

# **WILL Project Report**



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**Department of Agriculture and Natural Resources Management**

**Bachelor Degree in Natural Resources Management**

**Duty Station: Namib Desert Environmental Education Trust  
(NaDEET)**

**The Long Term Impact of NaDEET Center's Programmes on  
Water Conservation in Namibia**

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## Introduction

The concept sustainable development was first described in 1987. According to Finkbeiner M, Schau E, Lehmann A, Traverso M sustainable development is development growth that is able to cover today's essentials for an intact environment, social justice and economic prosperity without depleting the resource for future use. Sustainability does not only focus on the environmental crisis or impact, it consist of three pillars which are environment, economy and social well-being for which the world needs to find a balance. The earth is facing a lot of crises due to human ignorance toward the environment. Environmental education is seen one of the greatest agent to make people aware on how to leave sustainable lifestyle. It is an educational method which is hoped to bring some solutions to the declined relationship between human and the environment. According to Katherine .A, & Grimmette, B.S, 2014 participants that are involved in environmental education are likely to change their view and form connections with the surroundings fauna and flora. Nelson Mandela once said that "education is the most powerful weapon which you can use to change the world" (Nelson Mandela, 1990). The available resources on earth need to be used wisely.

Water is the basic unit of life and need to be maintained to live a healthy life. Despite the fact that 71% of the Earth's surface is covered by water, only 3% of that is fresh water and of that only 0.003% is fit for human consumption. This makes water one of the renewable natural resources that are very scares in the world. Water is needed for cooking, drinking, farming, factories and industries. Regardless of how little fresh water are available, activities such as urbanization, new agricultural methods, population growth and mining activities, have increased water demand in many parts of the world. These activities have also polluted water sources so much, causing deaths of at least over a million people around the world annually, because of water-related diseases (Water and Sanitation, n.d.) The level of water demand has been increasing by 1% per year globally (Azoulay, 2018). Zygmunt, 2007 estimated that by 2025 two-thirds of the world's population will live in area of water stress and water crisis will be increased by climate change.

Namibia is one of the driest countries in sub-Saharan Africa. According to (Tarr, n.d.) Namibia's climate is characterized by dryness with approximately 92% of the land mass described as arid, semi-arid or hyper arid. The issues of water demand continue to increase in Namibia and water shortage has become an issue in all areas that are geographically located far from perennial

rivers. The water crisis is likely to affect Windhoek worse than any other area in Namibia due to high population growth high industrial growth. (Zygmunt, 2007) said that 90 liters of water are consumed by one person per day in every nation around the world which is whole lot more; water footprints to need reduced and water to be used in a Sustainable way. (Kambuli, 2016 ) said that has been abused and taken for granted for many past years and this due to the impression that water is a renewable resources. The good rainfall in many periods in most area makes people forget how vulnerable we can be without water.

According to Zygmunt, 2007, 90 litres of water are consumed by one person per day in every nation around the world but on average; Britian uses 150 litres per day which is relatively higher than others. This excessive use of water has increased and leaving high water footprints. These however need to be reduced and water need to be used in a sustainable way. Finding solutions and alternatives to combat the water crisis should become everyone's high priority around the world. Proper water management can lead to the reduction of water crisis.

The Namib Desert Environmental Education Trust (NaDEET) is non-profit organization with an environmental education centre located on the NamibRand Nature Reserve in southern Namibia, in the Hardap Region. It is a vibrant environmental education centre; participants (learners and adults alike) learn first-hand about sustainable living, biodiversity and a balance between humans and the environment. Through this educational centre, NaDEET educate participants on how to save water or reduce water use by fixing broken water pipes, reduce the amount of water flushed by using dual flushing system, turn off the tap while brushing your teeth, directly reuse water from the kitchen or washing water or by reusing grey water, collect rain water and building yourself bucket shower (Keding, 2015) .

In 2018 a research project was carried out to determine which of the aspects of sustainability learned at NaDEET Centre are most applicable to the lives of the learners visiting the Centre, looking at energy, water and waste. The results showed that many children did not know and understand water conservation before visiting the Centre (Shihepo, 2018). One of the recommendations made was a follow up research to be conducted on the same participants to analyse the effectiveness of the programme after a year or a longer period of time. Despite the fact that so much awareness has been raised on water management, a little has been done to follow up and determine the programme's effectiveness. As a follow up to the

recommendation, this project aimed to determine the effectiveness of NaDEET Centre Programmes on former participants regarding water management, approximately a year after their visit to NaDEET Centre. This project aimed to find out whether the former participants are taking environmentally friendly actions regarding water use.

## **Project aim and objectives**

The aim of project is to assess the long term impact of NaDEET Centre programmes on former participants, specifically on water conservation.

In order to achieve that aim, the following objectives were formulated:

- To find out the long term impact the NaDEET Centre Programmes have on former participants specifically on water management.
- To find out if NaDEET program has impact on knowledge and attitude on former participant toward the environment and sustainability.
- To compare different school system, private VS public school and Waldrof system.

Research question: Does NaDEET Centre Sustainability Programmes have long term impact on the former participant's lives pertaining to water management?

## **Hypothesis**

**Null hypothesis:** There is no association between pre and post study.

**Alternative hypothesis:** There an association between pre and post study.

## **Study area**

NaDEET is non-profit trust which aimed at protecting the natural resources of Namibia by educating its citizens to practice a sustainable lifestyle. It is located on the NamibRand Nature Reserve (NRNR) in Southern Namibia. NRNR is one of the largest private owned nature

reserves in southern Africa. The reserve shares a border of about 100 km with the Namib-Naukluft National Park in the west and is bordered by the imposing Nubib Mountain range in the east (NamibRand, n.d.). The research in 2018 was carried out at NaDEET Centre where the participant from different schools attended the Centre's programme from February to May. The participants on NaDEET Centre programmes are not restricted to gender, age or financial status. The participants were mainly from Origo Primary School and #Oan//ob Primary School from Rehoboth, Waldorf Private School, Amazing Kids Private School and St Paul's College from Windhoek. A total of 48 participants were randomly selected and the questionnaires were given to them on the first and the last day and interviewed.

