the environmental issues and ongoing environmental problems and how to overcome them.

4.3% of the respondents during the field said that there were campaigns that sometimes are conducted by the environmental club (root & shoot) within the schools to teach their follow student on EE how to preserve and protect the environment in their homes and the school. Sharing the knowledge on the problems related to environmental destruction and how to overcome them.

Jensen and Schnack (1997) noted that actions could be direct or indirect. Direct actions contribute directly to solving environmental problems, whereas indirect actions are those which seek to influence others to contribute to

solving the problems. The actions or activities in schools concerning the environmental education should exactly base on solving the existing problems in schools and their surroundings.

4.3.2 School administration support to the EE activities carried out in secondary schools

The aim of this item was to find out if the school administration supports the EE activities and programmes in the school and how does it support. According to the findings 91% of the respondents said that the school administration supports the EE activities in school while 9% said it does not support. This presentation excluded those who said there were no EE activities in their school because they did not respond to this question.

Table 4: shows the percent of the administration support to the EE activities in secondary schools

Respondents	Frequency	Percent (%)
Administration support EE activities	81	91%
Administration do not support EE activities	8	9%
Total	89	100%

According to the findings 91% of the respondents said the school administration supports the environmental

activities and programmes that are carried out in their schools while 9% of the respondents said it does not.

Table 5: Shows the support that the school administration provides to the environmental activities in secondary schools

Responses	Frequency	Percent (%)
Financing environmental activities and programmes.	8	9%
Forming rules that govern and ensure that environmental activities and programmes prosper.	30	33.7%
Providing tools and materials for teaching and learning environmental education.	42	47.2%
Motivating students by awarding the certificates at the end of form four.	9	10.1%
Total	89	100%

From the findings 47.2% of the respondents said the school administration support the EE activities and programmes through the provision of the materials and tools for teaching and learning of EE. The school administration provides the tools for carrying out environmental activities whenever they are needed by students or teachers.

33.7% of the respondents said the school administration supports the environmental activities and programmes by

forming rules that govern and ensure that environmental activities and programmes prosper. The rules that were made by the schools administration pertaining EE were to be adhered by all students and teachers as other school rules. Rules like making the environment clean, when the waste pits are full they should be filled, not cutting or making destruction of any kind to the trees and flower in the schools environment and there should be at least three or four members of root and shoot from each class (form). In most of the schools these rules occurs the only

difference was the seriousness of the administration in following them.

10.1% of the respondents said the school administration supports the EE activities and programs by motivating students by awarding the certificates at the end of form four. One respondent said during the interview, “the certificates are provided for the members of the root and shoot club in the school as they complete the ordinary level education.” The school administration does not produce the certificate for them but they try their level best to make sure that the stakeholders of the root and shoot clubs in secondary schools in national level know that there is root and shoot in their school and by the end of form four they will provide the certificates for them.

9% of the respondents during the field said that the school administration support the EE activities and programmes financially, this was especially to the root and shoot clubs.

Sometimes when the club need financial support for the accomplishment of their programmes they get from their school administration.

Eames et al (2006) commented that lacking of support for EE may contribute to hindering the development of student action competence and later the implementation of EE, as the teacher and students will be unable to gain a dedicated focus on their EE work.

4.4 Challenges/problems facing the implementation of EE in secondary schools

One item was addressed to the respondent with the aim of fulfilling this objective of the research which was finding out if there are any problems that the teachers, students, non-teaching staff and school administration face during teaching and learning of EE concepts and when guiding or performing EE activities in their schools.

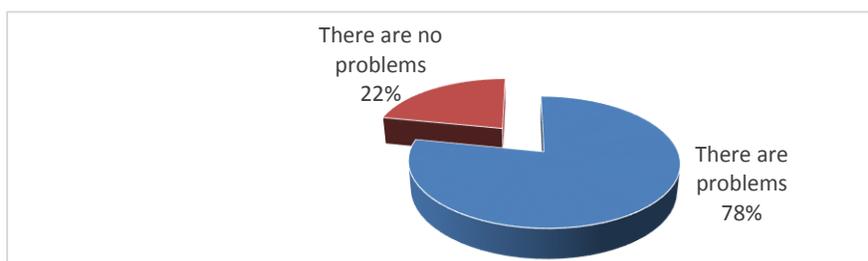


Figure 5: Problems facing the implementation of environmental education

According to the findings 78.2% of the respondents said that there are the problems or challenges that the teachers, students, non teaching staff and school administration face during teaching and learning of EE concepts and when guiding or performing EE activities in their schools while

21.7% of the respondents said there are no any problems. Most of the respondents, who said there were no problems, were those who said earlier that there are no environmental education activities in their schools.

