NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY

Department of Agriculture and Natural Resources Management
Bachelor Degree in Natural Resources Management

Research Report

A Baseline Survey on Environmental Education /Education for Sustainable Development activities in the Erongo Region

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1. Background and Introduction

Unsustainable use and degradation of natural resources is and has become a huge problem worldwide (Hart, 1997). For decades people have been developing and overusing natural resources without taking nature into account. This has caused great damage to the biodiversity, mostly the vulnerable endemics of the world. Namibia is working towards a future that interlinks environmental, social and economic development to meet the needs of the present or current generation without compromising the capability of the future generation to meet their own needs (Vare Paul, 2007).

A request has gone out to Namibia and the world to change the way we think, behave and act in order to live a sustainable lifestyle (Garrard Svenja, 2017).

The United Nations General Assembly adopted the ''2030 Agenda for Sustainable Development'' on 25 September 2015 as a follow-up to the Millennium Development Goals. The main agenda is 17 Sustainable Development Goals (SDGs), used as guidelines to ensure global sustainability and peace. The general public and schools are required to have the knowledge, skills, values and attitudes to empower and to contribute to sustainable development. This is most important in schools as learners have a huge influence on their parents, communities and environment, more especially in developing countries due to the fact that the juvenile and youth population is more than the adult population (John, 2016).

Education for Sustainable development (ESD)- is based on the idea of educating communities about sustainability to ensure eco-friendly development (UNESCO, 2005). Education for Sustainability Development empowers communities, in this case learners to make formed decisions and take responsible actions for environmental integrity, economic viability and justice to the society, for present and future generations, while respecting cultural diversity. It is about lifelong learning and is an integral part of quality education. ESD is holistic and transformational education, which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society (Holden Erling, 2017).

The Global Action Program (GAP) on Education for Sustainable Development, main emphases is on creating and scaling up ESD action at all education levels and sustainable development sectors. Moreover, GAP was acknowledged by UN General Assembly Resolution A/RES/69/211 as the official follow-up to the UN Decade of Education for Sustainable Development sponsored by the UNESCO. This action program was launched in Aichi-Nagoya, Japan, in November 2014 at the World Conference on Education for Sustainable Development. Furthermore, the GAP recognised five important areas: Advancing policy; transforming learning and training environments; Building capacities of educators and trainers; Empowering and mobilizing youth and lastly Accelerating sustainable solution at a local level. The action is furthered advanced to uphold global network of ESD Partners (of which one of them is NaDEET) to devote to developing outreach programs, sustainable communication tools, develop ESD

action programs and holding a Global Forum(s) to monitor and brainstorm ideas (the next Global Forum will be in July 2019). ESD is an important factor of the GAP, learning to live a sustainable life is essential for everyone (mostly school learners, as they have a huge effect on their communities) (UNESCO, n.d.).

Education for Sustainable Development is a focal point in the sustainable development agenda, whose success relies on school children, during their lifetime to develop a positive attitude to address global challenges and take action themselves. ESD activities allow learners to be responsible and take informed decisions and action for environmental integrity for the present and future generations while appreciating and respecting the environment. The best assemblages for ESD are environmental education courses for school children; this should be local detailed, real-world and action based, furthermore the courses should include both formal and informal environmental education for a broad approach to ESD (Tilbury Daniella, John, & Danie, 2002).

The Namib Desert Environmental Education Trust (NaDEET) and ESD in the Urban Coastal Regions.

Unsuitable use of natural resources in Namibia was and is still a major problem as the evidence is clearly visible. Non-Government Organisations and the Government have joined hands to establish formal environmental education centers for the children and youth of Namibia. NaDEET is a non-profit organisation that was founded by Viktoria and Andreas Keding, with the aim of educating Namibians how to live more sustainable lifestyles. NaDEET is an environmental education organisation with a core programme of teaching people more about sustainable living and biodiversity and the balance between individuals and the environment.

NaDEET was built from scratch using recycled material by Andreas Keding (construction manager) with the help of assistants and three groups from Raeleigh International volunteers, in 2003. The original NaDEET centre (now known as the ''NaDEET Desert centre on NamibRand'' was built 480 km outside Swakopmund. In 2019, a day visitors centre called the ''NaDEET Urban Sustainability Centre" is due to open. The main elements of the centre are a 5*5m sustainable house model, with an interior display to showcase how unsustainable people are living and examples on how they should be living (sustainable way of living daily). The displays are designed as games to catch people's attention and help them to be more interactive and responsive. The Urban Sustainability Centre will be open to the general public and school groups for ½ day programs.