Due to the fact that these former participants have not come back to NaDEET Centre, this research was carried out at their respective schools.

## **Methods and Materials**

A systematic method was used to carry out this project as it is a follow up research project. In the previous research project that was conducted in 2018, 48 participants from five schools who took part in NaDEET Centre Programmes were chosen at random to participate in the study. The participating schools were Origo Primary School and #Oan//ob Primary School from Rehoboth, Waldorf Private School, Amazing Kids Private School and St Paul's College from Windhoek.

Before the data can be collected consent forms for both groups were sent out to the schools and they were signed by the school principals. Once consent had been given by the schools, the data was collected through an oral interview and by giving the participants the revised post-questionnaire from 2018 to fill in. A questionnaire is a research tool consisting of questions for the purpose of collecting information about people's belief, knowledge, behaviours and attitudes. A questionnaire is one of best method because the responses are gathered in standardised way. It is very quick to collect information using this method and more information can be collected from a large group of people (Bryden, 1977). This research project intended to interview the same 48 learners and the interviews took place at their respective schools. It is noted that some of the learner have changed schools for example, and especially those who were at Origo and #Oan//ob. However, efforts were made to locate them at their new schools. All of the interviews

were recorded with a tape recorder to make sure no important information was left out during noting.

To make sure that the questionnaire yielded reliable information, participants were asked the same questions and they are set up in such a way that all the objectives will be reached. Their previous answers as a group were compared to the answers that they gave during the oral interviews and questionnaires, in order to compare and determine the impact that the programme has had on them.

The Eco-handprint was also be used to collect data from all the learners. Eco-handprint is method used at NaDEET Centre where participants make a pledge on what they are going to do back at home/school in order to take action for the environment. Former participants were reminded of what they have pledged by being shown their eco-hand print and they have to show/mention which of the pledges they have put into action at home/school. For action taken at school, participants were asked to show them.

The data is presented in pie charts, graphs and tables and the results were analysed using the t-test. T-test is mostly used for testing relationships between two categorical variables and likely to reflect real differences in populations (Meed, 2017). The t-test is used to compare two means and see if there is any significant different from each other.

## **Limitations**

Despite the fact that all data were collected, there are also a lot of limitations which are as follows.

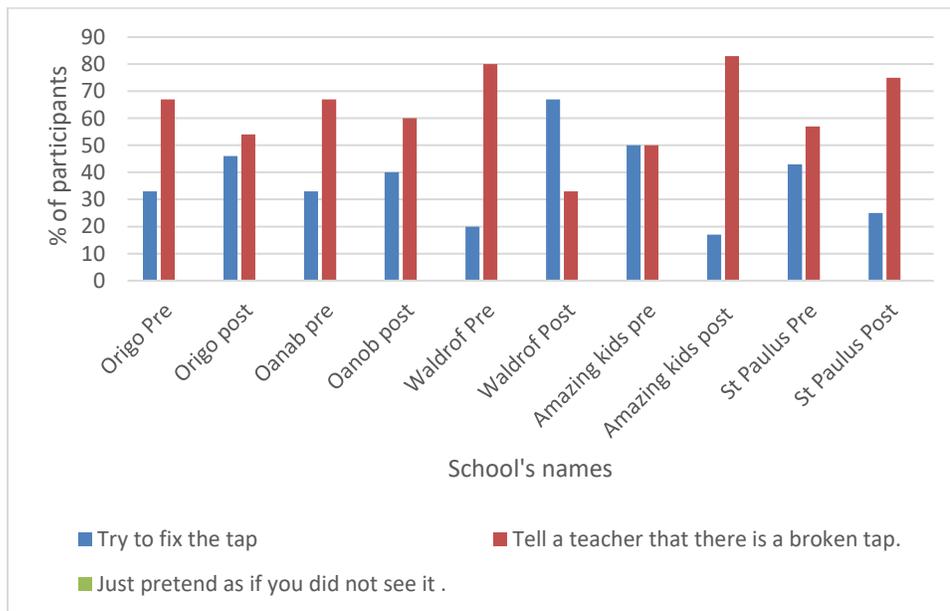
- Not all the participants were found only 34 out of 48.
- The participants had identity numbers during the pre-research, however there was no key to help identify them during the post research and this means that their answers cannot be compared directly.
- Two school names were not indicated or recorded in the pre-research phase, and so those schools were not involved in this follow-up research.

- Some of the participants were pulled out of the pre-research for unknown reasons; however it is not possible to know which participants those were.
- General question asked were too open-ended, and so there is a lot that can influence the responses.
- The pre-research had few questions about water.

## Result

### Long term impact of the NaDEET Center’s program.

The graph in figure 1 shows pre and post actions that the participants do when there is a leaking tap. Every school has its own pre and post section on the graph. It shows that all participants are taking actions when they see a leaking tap. None of the participants said they will ignore it; they will either try to fix it or tell a teacher to fix.



**Fig, 1 Actions taken by the participants when there is leaking tap at home /school (pre and post survey).**

The graph figure 2 shows the number of participants impacted during pre and post study regarding the question” why they think it is important to use water wisely “. A chi-square test was run and it shows that there is no significant difference between pre and post study ( $\chi^2(1)=1.186, >0.05$ ). Failed to reject the null hypothesis, however there is a little difference as the graph shows that the number of participants which are not impacted has increased by 2 participants. (The test is attached on the document appendix III ) P-value =0.350

