



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH, APPLIED SCIENCE AND NATURAL RESOURCES

DEPARTMENT AGRICULTURE AND NATURAL RESOURCES SCIENCES

QUALIFICATION: BACHELOR OF NATURAL RESOURCE MANAGEMENT (NRM)	
QUALIFICATION CODE: 07BNRS	LEVEL: 7
COURSE CODE: EEE 621S	COURSE NAME: Environmental Education and Extension
DATE: JANUARY 2023	SESSION:
DURATION: 3 HOURS	MARKS: 125

SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Ms. S. Bethune
MODERATOR:	Mr. W. Diergaardt

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer ALL questions. Note choices2. Read all questions carefully before answering.3. Number your answers clearly.4. Write clearly and neatly

PERMISSIBLE MATERIALS

1. Examination paper
2. Answering book
3. The article *"It's time to grow mainstreaming education for sustainable development in Namibia"*

THIS QUESTION PAPER CONSISTS OF 6 PAGES (Excluding this front page and 3-page article)

QUESTION 1: CURRENT ENVIRONMENTAL ISSUES

- 1.1 A few years ago, over 600 vultures died near a waterhole in the Zambezi region, the largest single recorded incident of vulture deaths. What caused this? (1)
- A. Poisoning of the waterhole by poachers
 - B. Drowning of the vultures in the waterhole due to floods
 - C. Poachers poisoning the elephant carcass after killing it
 - D. Poachers using poison to kill the elephants
- 1.2 What is the North Atlantic gyre and how is it linked to pollution? (1)
- A. Strong winds over the Atlantic that cause acid rain in Europe
 - B. Large swirl of currents in the North Atlantic where plastic waste collects
 - C. A dangerous place along the N-Atlantic shipping lanes for oil spills
 - D. Area in the N-Atlantic where global warming causes ice caps to melt
- 1.3 What is the main cause of coral bleaching? (1)
- A. A 1°C increase in sea surface temperature causing corals to eject their symbiotic zooxanthellae.
 - B. Low tides that expose the corals to bleaching due to sunlight
 - C. More CO₂ dissolving in the oceans making them acidic
 - D. Sea-level rise due to icecaps and glaciers melting, that causes less sunlight to reach the corals
- 1.4 Why is NamibRand Nature Reserve a “dark sky reserve”? (1)
- A. It is in the desert and the stars are not visible due to the fog
 - B. They try to reduce all light pollution at the lodgers and warden stations
 - C. Tourists are taken on night drives to observe nocturnal animals
 - D. The HESS observatory to study gamma rays at night is there.
- 1.5 What is currently the greatest threat to biodiversity worldwide according to Sir David Attenborough? (1)
- 1.6 What is the main cause of the loss of 40% of the Cape Floral Kingdom in South Africa, particularly around the city of Cape Town as well as the 90% loss of wetland in the United Kingdom? (1)
- 1.7 Name one of the two rivers in Namibia where overfishing is causing both fish numbers and the sizes of the fish being caught to decrease. (1)
- 1.8 Name one of the many invasive alien species that are commonly found alongside our ephemeral rivers in Namibia. (1)
- 1.9 What do we mean by sustainable use of our natural resources? (1)

- 1.10 Where in Namibia can we most obviously see that climate change is causing extremes in both droughts and floods? (1)
- 1.11 Give one example of how climate change is likely to affect agricultural production in Namibia. (1)
- 1.12 As Namibia has a steep coastline and few towns along our coast, we do not yet see much evidence of sea-level raise. However, we do we experience something else that is linked to sea-level rise, what is that? (1)
- 1.13 Briefly discuss how our overuse of a particular marine resource is threatening the survival of the African penguin that lives on Namibia's offshore islands. (3)

[15]

QUESTION 2: PRESENTATIONS ON ENVIRONMENTAL ISSUES

- 2.1 Choose **either A or B** (12)
- A. Choose a secondary school in a part of Namibia where the issue that you dealt with in **your** presentation on a current environmental issue, is pertinent. Prepare a **5-slide** presentation for **Grade 9** learners about the environmental issue **YOU** dealt with in class. Have an attractive title slide that also gives the name of the school you are visiting. Clearly explain your environmental issue in the next slide. Then have one to show where in Namibia it occurs and why it is a problem. End with two slides, one with a practical activity the Grade 9 learners can do themselves, to help them to do help solve the problem and, finally a clear take-home message that they will remember.
- B. Peoples' Primary School in Windhoek invited you to give a presentation on **Arbour Day** to the **Grade 4** learners. Prepare a suitable **5-slide** presentation to tell them about Arbour Day, explain how deforestation is causing a problem in and around Windhoek and what they can do. Include: a title slide to explain what Arbour Day 2022 is about; two slides to explain the issue of deforestation around Windhoek and the main threats. Conclude with a practical activity the Grade 4 learners can do themselves at Daan Viljoen Game Park to help reduce the impacts of deforestation, and a final slide with a clear take-home message.
- 2.2 Your classmate, doing WIL at the *Namibian Animal Rehabilitation, Research and Education Centre* (NARREC) is preparing a presentation on pangolins and the illegal trade in their scales, to make farmers more aware of this poaching issue. Give her **five** tips, from your own experience, to help her ensure that her presentation is effective. (5)

[17]

QUESTION 3: TRENDS IN ENVIRONMENTAL EDUCATION

- 3.1 What is the aim of Environmental Education? (3)
- 3.2 Read the EE activity described below. Name and briefly describe the **educational approach** used, **motivate** your answer, **and** give the role of the teacher. (4)

GET TO KNOW THE LIFE IN A POND



Wait at least two weeks after good rains to do this lesson.
Divide the learners into small groups and take them to nearby rain pools
Give each one a small net and a glass jar to collect what they find.
Give them a simple, illustrated guide to identify the small water creatures
Give each group at least 20 minutes to observe what is in the pools.
Ask them to draw the creatures found and a map of the pool studied.
Then ask them the following questions:

- How many different creatures do you see?
- How many legs does each creatures have?
- What are they called?
- How do they swim?
- Where in the pond does each occur?"