The Erongo Region was the study site and is the second most Developed Region in Namibia. The region has both urban and rural areas, studying this region gave an overall view on how EE/ESD was implemented in both rural and urban, including government and non-government schools in Namibia.

2. Aims and Objectives

Research problem statement

Environmental Education is not being fully implemented in Namibian schools as it is stated in the National Namibian Education Curriculum (Ministry of Education, 2016).

Significance of this study:

- The study will improve an understanding of how Environmental Education/Education for Sustainable Development activities are being implemented in schools.
- It will give Environmental Education(EE/ESD) /Education Sustainable Development (EE/ESD) providers or organizations a better understanding of what schools need (EE/ESD gaps) and expect from EE/ESD providers /organisations.

Main Research Question

What Environmental Education (EE) /Education for Sustainable Development (ESD) activities do schools in the Erongo Region undertake?

Aim

This project was part of a bigger project with an aim of identifying gaps (limitation) on how EE/ESD is implemented in the schools and how EE/ESD providers can fill up these gaps (provide solutions to the limitations). The main aim of this study was to found out how Environmental Education (EE) /Education for Sustainable Development (ESD)is implemented in the schools and which EE/ESD activities did the schools take part in, in the last 3years.

Research Question

What Environmental Education (EE-)/Education for Sustainable Development (ESD) activities do schools in the central coastal region of Namibia undertake?

Objective

To achieve the above-declared goal, the following **objectives** were formulated:

- To determine the type of EE/ESD activities at schools.
- To determine the participation frequency of schools in EE/ESD activities.
- To determine if schools have environmental policies and a budgets for EE/ESD activities.
- To determine the limitations for EE/ESD activities in schools.

3. Limitation

These were some of the limitations encountered.

- Most of the targeted respondents were not available during the period of the study due to various reasons; some had retired while the rest got transferred to different schools. Principals and the heads of departments were interviewed in this case as replace respondents.
- Deadlines of varies projects were given at the same time
- Designing the survey questionnaire and datasheet took longer than expected (about 2-3month) because the questionnaire and datasheet were addressed from different prospective.
- The school grading system in Namibia changed. On the survey questionnaire, the old grading system was used.

4. Project study Area

Figure 1.Location of analyzed schools in the Erongo region.

The study took place in the Erongo Region located in West-Central Namibia. The Region is one of Namibia's 14 regions. The region covers 63 586km² of land with a vast natural and remarkable area of the Namib Desert. It is surrounded by massive dune waves, evergreen ephemeral rivers such as the Kuiseb, Swakopmund, Omaruru, Khan and Ugab River, mountains like the great Erongo Mountain (longest mountain in Namibia) and unique endemic desert fauna and flora. Moreover, the region accommodates two national parks (the Dorob and Namib Naukluft National Park). The region has a total population of 140 000 people. Four study sites were approved namely Swakopmund, Arandis, Henties Bay and Walvis Bay.

Table 1.Shows the total population number and area of each town.

		Total Population	Area in km²	Population density
Arandis		10,200	13,490	0.8
Swakopmund		44,700	196	228.0
Walvis Bay Rural		62400	9,134	2.9
Walvis Bay Urban		35,500	19	1886.2
Omaruru		8,500	8,425	1.0

5. Methods and Materials

A Baseline survey was conducted to answer the main research objectives. The baseline survey was the first of its kind in the region. A predefined customary questionnaire with both open-ended and closed-ended questions was designed to collect data and to allow the respondents to address their thoughts, hopes and concerns (see appendix 1). Closed-ended questions presented a list of options from which the respondent had to choose from, while open-ended questions allowed the respondents to answer questions in their own words. Two data collecting and recording methods were used in this research: Qualitative method, which is non-numeric data (comprised mostly of the open-ended questions in the research); Quantitative method which is numeric data (comprised mostly of closed ended questions) (Singh, 2007). The advantage of using this method was mainly that surveys are efficient, cost effective means of collecting data and allows interviewer to have a face-to-face interaction with the respondent.

