



Department of Agriculture and Nature Resources Sciences

Faculty of Natural Resources and Spatial Sciences

PROJECT REPORT

The role of NUST-NaDEET internships in promoting sustainability and inspiring future environmental educators



Salom W. Haiduwa Student Number: 216011183

Mentor: Mr.Panduleni Haindongo

Tutor: Ms. Shirley Bethune

Namib Desert Environmental Education Trust (Urban Sustainability Centre) Swakopmund

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1. INTRODUCTION

The Namib Desert Environmental Education Trust (NaDEET) is a non-profit organization, established in 2003. Their purpose is to promote sustainable living and boost Environmental Education or as it is more recently called Education for Sustainable Development (ESD).

NaDEET is one of the few Namibian organizations with aims to both protect the Namibian natural environment by educating citizens to practice a sustainable lifestyle, and to train university students to become future environmental educators. NaDEET like most EE organizations with similar aims, aims to let individuals explore their environment, identify environmental issues and get involved in possible solutions to environmental challenges, to take action in their lives, and to promote more sustainable living now and in future.

Work-Integrated Learning (WIL) broadly helps prepare university students for the real world, in their field of studies, by providing practical training, in a student-centered environment, that should focus on their future career (Cooper, Orrell, & Bowden, 2010). Different fields of studies have different aims, for example at the Namibia University of Science and Technology (NUST), the Natural Resources Management programme aims to teach students to protect and sustainably use natural resources, at local, national and international levels.

Over the years, people have tried to use Environmental Education (EE), Education for Sustainable Development (ESD) to create a better understanding of environmental issues (Tilbury, 1995). The new millennium prompted environmental education to try to more clearly explain environmental problems faced by contemporary society. The result was greater support for an educational approach which not only takes into consideration immediate environmental improvement, but also education for long-term sustainability. ESD is concerned with integrating different environmental disciplines and education and linking conservation with economic development (Gralton, Sinclair, & Pumell, 2004), ESD focuses on increasing awareness, and promoting sustainable living, as well as, on education to help the world develop more sustainably, to meet the needs of the present generation in a way that does not affect future generations.

Most people in Namibia do not really understand the concept ESD. It means that through environmental education, people should acquire the knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Thus, ESD is crucial to achieve sustainable development. It should empower learners to make informed decisions and take responsible action based on the three pillars of sustainability; environmental integrity, economic viability and a more just society, for present and future generations. This education should be available to everyone and as it is aimed at changing learner's attitudes and behavior, should involve learners of all ages, especially school-aged learners.

There is some evidence in the short-term, that environmental education initiatives can change learner's beliefs and attitudes, but unfortunately there is little evidence that, they are as good at changing long-term behaviour.

NaDEET has two centres, an Urban Sustainability Centre in Swakopmund, which focuses on sustainable living in urban areas and related waste management. The other Centre in the

NamibRand Nature Reserve, a hundred kilometers south of Sossusvlei, focuses on teaching, mainly young people, to use their resources in an environmentally-friendly way. For example, at that Centre, there is an ongoing focus on solar energy activities. Both centers annually give NUST natural resources management students the opportunity to do their WIL experience as interns. It is expected that NaDEET internships should help them improve their own behaviour and attitudes and so promote sustainable living.

The Natural Resources Management course at NUST engages students in EE by giving them courses that teach them about environment and one of these, Methodology of Environmental Education (MEE), is specifically about EE. MEE, which basically teaches different practical methods of how EE should be delivered to learners, also deals with, how to do extension work with adults and how to create awareness about global environmental issues relevant to Namibians. This course includes practical class work and an excursion to put into practice what they have learnt (Own experience).

Environmental organisations, like NaDEET are dedicated to improving ESD skills, while instilling sustainable living practices. This study was aimed to find out what role NaDEET had played, so far. I wanted to find out, what impact their experience at NaDEET has had on in the lives and future careers of interns from NUST over the years.

Former NUST Nature Conservation and Natural Resources Management students are found everywhere around Namibia, as are the current and former students, especially now during lockdown. Therefore, this included respondents from all over Namibia.

2. AIMS AND OBJECTIVES

The overall aim of this study was to find out, the impact that the NaDEET internships has had within the Namibian environmental sector, and how NaDEET-NUST internships have contributed towards this. To achieve this aim, the following objectives were formulated;

1. To compare the environmental knowledge of NUST students, studying natural resources management to NUST students that were not doing natural resources management.
2. To compare the sustainability competency of NUST-NaDEET interns to other students that had done their internships somewhere else.
3. To find out how many of NaDEET-NUST interns had made EE/ESD their career, compared to other NUST natural resources management students that had done their internships elsewhere.