Table 7: shows the challenges/problems facing the implementation of environmental education in secondary schools

Responses	Frequency	Percent (%)
Financial problems	4	5.1%
Poor support from the school administration.	8	10%
Lack of enough time for environmental education activities	29	36.3%
Lack of enough materials for teaching and learning of environmental education.	17	21.3%
Lack of cooperation among students, teachers, and between teachers and students.	14	17.6%
Unwillingness of some students and teachers	8	10%
Total	80	100%

From the findings presented in the table above, lack of enough materials for teaching and learning of

environmental education was indicated by 21% of the respondents. Despite the fact that books and other

materials are available they are yet not enough to accommodate all concepts and information needed for the implementation of EE. One respondent said, *“There is the need for independent books or specific materials for teaching EE in secondary schools, because all the materials that are available are of other subjects which does not discuss and provide enough information as required for effective teaching and learning of EE.”*

Another problem indicated by the respondent was lacking enough time for environmental education activities which was said by the 36.3% of the respondents. This has been due to the competition for time in an already full curriculum. The time that was reserved for environmental related activities and programme is little compared to the need and importance of EE to the society and the school in general. During the discussion one respondent said, *“We may have a lot of activities to do in our environmental club but the time limits us, which may sometimes lead to non accomplishment of some activities like playing environmental games.”*

Lack of cooperation among students, teachers, and between teachers and students was another problem that was noted by the researcher in the field. 17.6% of the respondents said that, lack of cooperation among the students, teachers, and between teachers and students has turned down to a large extent the implementation of the EE in schools. One respondent during the interview said, *“sometimes students view working and cleaning of the school environment as a punishment and the teachers take it as wastage of time.”* it was also noted during the field that 10% of the respondents said that unwillingness of some students and teachers to perform different activities and guide students has been very challenging in schools.

Another problem that was noted during the field was poor support from the school administration which was said by 10% of the respondents. The school administration provides support to EE activities and programmes but they were very little compare the support that is required for the successful implementation of EE activities and programmes in the schools.

5.1% of the respondents said that there were financial problems that face the schools especially environmental clubs in accomplishing their projects and activities. The school administration may support but to a very limited amount that they cannot reach their goal.

Kimaryo (2011) says that, for the smooth implementation of environmental education in schools depends on the teachers’, students’ and administrations’ ability to overcome these barriers.

5. Conclusion and Recommendations

5.1 Conclusion

Based on the responses that were given by the respondents in this study, it can be concluded that the term EE is known by students, teachers, head of schools in schools but for the non teaching staff it was different since they could not explain precisely the term environmental education and how it operates in the school environment.

The findings indicated that EE is taught in secondary schools as a concept or topic within other subjects like geography, biology, agriculture and rarely in chemistry and physics. This means that EE is taken to be a subject that cannot stand on its own in the curriculum but covered in existing subjects. As long as EE remains to be integrated in other subjects, it will continue to be a challenge to the implementation of EE in secondary schools. Furthermore, most schools have limited materials on EE making it difficult in teaching and learning EE concepts or topics within different subjects. Due to limited information on EE, teachers tend to leave the topics that have EE component integrated in them and concentrate on the topics that information already available in the materials that are found in their schools.

According to the findings from the field, the study shows that there are several EE activities that are carried out in schools which includes existence of environmental club (root and shoot), carrying out projects, environmental games that are conducted in the environmental club, campaigns concerning EE within the schools and they are done by the environmental club members to their fellow students and collection of the solid wastes which is done by all the students in the schools. These activities in some schools are there but the implementation is down comparing to other schools. Furthermore, the school administration in all schools provides support to the EE activities and programmes that operate in their school, most of the respondents said that its support is very little. For instance there are rules that the administration and the root and shoot club made but the implementation to these rules is down.

The study reveals that there are a lot of problems that teachers, students, head of schools and non-teaching staff face during the teaching and learning of EE concepts and in guiding and performing EE activities. These problems/ challenges were financial problems, poor support from the school administration, lack of enough time for environmental education activities, lack of enough materials for teaching and learning of environmental education, lack of cooperation among students, teachers, and between teachers and students, unwillingness of some students and teachers. These problems have been hindering the implementation of EE in secondary schools in Arusha.

5.2 Recommendations

Based on the findings of the study, the following recommendations are made;

1. There should be trained personnel special for teaching environmental related issues in secondary schools
2. The teaching and learning materials pertaining EE should be made available in every school in the country
3. Environmental education should be established or made as an independent subject.
4. The school administration and municipal should increase its support to the EE activities and programmes that are conducted by students and teachers
5. There should be more than one environmental club in the school to motivate competition on environmental related issues.
6. Increasing motivation to students, there should not only be the provision of certificates but also other motivations like providing gifts, inviting environmentalists to visit the schools