The target respondents were any members of the schools that were involved in EE/ESD activities. In most cases, the targeted member was unavailable, so the principal or Science head of department was questioned.

A sample of the entire population was used in this survey. A sample is a subset of the entire population. The Probability Sampling method was used to randomly select the potential schools to represent the entire region. Probability Sampling means every member (in this case schools) has a chance to be selected to represent the total area. The Region had 56 schools of which only 36 schools were targeted in this study. 20 schools removed from the list had a population number of learners bellow 200 and used a different teaching Curriculum (not the National Namibian Education Curriculum). From the 36 schools, 28 schools were surveyed of which 15 schools were selected randomly using probability sampling method to represent the schools.

Tools used

- A Survey schedule was designed for bookkeeping and recoding all the appointments.
- Microsoft Excel- All metadata data was recorded and analyzed in Microsoft excel.
- A camera was used to take pictures for physical evidence and future reference.
- An audio recorder was used for recording for physical evidence and future reference.
- A survey questionnaires was used to collect data.

6. Results

Objective 1: To determine the type of EE/ESD activities at schools.

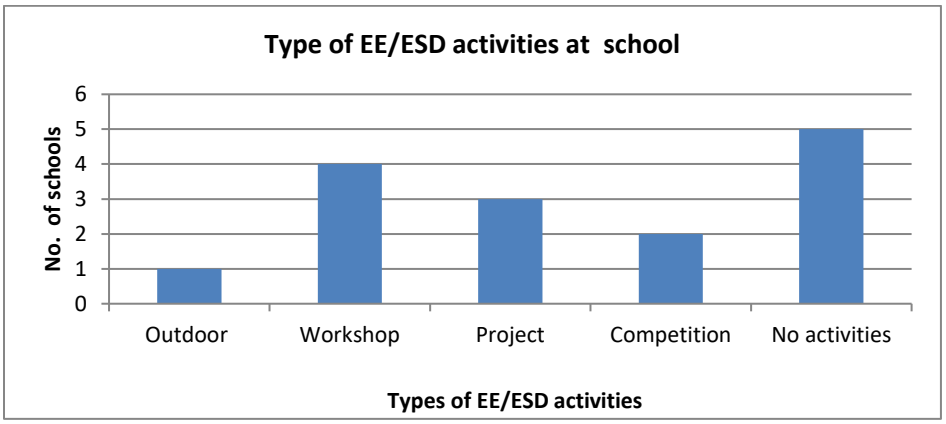


Figure 2.Shows different types of EE/ESD activities in school.

One -third of the schools did not have any EE/ESD activities. Two-thirds had EE/ESD outdoor activities, workshops, projects and competition. The highest EE/ESD activity were EE/ESD workshops, followed by projects, competitions and lastly outdoor activities.

Table 2.Schools in the study with more than 3 EE/ESD activities.

School	Action	Action (1 day)	Club activities	Contest/ Competition	Field trip	Teachers Activities	Tours	Tours (overnight)
!Nara PS	0	0	0	0	1	0	0	0
Atlantic JSS	0	0	0	0	2	0	0	0
Coastal High	1	0	0	0	2	0	0	0
De Duine SS	0	0	0	0	0	0	2	0
Festus Gonteb	1	0	0	0	0	0	0	0
Hanganeni PS	0	2	1	1	0	2	0	3
International SW	1	0	0	1	5	0	4	0
Kamwandi CS	1	0	0	0	0	0	3	0
Kuisebmond SS	0	0	0	0	1	0	0	0
Namib High	2	0	0	0	1	0	3	0
Namib PS	1	0	0	0	1	0	0	0
Pro-ed Academy	0	1	0	0	3	0	0	0
Pvt Sch. S/mund	0	0	0	0	2	0	3	0
Swakopmund PS	0	1	0	0	0	0	0	2
Swakopmund SS	1	0	0	0	2	0	0	0
UB Dax PS	0	0	0	1	0	0	0	0
Vrede Rede PS	1	0	0	0	0	0	1	0
Westside High	0	2	1	1	4	0	0	0

Hanganeni and Westleigh High were the only two schools which participated in more than 3 activities.