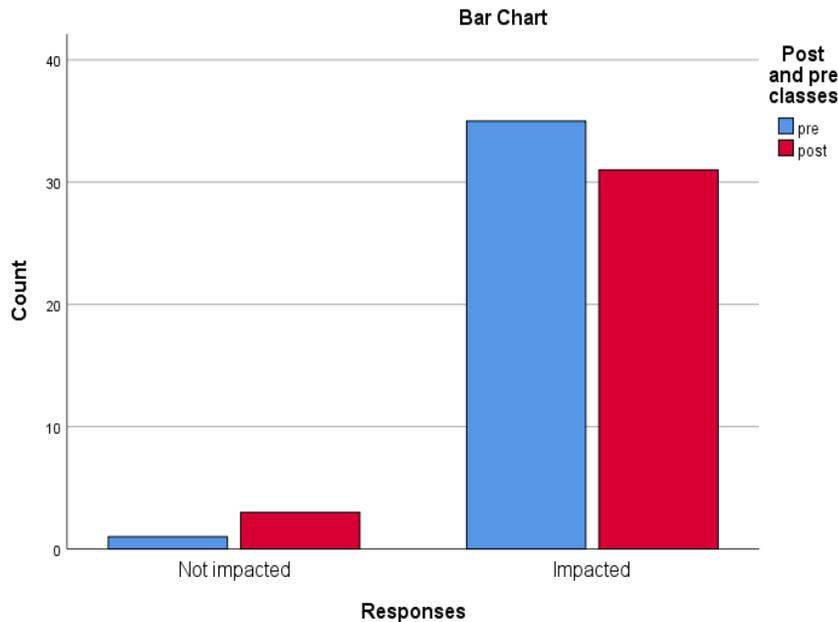


Figure 2, Participants that are impacted or not impacted on their perception on the importance of using water wisely.

Table 1 shows what the participants pledged to do back home or school after attending NaDEET program. The column which indicate post shows what participant are doing now to save water which they have learnt at NaDEET Centre. The public schools are Origo and Oanob based in Rehoboth, and the private schools are Amazing kids private schools and St Paulus college.

**Table 1 Actions that will be taken / are taken by participants to save water at home or school that were learnt from NaDEET Center.**

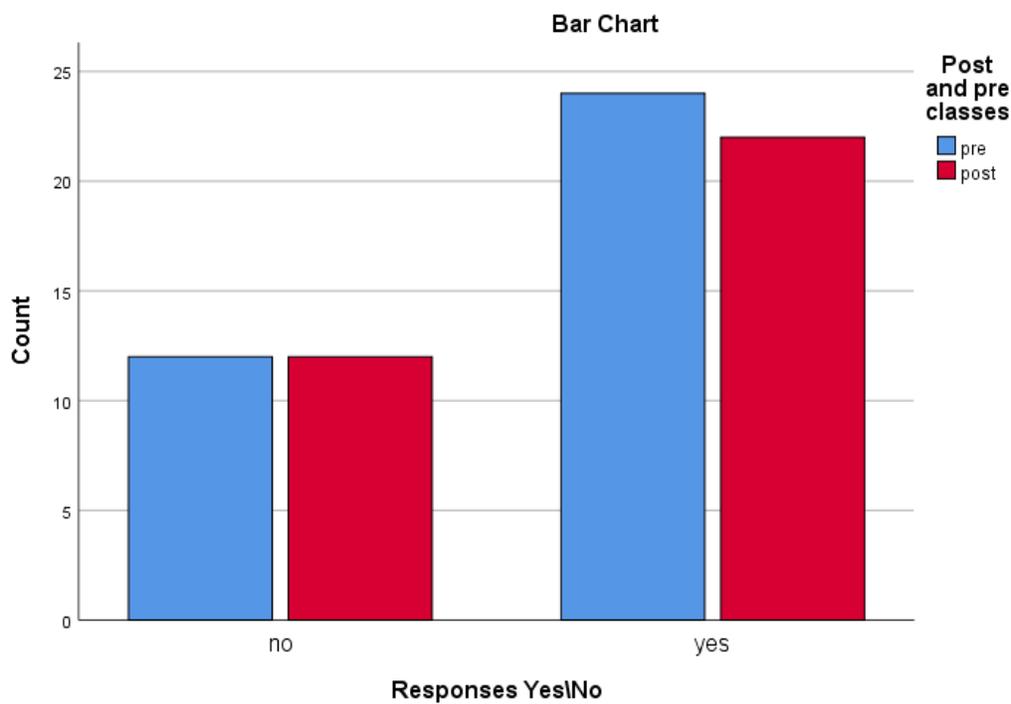
categories	Public pre	Public post	Waldrof Pre	Waldrof post	Private school Pre	private school post
Do not waste water	2	4	3	3	2	8
Close/fix and report leaking taps	12	7	3	2	11	12
Use cup to brush teeth	7	6	0	1	8	2
Close tap while brushing teeth	2	0	0	0	1	0
Take a shorter shower	2	1	1	3	8	8
Reuse grey water	3	4	2	1	3	5
Control the amount used to flush the toilet	0	0	0	0	1	0
Introduce bucket shower at home	0	0	0	0	0	0
Use a bucket to wash a car or body	7	4	0	0	0	0
Tip tippy at toilet	0	1	0	0	2	0
Start counting water usage	0	0	0	0	2	0
Raising awareness about saving water	0	0	0	0	0	0
Stop using a sprinkler irrigation system	0	0	3	0	0	1
Introduce/use a bucket shower	0	1	0	0	6	0
Don't know	1	0	0	0	0	0

The graph figure 3 shows the t-test done on number of participants re using grey water.

The P- is 1.00 which is greater than the critical value; fail to reject the null hypothesis

( $\chi^2(1)=0.030, P>0.05$ ). This shows that there is no significant difference between pre

and post. The graph below shows that the number of the participants who reuse grey water and who do not during both study is almost the same. The graph is influence by the difference in the number of participants during the pre and the post study.