The research questions that guided this study were;

1. Did NaDEET-NUST internships play a role in practically improving behaviour that promotes sustainable living i.e. did it improve the sustainability competency of students doing the internship?
2. Did NaDEET-NUST internships encourage students to pursue careers in EE/ESD?

3. METHODS

This project was based on a google survey and questionnaire, because the target groups were scattered all over Namibia.

3.1 Experimental design:

The main method was a Google survey and questionnaire, aimed at four target groups. These target groups were: 1. Current NUST natural resources management students; 2. Current NUST non-natural resources management students; 3. Former NaDEET-NUST former interns and 4. Former NUST natural resources management students who have worked in the field of EE/ESD, but that did not do their WIL internships at NaDEET. Two of these groups, the group of current non-natural resources management students (2) and former NUST natural resources management students, who did not do their WIL at NaDEET (4) served as the control groups.

Because the number of former NaDEET-NUST interns i.e. the Natural Resources Management students that have been WIL interns at NaDEET-NUST as interns since 2003, were 26, this number of students were targeted to participate in the surveys and so 26 questionnaires were sent to in each group and its control group. Students in control groups were chosen randomly.

3.2 Selection of participants;

All the natural resources management students (former and current) were selected at random, the researcher obtained a list of all the former and current natural resource management students from Mrs. Theron, the coordinator of WIL, at the Department Agriculture and Natural Resources Sciences. Non-natural resource management students were invited to participate via social media. An invitation to participate was posted on the social media platforms, WhatsApp and Facebook. Twenty-six participants of those who confirmed their interest were randomly chosen and sent the Google Survey questionnaires to complete and submit.

3.3 Preparation of questionnaires

Questionnaire 1: This questionnaire was aimed at current NUST students doing natural resources management and the control group of those that were doing some other course at NUST, to compare their environmental knowledge and understanding of EE/ESD. (See Appendix 1 for the detailed questions.)

The reason for this survey was to compare if NUST natural resource management students already had a better environmental knowledge or experience of EE/ESD than the control group of non-natural resource management students, who had probably not done EE related courses.

Questionnaire 2: This survey aimed to look at the impact that NaDEET has had on young people entering the field of EE/ESD. This questionnaire was given to two groups of former NUST natural resources management students, those who had done their WIL internship at NaDEET, (the NaDEET-NUST interns) and those who had done their WIL internships elsewhere and had worked in EE/ESD. The aim was to see what impact doing WIL at NaDEET had on formers students choosing careers in the EE/ESD field and continuing to work in the field of EE/ESD. (See Appendix 2 for the questions asked).

3.4 Analysis of questionnaires

The questions asked were grouped in such a way that they cover the three concepts, 1. Environment in general, and Environmental education knowledge, this was done to see what group of participants have better understanding of the two concepts. See the results for detailed information.

4. RESULTS

4.1 Survey to compare knowledge and experience of environmental issues and EE/EDS of current NUST students doing the Natural Resource Management programme and those doing other courses.

As shown in Appendix 1, this questionnaire targeted current natural resources management students to compare their knowledge of environmental issues and EE against the knowledge of non-natural resources management students from NUST, who served as the control group. Although 52 questionnaires were sent out, 26 each, to NUST natural resource management students and to the control group, only eleven were returned from each, as shown in Table 1.

Table 1: Number and gender of respondents to Questionnaire 1.

Current Natural Resources Management NUST students n =11		Current Non-Natural Resources NUST Students n = 11	
1. Male	5	Males:	6
2. Females	7	Females:	5

The four questions that gave the best insight into knowledge of the environment and EE were selected for further analysis, these results are given below:

(A) Respondent's knowledge about Environmental Education.

Almost all, 82% of the current natural resource management students at NUST that responded had a good knowledge about the environment and knew what Environmental Education is, while 64% of the NUST students not doing the Natural Resource Management programme had no idea what EE is. Therefore, I could confidently conclude that the NRM (Nature Conservation) programme does provide knowledge about EE.

(B) Respondent's own ideas about environmental conservation.

Even more, 90% of the current natural resource management students were able to provide different good ideas on how to actually keep our environment healthy while 81%, of the respondents from the control group had no idea how the environment could be conserved. This clearly shows that the NRM / NUST students could come up with good ideas about how to conserve the environment.