Objective 2: To determine the participation frequency of schools in EE/ESD activities.

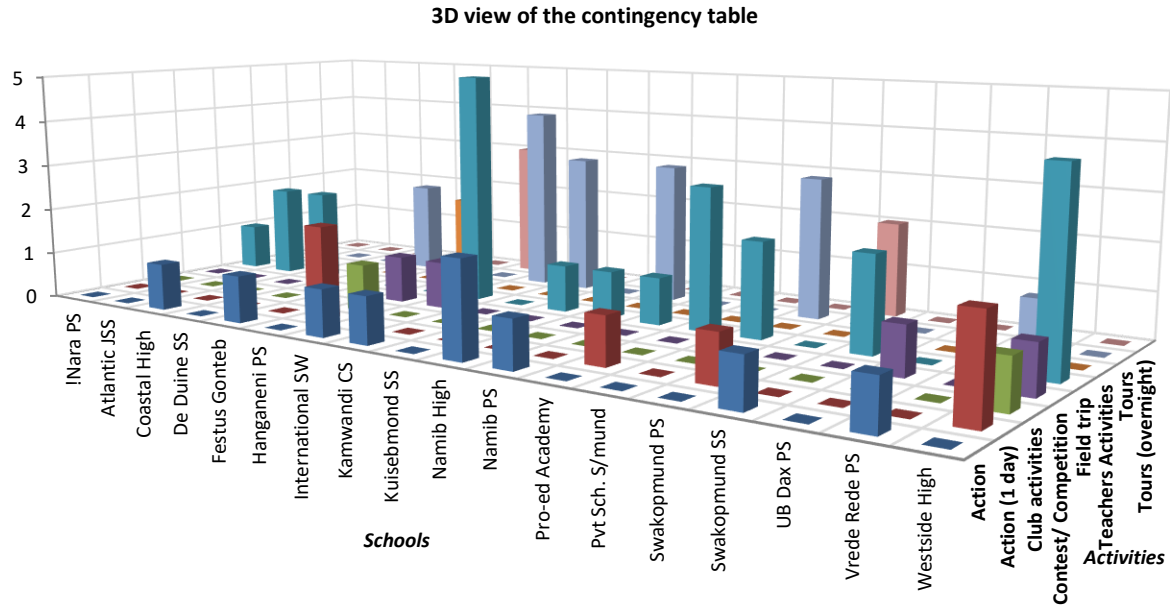


Figure 3.Illustrates the frequency of EE/ESD activities in Schools.

Field trips (35.3%) and Tours (23.5%) are the two most participated activities in schools. However, there was no significant relationship between school and activities carried out (χ^2=145.461, df=119, p=0.131).

Table 3. Contingency table (school name/Frequency of participation).

School	Daily	Once per Term	Yearly
!Nara PS	0	0	1
Atlantic JSS	0	0	2
Coastal High	0	0	3
De Duine SS	0	0	2
Festus Gonteb	0	1	0
Hanganeni PS	1	1	7
International SW	1	0	10
Kamwandi CS	0	0	4
Kuisebmond SS	0	0	1
Namib High	0	2	4
Namib PS	0	0	2
Pro-ed Academy	0	2	2
Pvt Sch. S/mund	0	0	5
Swakopmund PS	0	1	2
Swakopmund SS	0	3	0
UB Dax PS	0	0	1
Vrede Rede PS	0	0	2
Westside High	1	0	7

Six schools (Hanganeni PS, International SW, Namib High, Pro-ed Academy, Swakopmund PS and Westside High) participated more regularly in EE/ESD activities (Table 3). However there was no significant relationship between the schools and frequency of participation (χ^2=48.602, df=34, p=0.1867). Most schools (80.9%) participated once a year in EE/ESD activities, while 14.7% participated once a tern and 4.45 participated daily (Figure 4 below).