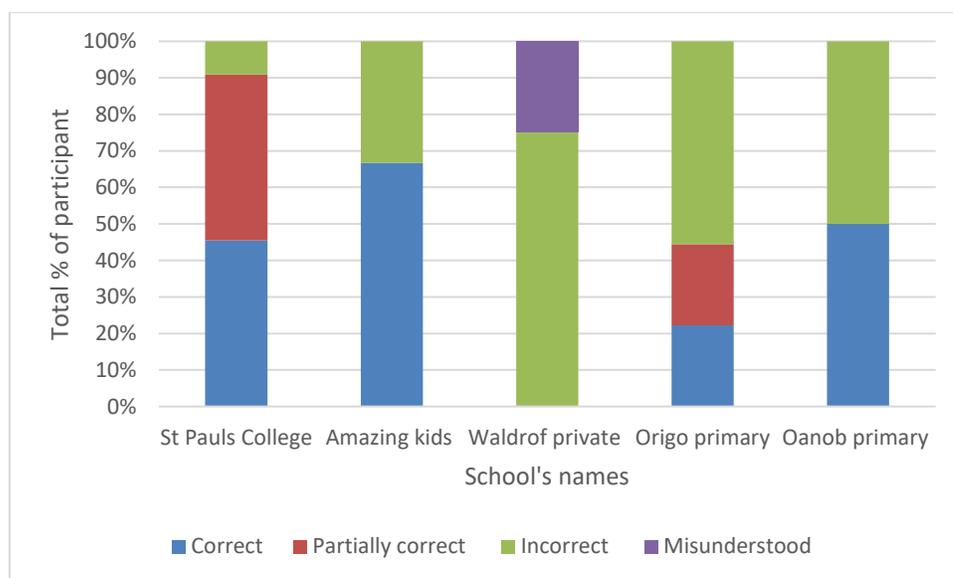


**Figure 3** If participants reuse grey water or not

### Knowledge and attitude towards the environment

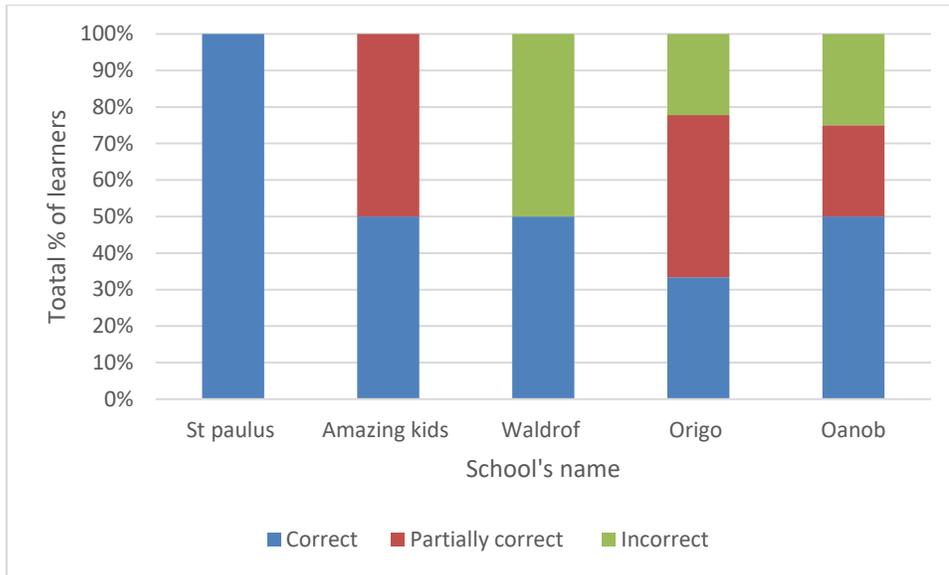
There is no pre responses on this objective because it was not focus of the previous research work .This section is intended to find out the knowledge of participants and attitude toward the environment specifically regarding water conservation. It also shows the difference between different schools system such private, public and Waldrof system. This means that all the figures below have no pre but only have post.

Figure 4 shows how participants from different schools understood the term sustainability. It shows that 90% of the St Paulus learners understood the term, none of the Waldorf learner understood the term, 45 % of Origo learners understood the term and 51% of Oanob learners understood the term.

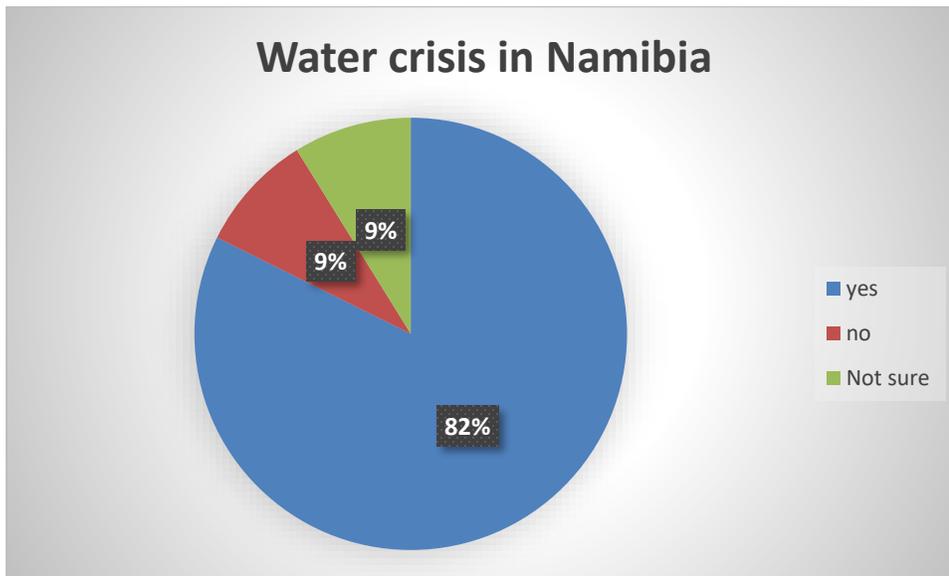


**Fig 4, How the term” sustainability” was understood.**

The graph figure 5 below shows how participants understood the term water crisis. It shows what percentage of the learners understood the term correctly, partially and incorrect. An example of correct answer is no enough water and partially correct is water wasting. Participant that gave incorrect answers always say they do not know. It shows that all private schools learners understood the term, 50% of Waldorf learner understood the term and only few participants from public schools did not understood the term compare to those who understood it.