(C) Respondents that know the impact of increasing CO² on climate change.

All respondents were aware of this, showing that NUST deals with this issue widely.

(D) Response to the question “Who is responsible for environmental issues?”

This was asked to test the student’s ideas on who is really responsible for dealing with environmental issues and challenges, to see if they understood the concepts linked to issues like climate change, land, air and water pollution. Figure 1 shows their response.

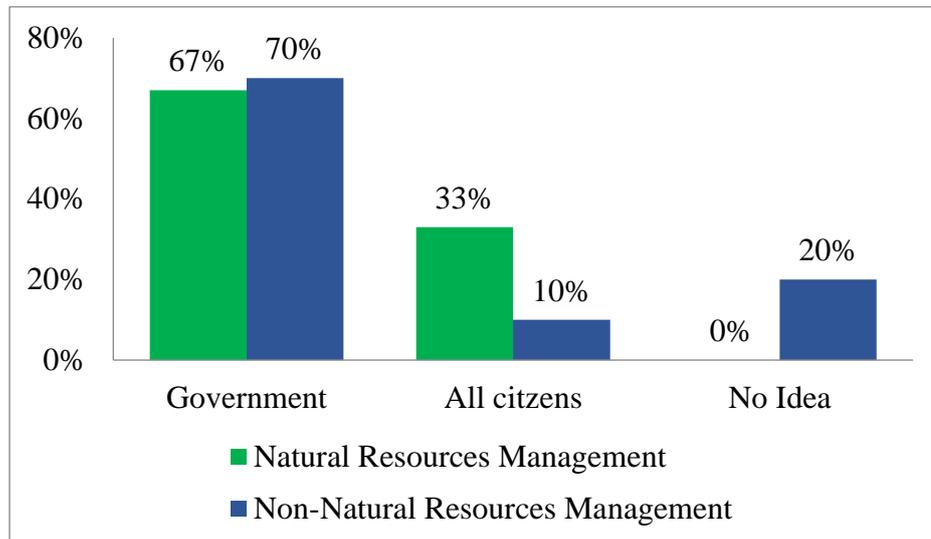


Figure 1: Comparison of student’s responses on who should be responsible for Environmental issues

This graph shows that about two thirds (70 and 67%) of both student groups consider that the Government is responsible for environmental issues in Namibia, however there was a difference between the two groups asked, in that a third (33%) of the Natural Resources Management students believe all citizens are responsible in contrast to only a tenth of the other students. It was also rather worrying that, 20% of the non-natural resource management students had no idea who is responsible for conservation issues.

4.2 Survey to compare former NUST Natural Resource Management students, who did WIL internships at NaDEET and those who did their WIL internships elsewhere and had worked in EE/ESD.

Table 2: Number and gender of respondents to Questionnaire 2.

NUST former students who did WIL at NaDEET n = 10		NUST former students who did WIL elsewhere and had worked in EE/ESD n = 5	
Male	3	Male	1
Female	7	Female	4

As shown in Table 2, the response to this survey from former NUST-NaDEET interns was satisfactory, although only 38.5%, with 10 replies received, however the response from former NUST students who had done their WIL elsewhere and had worked in EE/ESD was fairly poor, with only five out of 26 replies, a response of less than 20%. Therefore, the results may not be representative of the group as a whole.

Despite this, some general conclusions can be drawn from the results about A) which group of former NUST NRM students (those who had done WIL at NaDEET or those who had done WIL at other EE-related duty stations) were more likely to choose a career in the EE/ ESD field and remain working there, as well as, B) to compare which group had adopted a more sustainable lifestyle.

A) Comparison of former NUST Natural Resource Management students who did their WIL internships at NaDEET and those who interned elsewhere, who entered EE/ESD careers and those who remain working there.