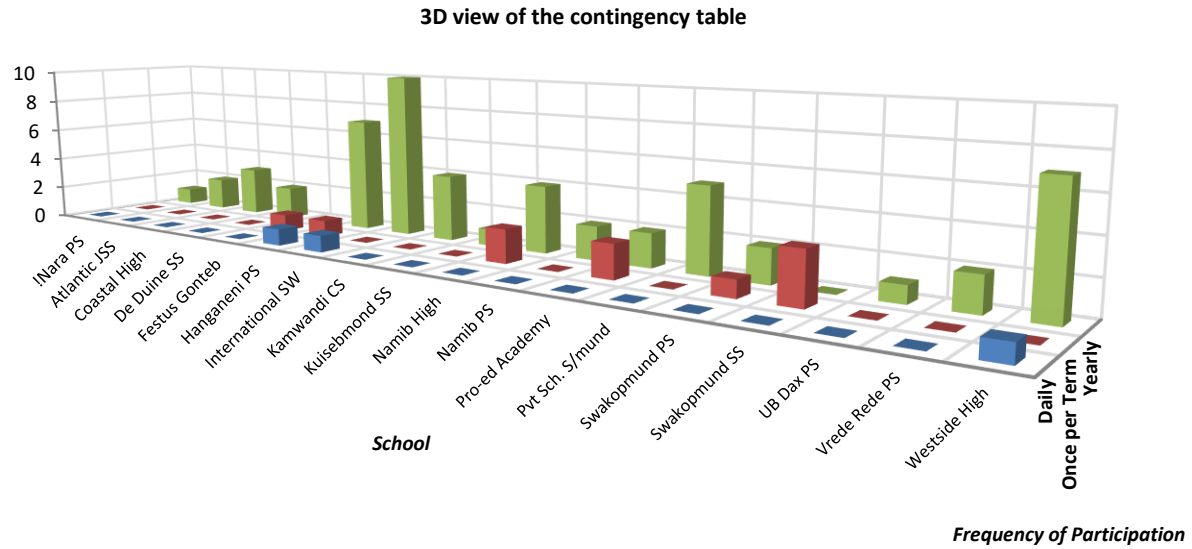


Figure 4. Participation frequency.

Objective 3: To determine if schools have environmental policies and budgets for EE/ESD activities