References

- Connaway, L. S. & Powell, R. R. (2010), *Basic Research Methods for Librarian (5th ed)*. [n.p] Greenwood Publishing Group.
- Eames. C, Law. B, Barker. M, Iles. H, McKenzie. J, Patterson. R, Williams. P, Wilson-Hill. F, Carroll. C, Chaytor. M, Mills. T, Rolleston. N, and Wright. A (2006) *Investigating Teachers' Pedagogical Approaches in Environmental Education That Promote Students' Action Competence*: Wellington, New Zealand. NZCER Distribution Services.
- Farquhar, J. D. (2012), *Case Study Research for Business*. London. SAGE Publications, Ltd.
- Gifford, R. (2008). Toward a comprehensive model of social dilemmas. In Beckenkamp, M. (2009) *Environmental Dilemmas Revisited: Structural Consequences from the Angle of Institutional Ergonomics*. Max Planck Institute for Research on Collective Goods, Kurt-Schumacher-Str. 10, D-53113 Bonn.
- Halder S. (2010) *An Appraisal of Environmental Education in Higher School Education System: A case study of North Bengal, India*. *International Journal of Environmental Sciences Volume 2*, No 4, 2012.
- Jull, M. M. P. (2003), *Evaluating Environmental Education and Outreach Programs: Workshop Materials Developed for the Washington State*, Department of Ecology Coordinated Prevention Grant Recipients. ECY 04-07-017.
- Kethoilwe, M. (2003), *Environmental Education Policy Implementation in Botswana: The role of secondary education officers and school heads*. *Southern African Journal of Environmental Education*, Vol. 20
- Kimaryo, L. A. (2011), *Integrating Environmental Education in Primary School Education in Tanzania: Teachers' Perceptions and Teaching Practices*. Finland. Åbo akademi university press.
- Kumar A. & Kumar A, (2004). *Environmental Education*. New Delhi, India. New age international (p) ltd, publishers.
- Makhoba, A. J. (2009) *Implementation of Environmental Education in Senior Phase: A Survey of Cluster Schools*. A Dissertation Submitted to the Faculty of Education in Partial Fulfilment of the Requirements for the Masters Degree in the Department of Mathematics, Science and Technology Education at the University of Zululand.
- Ministry of Education and Vocational Training (MoEVT) (2007). *Environmental Education Strategy for Schools and Colleges in Tanzania (2008 – 2012)*. Dar-es-Salaam
- Monde, P. N. (2011), *Barriers to Successful Implementation of Environmental Education in Zambian High Schools*: The University of Zambia, Lusaka.
- Montgomery, H. (2014), *The American Camping Association. Food for Thought! Putting Environmental Education Theory into Practice*. Available at www.acacamps.org/members/knowledge/food/cm/0511food, accessed on 11/4/2014
- NEMC, (2004). *National Environmental Education and Communication Strategy (2005 –2009)*. Dar- es-Salaam: Tanzania.
- New Southern Wales Department of Education and Training, (2001). *Environmental Education Policy for Schools*: Sydney.NSW. Curriculum Support Directorate.

- Pawar, M. (2004), *Data Collection Methods and Experiences: A Guide for Social Researches (ed)*: India. New Dawn Press Group.
- Subong, P.T (2005), *Statistics for Research(ed)*: application in research, thesis and dissertation writing and statistical data management using SPSS software. Manila. Rex Book Store Inc.
- Thomas, R. M. (2003), *Blending Qualitative & Quantitative Research Methods in Thesis and Dissertation*: California, USA. Corwin Press, Inc.
- UNESCO (1985) A Problem-solving Approach to Environmental Education. [n.p]
- UNESCO, (1977). *First Intergovernmental Conference in Environmental Education. Final Report, Tbilisi, USSR*. Paris: UNESCO.
- UNESCO (1994), *A Prototype Environmental Education Curriculum for the Middle School*, (Revised) A Discussion Guide for UNESCO Training Seminars on Environmental Education. USA. [n.p]
- Wagner. M, Fagot. M, Verré. J, Doler A, & Vogrin. M, (2011) *Environmental Education: Contribution to a Sustainable Future*. European Union. The SURF-Nature Project.
- Water Resources and Energy Management (WREM) International, (2008) *Nile Basin Initiative Nile Equatorial Lakes Subsidiary Action Program: Mara River Basin Investment Strategy, Mara River Basin Transboundary Integrated Water Resources Management and Development Project*, Final Technical Report, Atlanta, December 2008, 175p.
- Wasmer, C. (2005) *Toward Sustainability: Environmental Education in China A German strategy for Chinese Schools*. Duisburg, German. Duisburg working papers on East Asian economic studies. No. 73/2005.
- Yildiz, N. (2006) *Environmental Education in Schools in Turkey*: Aalborg University MSc in Environmental Management Department of Development and Planning. Available at <http://muttcats.com/starfish.htm>, accessed on may 30/2014
- Zulu. C. B, (2007) A comparative study of women in management in higher education in south Africa and the united kingdom.