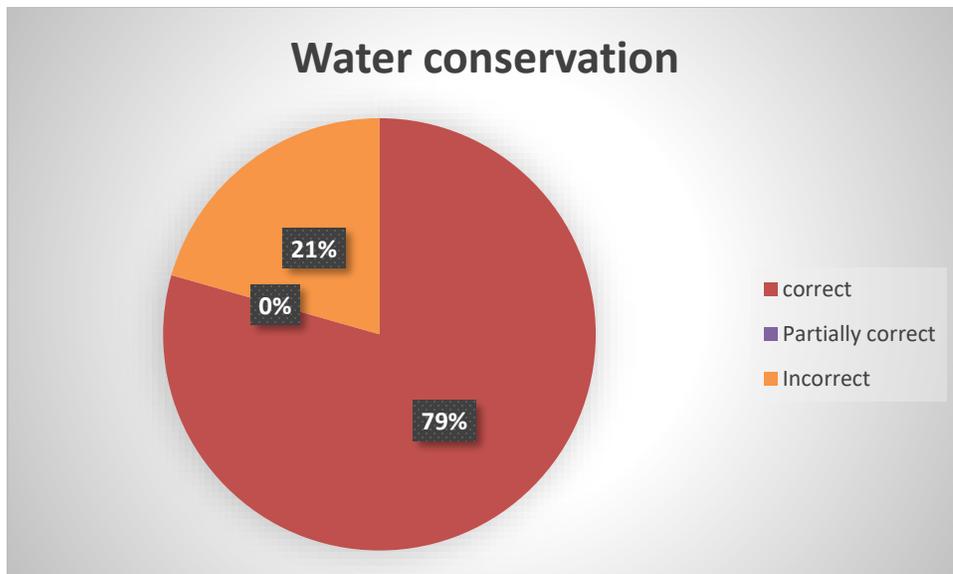


**Fig. 5 How participants understood the term “water crisis.”**



**Fig 6 Learners opinion as to whether there is water crisis in Namibia or not.**

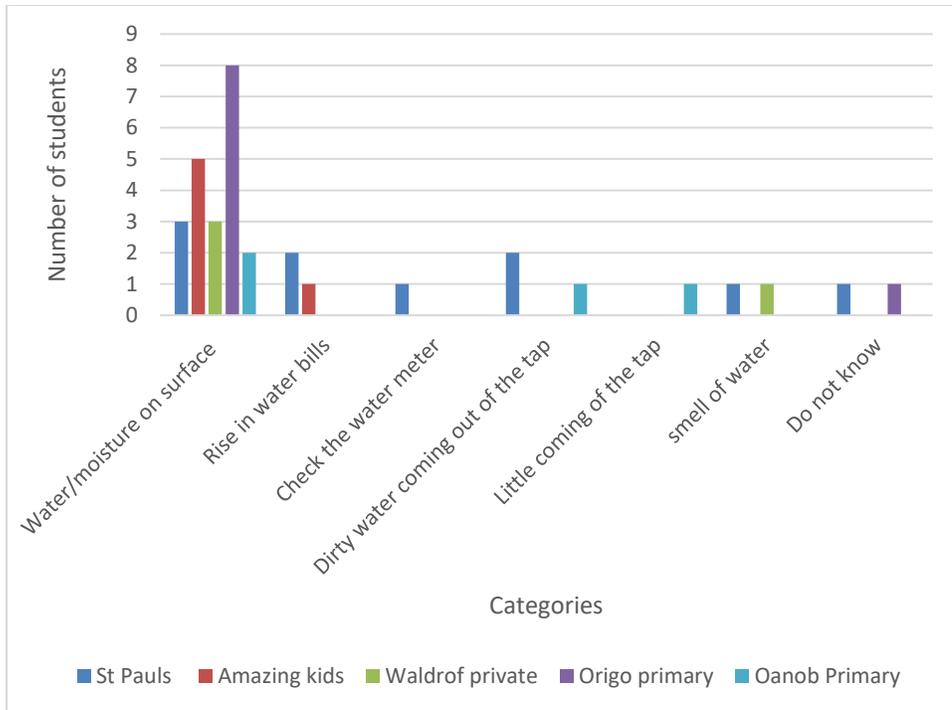
The pie chart shows the percentage of the participants that think there is a water crisis in Namibia, those that think there is no crisis, and those that are not sure.



**Fig,7 How the term “water conservation” was understood.**

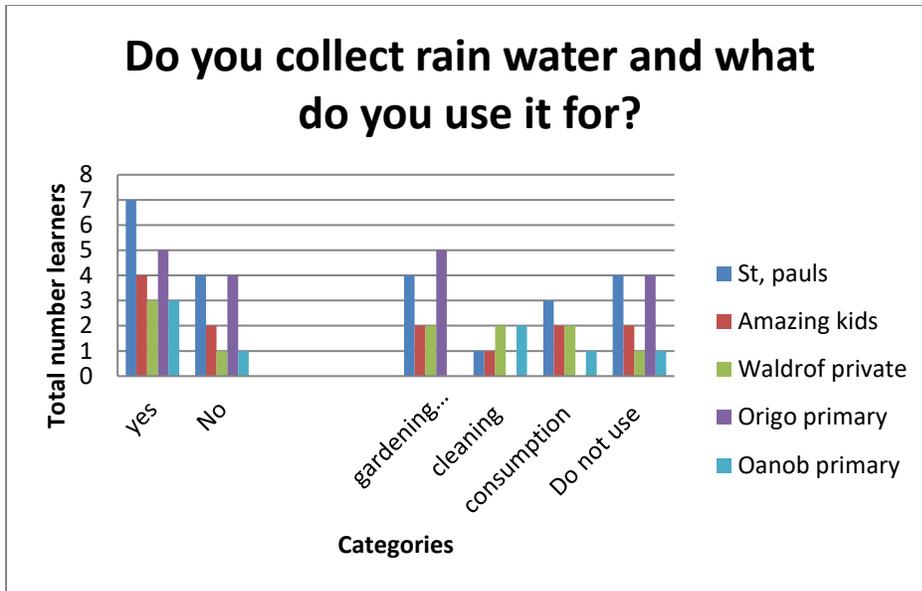
The pie chart above shows how the term crisis was understood by the participants, either correctly, partially correct and incorrect. Only 1 learner from Waldrof could define the term water conservation, and three learners from public school got it wrong .It is however noticed that only 1 learner from private school could not define the term.