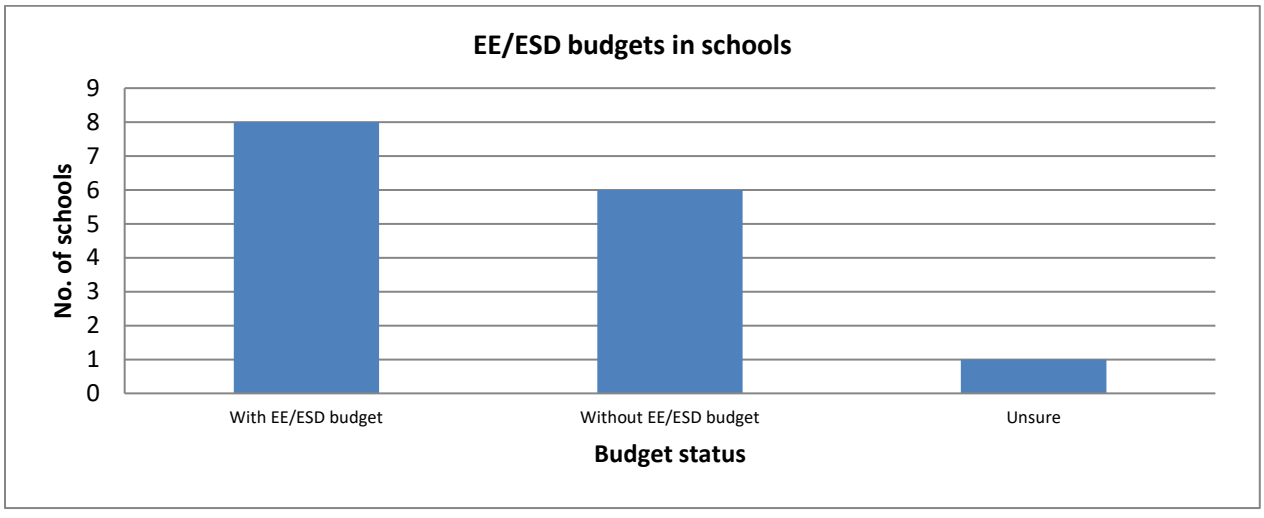
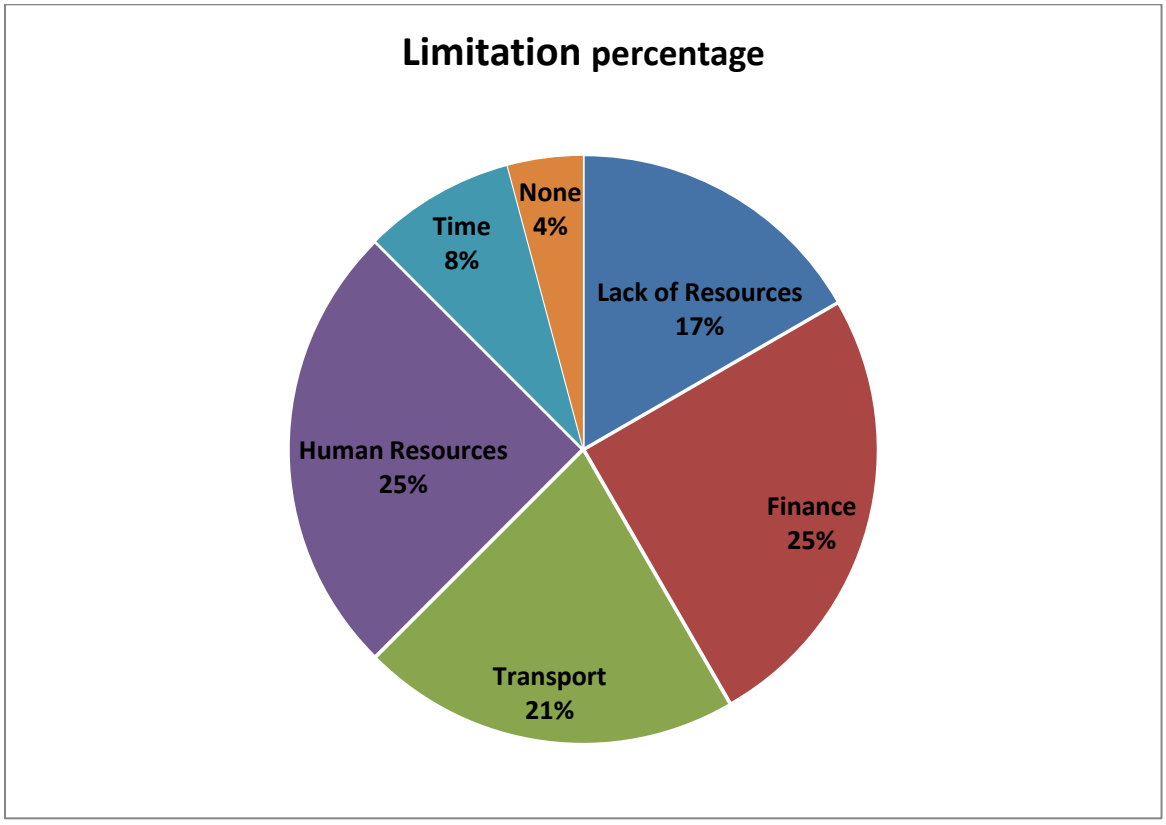


Figure 5.EE/ESD budget in schools.

53.3 % of the 15 schools had an EE/ESD budget while 40% did not have one, the rest (6.6%) was unsure.

Objective 4: To determine the limitations for EE/ESD activities in schools



Human Resources, Finance and Transport were the most crucial limitations. The three main limitations had a total of 71% while the lowest had a total percentage 25%. 4% of the schools did not have any limitations.

7. Discussion

Most of the schools did not have any EE/ESD activities due to limitations like lack of human resources, finance, knowledge and passion. Four EE/ESD activities were recorded: outdoor activities, which involved gardening and cleaning of the school yard; environmental education workshops in which EE/ESD providers were invited to the schools for environmental hands-on teaching; EE/ESD projects were done by different schools, learners and towns. The projects varied, the most common project was the Urban Gardening Project; EE/ESD competitions mostly involved recycling completions, schools competed against each other to see which school recycled more waste.

Hanganeni PS and Westside High had two passionate teachers that are part of the Namibian Environment Education Network; the two teachers had a profound positive impact on how EE/ESD was implemented in the schools.