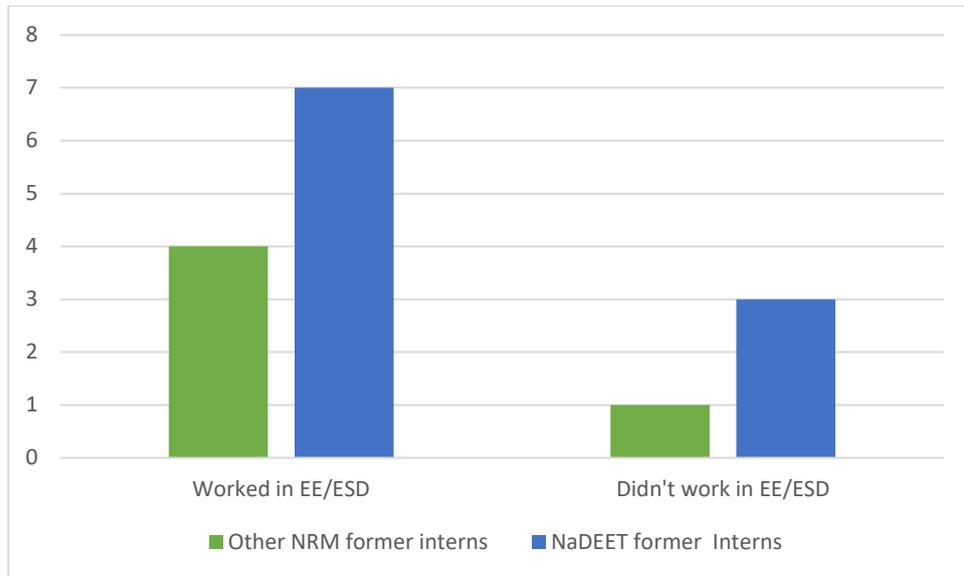


Figure 2: Comparison of EE/ESD career of NaDEET former and other NRM interns.

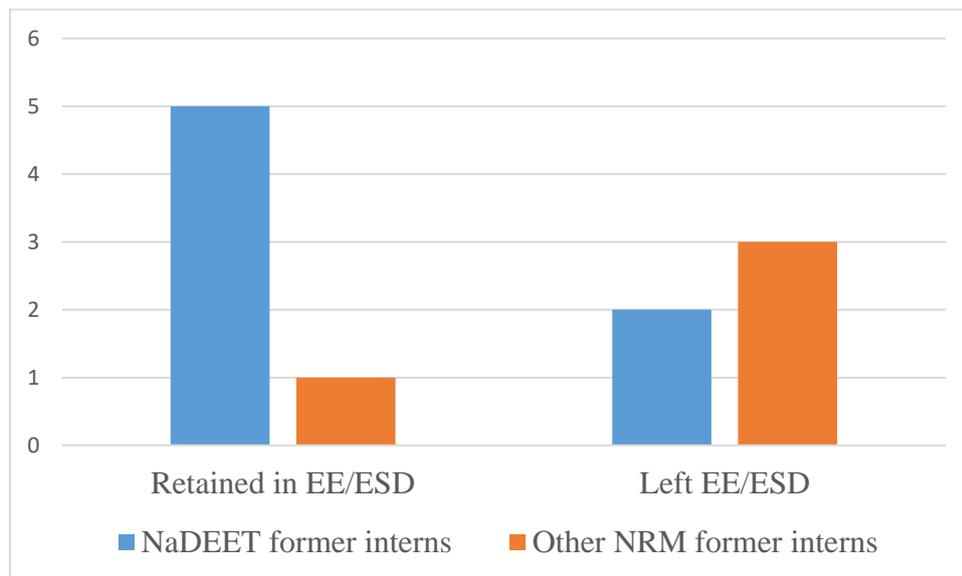


Figure 3: Comparison of NaDEET former interns that have retained in EE/ESD and those that left to Other NRM former interns that retained and those that left EE/ESD as a career.

Although the sample was small, this clearly shows that; a high percentage of NUST-NaDEET interns have entered the Environmental Education sector. This could already tell us that they were inspired by NaDEET to do more towards conserving the environment by helping to educate young Namibians. Far fewer of the non-NaDEET interns entered the EE sector and only one of them is still working there.

B) Comparison of the Sustainability Competency

To compare the sustainability competency, of the two groups, the results from section 3 of the questionnaire and the responses to the questions that asked them to give examples of activities they do that contribute towards sustainable living, such as, use of renewal energy, reuse and recycling of waste, water saving and sharing sustainable living tips, were used.

Their responses showed that six of NUST-NaDEET former interns practice the 3Rs while only four of the NRM former interns that did their internships elsewhere indicated that they practice the 3Rs. Those that indicated that they participate in awareness campaigns were three former NaDEET interns and only one from the group that did not do their internship at NaDEET. Two NUST-NaDEET interns said that they compost their waste, to use in their backyard gardens.

I would conclude based on this that, because of the community and school groups that visit NaDEET centres, interns there have learnt that they can also continue increasing awareness even after their internships at NaDEET end and because of the sustainable garden at NaDEET; some interns have taken this further and do gardening including composting at their homes.