The graph figure 8 shows how participants would know if a pipe at or school was leaking. It is categorised by colours representing different schools. Most of the learners would only know if there was a leaking pipe if there was moisture on the surface of the ground. Not many of the kids would know if a pipe was broken underground then, by checking the water meter, which was taught at NaDEET Center .



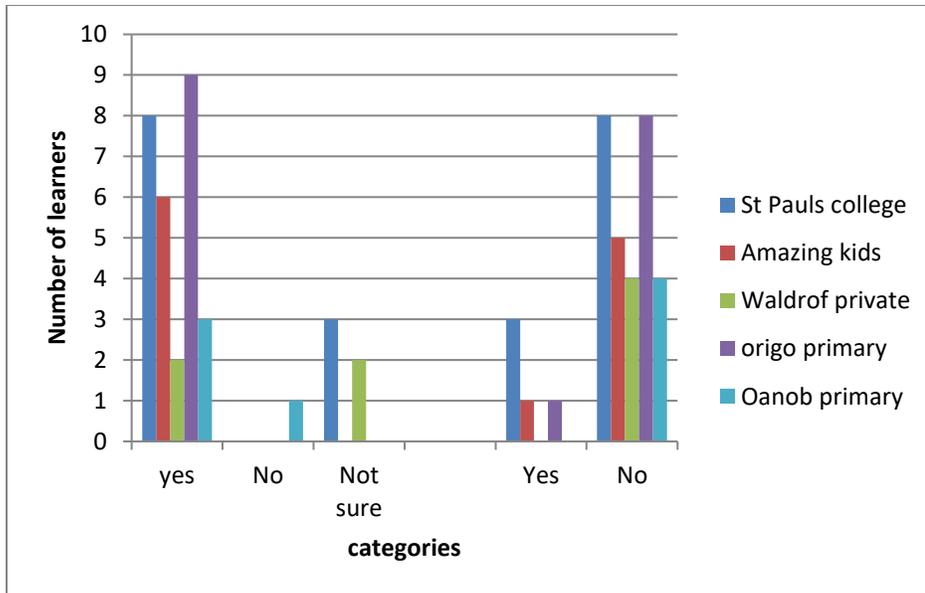
**Fig 8, how participants would know if a pipe is leaking.**

The graph figure 9 display participants that collect rain water and the usage for the rain water collected. Again, each colour represents a different school. 22 of the students say that their families use rain water and 12 families do not. It also shows that there is no difference between schools when it comes to the collection of grey water.



**Fig 10, How many participants collect rain water and the usage for it.**

The graph below display how many participants have a water meter at home and how many can read it. It is categorised by different schools. In total 28 participants said yes they have a water meters at home, however only five participants could read it. All participants were taught how to read a water meter at NaDEET Center, this shows that they just can't remember.



**Fig 11, shows who have a water meter at home and who can read it even they do not have it at home.**

## Discussion

A lot has been done to educate people about the environment and sustainability but few follow up are done to see if there is a change. A post-survey is one of the important research tools that help NaDEET Center to know if their programs are effective. It will also help them to rate and improve their programs.

## Determine the Impact of NaDEET Center 's program

Figure 1 show that all participants do something when there is a leaking tap, either they try to fix it or they tell a teacher that there is a broken tap. It is noted that none of the participants said that they will pretend that they are not seeing it. It also noted that of the participants from Waldrof private school, 80% of them said that they will tell a teacher during the pre-survey and only 20% will try to fix it, however it turns out now that they felt empowered to fix the taps. This is because the waldorf system advocates technical skills than theoretical skills. It also shows that the positive attitude toward the environment has been retained and participants will take of the environment.

Figure 2 shows why participant thinks it is important to use water wisely. A lot of interesting answers were given such as water is scare in Namibia, to save money, save water and plant, animals and humans to survive. The most common answers that were given during the pre-survey was that water is scare and to save water. Those are still the most common answers which show there is no much difference in the last year. However, 55% of St Paulus College said save water during the pre-survey and after the post survey 60% said that plants, animals and human to survive. This shows that they now understand it better than at the beginning of the research projects. Overall, it unfortunate that the percentage of those that does not know why should water be used wisely has increased compared to pre-research. This shows that the knowledge they had after attending NaDEET Center's program is still the knowledge they have, because the t-test shows there is no significant different between pre and post study ( $\chi^2(1)=1.186, P>0.05$ ). The null hypothesis is failed to be rejected. The knowledge of the participants could however, be influence by factor such school curriculum or because of environmental education program.

Table 1 shows what participants pledged to do after NaDEET Center's program and what they are doing to save water that they have learnt at NaDEET Center . It is noted that every participant is at least doing something to save water and using ways they have learnt at NaDEET Center . It is not necessary what they pledged to do is what they are doing now, in fact in most of cases, learners are doing different activities. The top 3 ways that that were pledged were close/fix and report leaking taps, do not waste water, and use a cup to brush teeth. It turn out that the use of cups has decreased, but more people are re-using grey water. Reusing grey water represents more water conservation than just a cup full of water once or twice a day. It was discussed that one of the participants went further to educate parents and manage to stop using the sprinkler irrigation at home. This shows that the learners are sharing what they learned with their parents!

Figure 3 shows a Chi-square test to determine if there is a mean different between the pre and post survey in participant that reuse grey water. Since this the p-value is not less than 0.05, there is no significant difference between the means, and therefore there is no

change after pre and post survey. The null hypothesis failed to be rejected ( $\chi^2(1)=0.030, P>0.05$ ) because there is no significant difference between what they said they were going to do and what they are doing which means they are still saving water. According to the chi-square test there is no significant difference, however the percentage of participants who re-used grey water during the pre-study was 51.4% and during the post studies only 48.6 reuse grey water. This means the number of people reusing water has been reduced. Participants said that the reuse grey water for different activities such watering plants, cleaning and flushing the toilet. A concrete decision cannot be made to whether NaDEET Center's program has a long term impact or not because what the participant knew before attending a NaDEET Centre's program is not known and due to this factor the impact can not be quantified into number or percentage.