Yearly activities comprised of fieldtrips or tours to visit EE/ESD providers for a day or week. Although, yearly activities were the most common, most schools did not afford such activities. Schools got sponsored or got invited by organisations that paid half or the full amount. EE/ESD activities were taught and implemented in schools each day throughout the year as it is stated in the National Namibian Curriculum, although it was not implemented fully. Environmental education was taught theoretically in schools but the National Namibian Curriculum stated it should be taught practically as well (Ministry of Education, 2016).

Most schools had an EE/ESD budget. Private schools had a budget ranging from N$5000 to N$ 15000 while government schools had a budget ranging from N$1000 to N$2500.The government school budget was not enough to cover a semester or trip or tour while the private school budget did. Most government schools did not have a budget for EE/ESD activities and some schools were even unsure if they had one.

Transport, finance and human resources were the most mutual EE/ESD limitations in the schools. Most schools lacked finance to buy or hire a car to transport learners to EE/ESD events or trips. Human resources was a major problem in the schools as most teachers did not seem to understand the importance of EE/ESD in the schools. Another limiting factor was time, most schools complained about not having enough time to take part in EE/ESD activities. Most learners stayed far from the schools and could not come back after school to take part in EE/ESD activities. Private schools had enough time and money to invest in EE/ESD teaching materials while some government schools used the little money they had or got free EE/ESD material, the rest of the government schools did not bother investing in such materials.

8. Conclusion

In conclusion, EE/ESD is misunderstood and not implemented correctly in schools.EE/ESD resources are scarce in schools and not enough time is given to EE/ESD activities in the schools. Environmental Education is very expensive, most parents or schools cannot afford it. One individual (EE/ESD passionate) can have a huge positive effect or impact on how EE/ESD is implemented in the school. EE/ESD activities frequency is depend on the EE/ESD budget and how the school board values or understands the importance EE/ESD. Municipalities in the region play a huge role in EE/ESD activities provision as they provide free EE/ESD materials, events and host EE/ESD competitions or workshops. Private schools- take part in most if not all the EE/ESD activities because they have enough funding and a better understanding of the importance of EE/ESD. Most government schools lack funding, passion and understanding of EE.

9. Recommendations

- The next researchers should ensure that they talk to the right participant always if not so, then note it down on the survey questionnaire.
- Closed ended questions should be used mostly, because it gives specific answers and is easy to analyse. Summarised answers from open-ended question loose meaning when analysed.
- The entire population or schools should be surveyed as they all have different limitations or implement EE/ESD activities differently.
- An audio recorder and a camera should be used always to take pictures and voice records for physical evidence and reference.
- All heads of departments in the science field should be trained on how to implement or teach environmental education nationwide.
- Questionnaires should not be dropped in schools by any means, face-to-face interaction with an interviewer is required, as it gives the interviewer a chance to fully explain questions and take pictures for physical evidence and reference.

10. Acknowledgment

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Appendix 1

Completed by:

EE\ESD Coastal School Survey

Section 1: School Information	
School Name_1	
Town_ **1_Swakopmund** **2_Arandis** **3_Walvis Bay** **4_Hentis Bay**	**Region**
Circuit Name **1_Swakopmund** **2_Walivis Bay**	**School Phone Number**
School Email Address	
Locality	1_ □ CBD 2_ □ Residential 3_ □ Informal 4_ □ Other: _____
School Type	1_□ Government 2_□ Private 3_□ Semi-Private
Your Name	**Your Position at School** **1_HOD** **2_Teacher** **3_Principal**
Your Email Address	
Principal Name	**Number of Years Principal at School** _____
Number of Staff	1_Management 2_ Head of Department 3_Teachers 4_ Institutional

Total Number of Learners _____	**Grades Taught** ☐ Pre-Prim ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11/12 1_Primary school 2_Secondary School 3_Combined School
Own School transport 1_ Bus 2_ Combi 3_Car 4_Other: _____ 5_None	
School hostel 1_yes 2_ no	

Section 2: Environmental Education (EE) /Education for Sustainable Development (ESD) Funding and Policy			
2.1 Have you ever heard of EE or ESD?			
2.2 If yes, please define.			
2.3 Does your school have a "school policy"? 1_Yes 2_ No 3_Unsure **2.4 If yes, does it include points regarding the environment or ESD or SD? Please describe or attach a copy of the policy and return with this form.**			
2.5 Does your school have a budget for EE/ESD school activities?			1_ Yes 2_No 3_Unsure
2.6 If yes, fill in amount	Per year _____	Per term _____	Per learner _____
2.7 Who funds the school budget for EE/ESD activities?			