5. DISCUSSION

5.1 Return rate of responses

The questionnaires that was sent to current NUST natural resources management students and to the control group of NUST students studying different courses received an acceptable percentage of returned completed questionnaires of 42%. However, the completed responses from, former natural students that did internships at NaDEET and those that did their internships at duty stations other than NaDEET, were low at only 20%

This could be improved in future research projects, instead of using questionnaires for the former students, one must rather interview them over the phone. This will help make sure the researcher gets the questions answered directly during the telephonic interview. Survey questionnaires never get a 100% return rate, this is because, not everyone is interested, not everyone has time to respond and some forget.

5.2 Importance of exposure to EE/ESD training at undergraduate level

The fact that natural resources management students are exposed to environmental education, lets them develop a fundamental understanding about environmental and conservation concepts. Methodology of Environmental Education was one of the courses that helped them extend their understanding. MEE also helped me as the researcher, realize the importance of sustainable living and so I could correctly attend to the daily visitors at NaDEET urban sustainability center (Swakopmund).

The results from the first questionnaire aimed at current NUST students showed that students who had not received training in the field of natural resources have no ideas of what EE is about, or about conservation concepts, and did not understand the basic concepts of sustainable living, for example that we are all responsible for the environmental issues, instead the majority believed the government is responsible. This response showed that they had been not made aware of their own responsibility towards the environment and so lack the kind of information that is taught in environmental education for sustainable development. Environmental

Education centers play an important role in communities. When young people visit them, they are inspired and educated about the environment and how to help conserve our resources. In general, most of the students doing natural resources management have a better understanding of Environmental Education and environmental conservation, after their practical experience doing the MEE course at NUST. (Own experience).

5.3 Influence of doing WIL internship at NaDEET on a future career in EE/ESD

Although the sample size was very small, the results have shown that several young people that did their internships at NaDEET have followed a career in EE/ ESD. A high proportion of the former NUST-NaDEET interns have remained and continued working in the field of EE/ESD. This is all because, the programmes at NaDEET are encouraging, they are hands on and inclusive. They inspire everyone to do more to help promote environmental education, often by becoming an EE/ESD teacher.

The responses, although few, also show-that there is a difference between the sustainability competency of former NaDEET interns and students that did their internships elsewhere. My own experience has shown me that doing an internship at NaDEET exposes you to a sustainable lifestyle, thus when one leaves, lessons learnt during the internship period stay in your mind. You have a better understanding of sustainable living and this has a positive impact on your future behaviour.

5.4 Limitations of the study

Due to COVID-19 lockdown, much changed in the country and I had to adapt my research project. I could not travel to Windhoek, to interview the participants that had shown interest in taking part in the study. I was then forced to make the project entirely online. I had to change the questionnaire and design it as a Google survey. It became a little bit harder for me because, I had to tell people what I had planned.

There were limitations to the, participants too, some had no access to internet, and not all of them could check their emails on a regular basis. Time was not really a problem because the questionnaires were short and understandable.

The project was initially planned to use interviews as the method of data collection but because of the pandemic caused by COVID-19, the country went into lockdown. Movement was restricted and the interviews planned to be held at the NUST campus were not able to be carried out. The method was then changed to an online Google Survey.

6. CONCLUSION AND RECOMMENDATIONS

Internships aim to prepare students for a real-world career experience. This research was conducted to find out three things. Firstly, if NUST students studying natural resources management had a better knowledge of environmental issues and EE/ESD than those doing other courses, secondly to compare the sustainability competency of former NUST Natural Resources Management students that did their internships at NaDEET with that of those that did WIL elsewhere and finally to assess if doing an internship at NaDEET inspired students to follow ESD as career and to remain in the field.

The results have clearly shown that NUST NRM students are more aware of environmental issues and EE/ESD than other NUST students although both groups were equally aware of the role of increasing CO² in climate change. They also show that former NUST interns at NaDEET are much more aware of how to live sustainability than NUST students who did their internships elsewhere and finally although the sample size was small it is very clear with 70% of NUST-NaDEET interns choosing EE/ESD as a career and many continuing with this career that their experience at NaDEET did play a role in inspiring their choice of career. Being given an opportunity to later work for NaDEET is likely to have further encouraged these students and is most likely another reason why they remain working in EE/ESD in Namibia.