One the tools which was used was an eco-hand print, it was realised that most of the things written on then eco-handprint are already covered in the questionnaire and most of the participants have confused their eco-hand print. Hence most they had no name one eco handprint can have two owners which shows that they just couldn't remember which one was theirs. It was further noted that most of the participants from St Paulus College always kept their eco hand prints in their school bags. This could be because it is one of the organised schools and when they heard that an interview will be carried out by NaDEET's staff, they were just prepared. It was noted that despite the confusion most the participant are doing more than two things to save the environment, it could be water, energy or waste related.

### **Attitude and knowledge**

Figure 4 shows how the term sustainability was understood; it shows that Amazing Kid's private schools had the highest percentage of participants that understood very well the term "sustainability." Participant from Waldrof did not understand the term sustainability at all. This also shows that the private schools, which are Amazing kids and St Paulus College, has the most percentage of participants that understood sustainability. They are followed by Public schools and the Waldrof School is the last. This is because Wadorf system motivate more technical skills that theoretical skill which is the main focus for

private and public schools. Private schools also travel a lot and might have heard about this term more than ones.

Figure 5 shows how participants understood the term water crisis and it is noted that most the participants understood the term water crisis which shows their knowledge. However, only participants from private schools could all define the term. All public schools had few that did not understand the term at all. Waldrof has the most percentage of participants who could not answer correctly. Overall, 82% of the participants think there is water crisis in Namibia and this shows that they understand that Namibia is a dry country. This also show that most private Schools and public schools capture more theoretical knowledge compare to Wadorf.

Figure 7 shows that 79% of the participants understood very well the term water conservation and only 21% that did not understand the term. This shows that participants have knowledge regarding water management. Ardoin ( n.d.) also said that 98 % of the studies that examine that knowledge gain from environmental education showed a positive impact . A lot of participants from private schools understood better than public schools .It also shows that Waldrof participant has the less knowledge even compare to public.

Figure 8 shows how participants would know if their pipes were leaking at home or school. Participants gave different respond such water/moisture on the surface which the most common respond. The second category with a lot of responses is rise in water bills and smell of water. This shows that most of the participants have knowledge regarding the leaking tap because only one person said he/she would not know. Only one person said they will check on the water meter and this information is one being taught at NaDEET Center . This show that participants have general knowledge but not necessary what they have learnt from NaDEET Center.

Figure 9 shows the number of participants that collect rain water and what they use it for. It shows that participants that collect rain water are more than those that does not collect

rain water. Participant's use rain water for gardening and farming, cleaning and also consumption (drinking) when there is no water, or when municipality cuts the water. This shows that their attitude toward water conservation includes the knowledge that rain water can be collected and be used.

Figure 10 shows how many participants have water meter and those know how to read it. It shows that most of the participants have a water meter at home and only few could read it. Only few from the private schools could read the water meter and only one from public school could read it and none from Waldrof. This can mean that the way NaDEET teaches about a water meter is not effective and participants can't remember anymore. It can also be because they are very small because they were all teenagers between ranges of 12-13 years old.

Regarding the questions that can't be compared to the pre-research because there is only one answer, it is noted that there might be other factors that influence the participants' knowledge. It can be either because they learnt it at school or in the community. This means that these questions were too general and there is no guarantee that the knowledge and the change in attitude toward water management is because of NaDEET Center's programs. However, Ardoin (n.d.) reviewed and demonstrated that good environmental education programs can positively influence learner's academic performances, knowledge, skill, motivation and behaviour. It is also observed that Waldrof School has less knowledge compared to private school and public school; however concrete conclusion can't be made because it is the only school with that system among the participants. This means one school is not a representative of the whole system and the rest of the schools are at least two and the participants were only four. Waldorf system is completely student-driven, they choose what they learn, not their teachers. Therefore, it may also be the fact that the learners might not be used to the approaches that were used by the researcher.

## **Conclusion and recommendations**

Environmental education is the key to awareness and that is what is needed to solve and mitigate different environmental problems. This research has statistically proven that participants have retained what they knew after attending NaDEET Centr's program regarding water conservation. It is also proven that most the participant have not changed their attitude toward the environment after leaving NaDEET Center. Regarding knowledge toward water management, Waldrof private school is known for low knowledge and the private school for high knowledge and public schools for medium knowledge.

The researcher recommends that questions on follow-ups to this research to be more specific to get the detailed answers. NaDEET Center must also improve the way they teach about the water meter for it to be effective. The researcher also recommends that if NaDEEET would like to do follow up research, they must always make sure they have all the information from the previous research. It is recommended that NaDEET re-do this whole research, the pre-research of 2018 and this research in 2019, if they would like to continue with this type of research.

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## Appendix I

Name;

School name ;

Age:

General Questions	
What do you remember most about your visit at NaDEET Centre?	
Would you go back again? (If yes why? If not why not)	
What is the environment?	
What is sustainability?	

2	Do you think we have a water crisis in Namibia?	a. Yes b. No
3	What do you understand by the term water conservation?	
4	Why is it important to use water wisely	a. To save water for the environment b. To reduce water crisis c. Other:
5	How often do you wash your body?	

6	What do you use to wash your body? (Give choices)	Shower      Bath      Bucket      Bucket Shower Other:
7	For how long do you wash/shower?	
8	What type of toilet do you have at home?	Flush                      Longdrop                      Other:
9	At school you pass by a broken tap that is always leaking. What will you do? (Do not give choices)	What is a leaking tap? Just pass by and pretend as if you did not see it. Try to fix the tap. Tell a teacher that there is a broken tap.
10	If your water pipe at home/school was leaking, how would you know?	
11	[Show two pictures of the water meters.] Do you have either of these at home?	
12	Can you read this meter for me? [If they say no, have them read the NaDEET meter]	
13	Do you reuse grey water (grey water is water that is already used)?	a. Yes b. No
14	If yes, What do you use it for?	
15	<b>Do you collect rain water?</b>	a. Yes b. No
16	If yes, what do you use it for?	
17	Name three things that you are doing to save water at home/school that you learnt from NaDEET (if at school, ask them to show you or show you pictures if they have, ask if you/they can take/send you the pictures.	