2.8 Do learners pay for EE/ESD activities in which they are involved?	☐ Yes ☐ No ☐ Unsure
2.9 If yes, please explain.	
2.10 Which teachers are involved with EE/ESD activities?	☐ Classroom/Registered Teachers How many teachers? _____ ☐ Subject Area Teachers How many teachers? _____ Please list subject areas:
2.11 Are other staff involved with EE/ESD activities? **If yes, please describe which staff members are involved.**	☐ Yes ☐ No ☐ Unsure

Section 3: EE/ESD Activities Outside of School
3.1 In the last three years, has your school taken part in ESD activities at locations other than at school? If yes, please describe the activities in the space below. **If the programme was specifically designed for teachers, please write "teacher" instead of the grade of the learners.** **Please add additional pages if necessary.**

2.12 Are parents involved with EE/ESD activities?	☐ Yes ☐ No ☐ Unsure

Activity	Organization or Location	Total # of Learners	Grade(s) of Learners	How often? *(Daily, Weekly, Monthly, Per Term, Yearly)*	Booking or Invitation?
					☐ Booking ☐ Invitation
					☐ Booking ☐ Invitation
					☐ Booking ☐ Invitation
					☐ Booking ☐ Invitation
					☐ Booking ☐ Invitation
					☐ Booking ☐ Invitation
					☐ Booking ☐ Invitation
					☐ Booking ☐ Invitation

Section 4: EE/ESD Activities at School

4.1 How do you feel environmental education, a cross-curricular topic, is implemented in the school? Please give examples from different classrooms and phases.

4.2 For each activity described on the previous above, please provide more detail about which students participate and how often the activity occurs.

Please add additional pages if necessary.

Activity	**Total # of Learners**	**Grade(s) of Learners**	**How often?** *(Daily, Weekly, Monthly, Per Term, Yearly)*

4.3 Does your school have an appointed environmental or sustainability coordinator?	☐ Yes	☐ No	☐ Unsure
4.4 Does your school have an Environmental or Sustainability Club?	☐ Yes	☐ No	☐ Unsure

4.5 If yes, how many learners participate in the club? _____ **4.6 In what year did the club form? _____**

4.7 How often does the club meet? _____	**4.8 Grades of Participants** ☐ Pre-Prim ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11/12

4.9 What teacher or adult supervises the club?

4.10 Please list the activities that the environmental club is engaged in.

4.11 Does your school observe any of the following special days? Check all that apply and explain how the school observes each.	☐ International Coastal Clean Up Day ☐ World Water Day ☐ World Environment Day ☐ Other

Section 5: Future EE/ESD Plans

5.1 What are your limitations in terms of offering EE/ESD activities to your learners?
1_
2_
3_
4_

5.2 What are your hopes and concerns for the future, regarding EE/ESD activities in your school?

5.3 Have you ever heard of the Namib Desert Environmental Education Trust (NaDEET)? Yes □ No □

5.4 If yes, briefly explain how and what you believe NaDEET offers.

5.5 Have you ever heard of the Namibian Environmental Education Network (NEEN)? Yes □ No □

5.6 If yes, briefly explain how and what you believe NEEN offers.

Section 6: School Facilities and Grounds

6.1 Which of the following is present at your school? Check all that apply.

1. Posted Environmental Policy
2. EE/ESD Displays or Posters
3. Roster for Cleaning
4. Recycling Receptacles
5. Waste Bins
6. Compost Bin
7. No waste management
8. Indoor Water Tap(s)
9. Outdoor Water Tap(s)
10. Water Monitoring
11. Water Collection
12. Dripping Indoor Water Tap(s)
13. Dripping Outdoor Water Tap(s)
14. □ Broken Water Pipe
15. Flower/Native Plant Garden
16. Vegetable Garden
17. Natural Area
18. Outdoor Teaching Area
19. Playground
20. Trees
21. Weather Station
22. Solar Panels
23. Energy Saving Displays or Posters
24. Energy Monitoring
25. Broken Window