Finally, I would recommend; NUST students to consider re-establishing the Environmental Club at NUST possibly under NEWS, to help create wider environmental awareness on campus amongst all students. This will close the gap in environmental education noticed between the NUST natural resource management students and the other current NUST students surveyed in this study.

Knowing that NaDEET is not the only NGO that is involved in EE/ESD in Namibia it would be interesting to expand this study to conclude the impacts of internships at other EE centres on the career choice of former NUST students. Similarly, it would be interesting to look beyond EE/ESD and see how many students career choices are influenced by where they did their WIL internships.

7. Acknowledgements

I wish to acknowledge the Namibia University of Science and Technology for granting me permission to carry out this research; also thank you to Shirley Bethune, my tutor for guidance, comments and edits and Panduleni Haindongo, my mentor at NaDEET for his help as well as the coaching. Thank you to the NaDEET Directors, Victoria and Andreas Keding for providing all the necessary tools, knowledge and supervision during my internship and thank you to Victoria Endjala, the Manager at NaDEET on the NamibRand Nature Reserve, for her kindness and guidance during lockdown.

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Appendix 1



A Natural Resources Management student at Namibia University of Science and Technology is conducting a research project to find out what role NaDEET has played in promoting sustainable living in Namibia and if they have encouraged interns to become environmental educators. You are kindly requested to answer the following questions:

Part 1: Personal information

1. Name:
2. Institution:
3. Qualification:
.....
.....
4. Year:
5. Age:
6. Gender:

Part 2: Survey Questions

1. Have you heard of the term "EE"? YES/NO
If, Yes? What does it stand for?
.....
If, Yes? Please explain what it means:.....
2. Have you ever heard of the term "ESD"? YES/NO.
If yes, what does it stand for?.....
If yes, please explain what it means:.....
3. What is your contribution towards environmental conservation?
.....
.....
4. Do you think that you can do something about each of the following environmental threats? And if yes, how? {please explain for each}
 - (a) Water pollution
.....
 - (b) Air pollution
 - (c) Land pollution
.....
- 5.
6. What do YOU do, to reduce,
 - (a) Water pollution
.....
 - (b) Air pollution
.....
 - (c) Land pollution
.....

7. Have you ever heard of climate change? YES/NO
- a) What is it?.....
 - b) Please explain what CO₂ stands for:
 - c) Name two sources:
8. a) Have you heard about environmental footprints?.....
- b) What is meant by your carbon footprint.....
 - c) What have you done to reduce your carbon footprint?.....
9. a) Do you think the government is responsible for environmental issues? YES/NO
- b) Why?.....
 - c) Who else should take responsibility?.....
 - d) How?.....
10. Do you think you are living a sustainable lifestyle?
- (a) If yes. How?
.....
.....
 - (b) If no, why not?
.....
.....
 - d) How could you change your lifestyle to live more sustainably?
.....
.....

Thank you for completing this questionnaire.

Appendix 2



A Natural Resources Management student at Namibia University of Science and Technology is conducting a research project to find out what role NaDEET has played in promoting sustainable living in Namibia and if they have encouraged interns to become environmental educators. You are kindly requested to answer the following questions:

Part 1: Personal information

1. Name:.....
2. Institution.....
.....
3. Qualification:.....
.....
4. Year obtained:
5. Current employer:
6. Years worked in EE/ESD:

Part 2: Career information

1. Since completing your degree, have you followed a career in Environmental Education or in any way linked to EE/ESD? **Yes/No**
 - a) When did you start?.....
 - b) Where did you work?
 - c) In what capacity?.....
 2. Are you still working in EE? **Yes/No**
If yes: a) Where are you working.....
 - b) For how long?
 - c) If in more than one place, please list all and for how long you worked there.
.....
.....
If no: a) When did you leave?
 - b) Why did you leave?.....
3. Are you using anything from your experience gained at NaDEET in your work/professional life?
If YES: a) what?.....
 - b) How ?.....
If NO: a) Why not?.....

Part 3: Sustainability information

1. Give an example of a renewable energy source that you use regularly.....

2. What do you do with your rubbish?

a) At your workplace:

.....
.....

b) At home:

.....

c) On holidays:

.....

3. What water saving method do you practice?

4. Name any other eco-friendly behaviour that you practice.

5. How could you change your present behaviour to live more sustainably?

.....

6. Which lessons on sustainable living are you passing on to:

a) Your family members:

.....

b) Your learner/students (if applicable)

.....

c) Your work colleagues

.....

d) Your friends.

.....

Thank you for completing this Google survey.