## Appendix II

### Consent Form

We are Lovisa Katanga and Theofilia Ndahalele, students from the Namibia University of Science and Technology (NUST). We are conducting a comparison study on the impact that the NaDEET Centre programme has on the behaviour of past participants who attended the NaDEET Centre programme.

Participants are expected to be open and honest in answering, as this will determine the results of the study and the recommendations resulting from this research study. Participants are allowed to withdraw and discontinue participation without penalty. The study data will be coded so that it does not link to the participant's names thus it guarantees confidentiality. The participant's identity will not be released during the study or process of data analysis.

The following are the names of the participants that will take part in the survey. Should the teacher agree to grant permission, please sign the consent form.

**School list of learners:**

1.

Teacher's name in Print	Signature
.....	.....
Date	Researcher signature
.....	.....

## Appendix III

### Question 1 The importance of using water wisely test

#### Responses \* Post and pre classes Crosstabulation

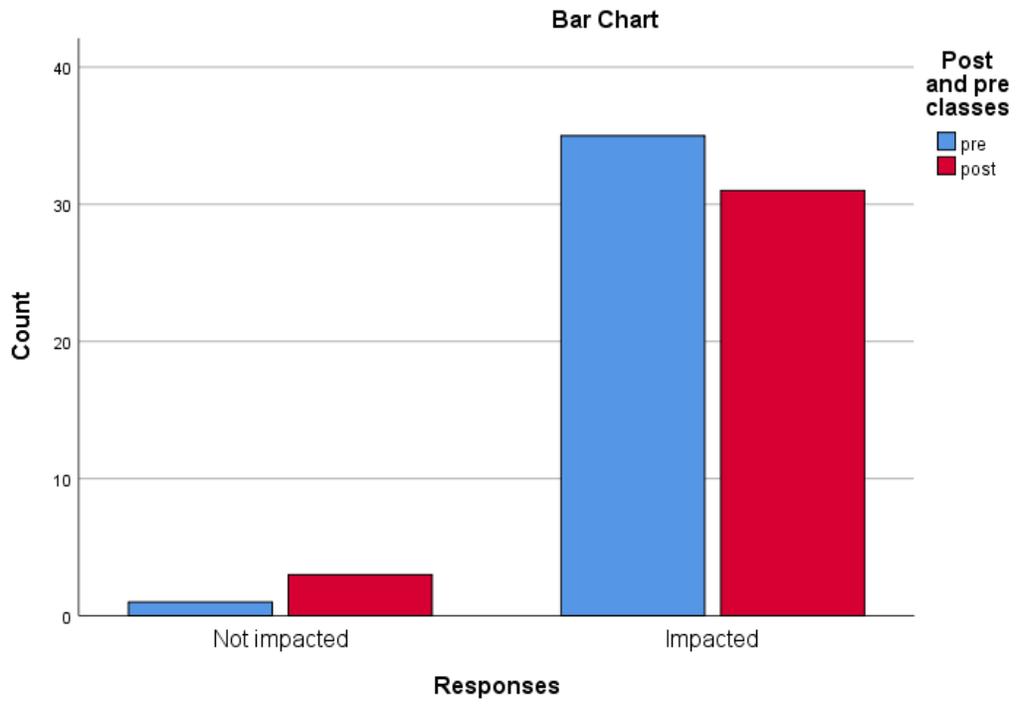
		Post and pre classes		Total	
		pre	post		
Responses	Not impacted	Count	1	3	4
		% within Responses	25.0%	75.0%	100.0%
		% within Post and pre classes	2.8%	8.8%	5.7%
		% of Total	1.4%	4.3%	5.7%
	Impacted	Count	35	31	66
		% within Responses	53.0%	47.0%	100.0%
		% within Post and pre classes	97.2%	91.2%	94.3%
		% of Total	50.0%	44.3%	94.3%
Total	Count	36	34	70	
	% within Responses	51.4%	48.6%	100.0%	
	% within Post and pre classes	100.0%	100.0%	100.0%	
	% of Total	51.4%	48.6%	100.0%	

#### Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi-Square	1.186 <sup>a</sup>	1	.276		
Continuity Correction <sup>b</sup>	.329	1	.566		
Likelihood Ratio	1.232	1	.267		
Fisher's Exact Test				.350	.286
N of Valid Cases	70				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.94.

b. Computed only for a 2x2 table



## Question 2 ;The number of people that reuse grey water

### Responses Yes\No \* Post and pre classes Crosstabulation

		Post and pre classes			
		pre	post	Total	
Responses Yes\No	no	Count	12	12	24
		Expected Count	12.3	11.7	24.0
		% within Responses Yes\No	50.0%	50.0%	100.0%
		% within Post and pre classes	33.3%	35.3%	34.3%
		% of Total	17.1%	17.1%	34.3%
	yes	Count	24	22	46
		Expected Count	23.7	22.3	46.0
		% within Responses Yes\No	52.2%	47.8%	100.0%
		% within Post and pre classes	66.7%	64.7%	65.7%
		% of Total	34.3%	31.4%	65.7%
Total	Count	36	34	70	
	Expected Count	36.0	34.0	70.0	
	% within Responses Yes\No	51.4%	48.6%	100.0%	
	% within Post and pre classes	100.0%	100.0%	100.0%	
	% of Total	51.4%	48.6%	100.0%	

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.030 <sup>a</sup>	1	.863		
Continuity Correction <sup>b</sup>	.000	1	1.000		
Likelihood Ratio	.030	1	.863		
Fisher's Exact Test				1.000	.531
Linear-by-Linear Association	.029	1	.864		
N of Valid Cases	70				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.66.

b. Computed only for a 2x2 table