- 3.3 Based on your experience at the Namib Desert Environmental Education Trust (NaDEET), discuss **five** advantages of the way they teach at NaDEET. (5)

[12]

QUESTION 4: EFFECTIVE COMMUNICATION, CRITICAL THINKING AND BARRIERS

- 4.1 What is meant by the term "rapport" and explain **two** whys to achieve it? (4)
- 4.2 Recall the video, "12 Angry Men", where the main character, the architect, Mr. MacArthur has difficulty persuading the other jury members to critically assess the evidence.

- 4.2.1 Write a paragraph to name **and** explain **five** of the most common **communication barriers**. Give an **example** of how individual characters in the video are influenced by each kind of communication barrier. (10)
- 4.2.2 Name and describe **two** critical thinking skills the **Jewish stockbroker** used to go through the evidence and check if there was any “reasonable doubt” about the guilt of the young accused. (6)
- [20]**

QUESTION 5: WRITTEN COMMUNICATION

- 5.1 Read the article “*It’s time to grow*” published in the 2019 edition of *Conservation and the Environment in Namibia*.
- 5.1.1 Critically assess the structure of the story told in the article: In your **own words**, explain what it is that **attracts** the reader, what make the article **interesting** and **easy** to read, explain what the **message** is and if it is clear and finally give **two benefits** of this teaching initiative. (8)
- 5.1.2 Write the reference to the above article correctly in **APA Style** (2)
- 5.2 You have failed one subject and want to repeat this subject while doing your Work Integrated Learning internship next year. You need permission from your Head of Department to do both at the same time. Write a Memorandum to request permission, explain your situation and make a practical recommendation that will allow you to do WIL and attend classes. (7)
- [17]**

QUESTION 6 EFFECTIVE MEETINGS

- 6.1 Describe **four** tasks of the treasurer on a committee? (4)
- 6.2 What is the role of an extension worker at community meetings? (1)
- 6.3 What is NOT an extension worker’s role at a community meeting? (1)
- [6]**

QUESTION 7: WORKING WITH COMMUNITIES

- 7.1 What is the aim of extension work? (2)
- 7.2 You work for the EHRA, PEACE project where you run workshops to help ensure that elephants and communities live peacefully together by teaching people how to avoid human-elephant conflict. Give **four** reasons why going to speak directly to the village headmen along the Ugab River is a good way to introduce EHRA and assess what EHRA can do to assist communities. (4)

- 7.3 As an experienced MEFT extension officer in the Zambezi Region, a new staff member asks you for tips, to make sure that her next visit to a fisherman in the Salambala Conservancy is successful. List **five** tips you have found useful. (6)

[12]

QUESTION 8: GROUP EXTENSION METHODS

Indicate which group extension method would be best suited to each situation and briefly explain why.

- 8.1 Scientists from all over the world who are working on the impacts of Climate Change need to meet to discuss their latest findings. (2)
- 8.2 You are an extension officer working with the Okavango River Basin Management Committee and you want to convince communal farmers in the Kavango Region that cutting trees along the riverbanks leads to deforestation, erosion, and loss of important riverine habitats. (2)
- 8.3 Alien invasive control has been very effective at Waterberg and you would like to teach members of Doro!nawas Conservancy how to control their alien invasive *Nicotiana glauca* infestation in the Ugab River (2)
- 8.4 Farmers in the vicinity of the Etosha National Park, and MEFT rangers need to inspect the park fences and address the issue of lions escaping from the park and killing livestock. (2)
- 8.5 Participants at a community workshop on the impacts of different fishing methods on the fish populations in the Okavango River and floodplains need to explore the advantages and disadvantages of each of five fishing methods. (2)
- 8.6 The City of Windhoek wants to make the children in the city more aware about the need to save water. (2)

[12]

QUESTION 9: PARTICIPATORY RURAL APPRAISALS

- 9.1 What is a community resource map and what can it show? (2)
- 9.2 Decide which PRA methods to use for each of the scenarios given **and** why.
- 9.2.1 You are responsible for the women's issues at the #Khoadi //Hoas and you want to find out how much time each day women spend on gardening, household tasks, childcare, caring for the elderly and sleeping? (2)
- 9.2.2 As, an agricultural, extension officer working in northern central Namibia you want to know which crops are planted when, and how the fish farms operate as well as how this is related to rainfall and the flooding from the efundja. (2)

- 9.2.3 You are an extension worker with the Department of Water Affairs in North-Central Namibia. You need to know how water supply infrastructure has improved in the Cuvelai Basin every ten years since 1960? (2)
- 9.2.4 As the Agricultural extension worker working with conservancies in southern Namibia you want to find out how grazing availability is linked to factors like rainfall, grazing pressure and fire, to determine how better veld management can improve grazing for the cattle and prevent ongoing soil erosion. (2)
- 9.2.5 As a researcher working with IRDNC, you are investigating Human-Wildlife conflict in different conservancies in Namibia and would like to identify the problem animals and kind of damage each causes to determine which Human-Wildlife problems the community members believe are most serious. (2)
- 9.2.6 The Salambala conservancy committee wants to draw up a equitable benefit sharing plan for the conservancy so have asked you as an extension worker from MEFT to find out what criteria are important to differentiate rich households for those that are struggling. (2)

[14]

TOTAL MARKS: 125

CONSERVATION

AND THE ENVIRONMENT IN NAMIBIA

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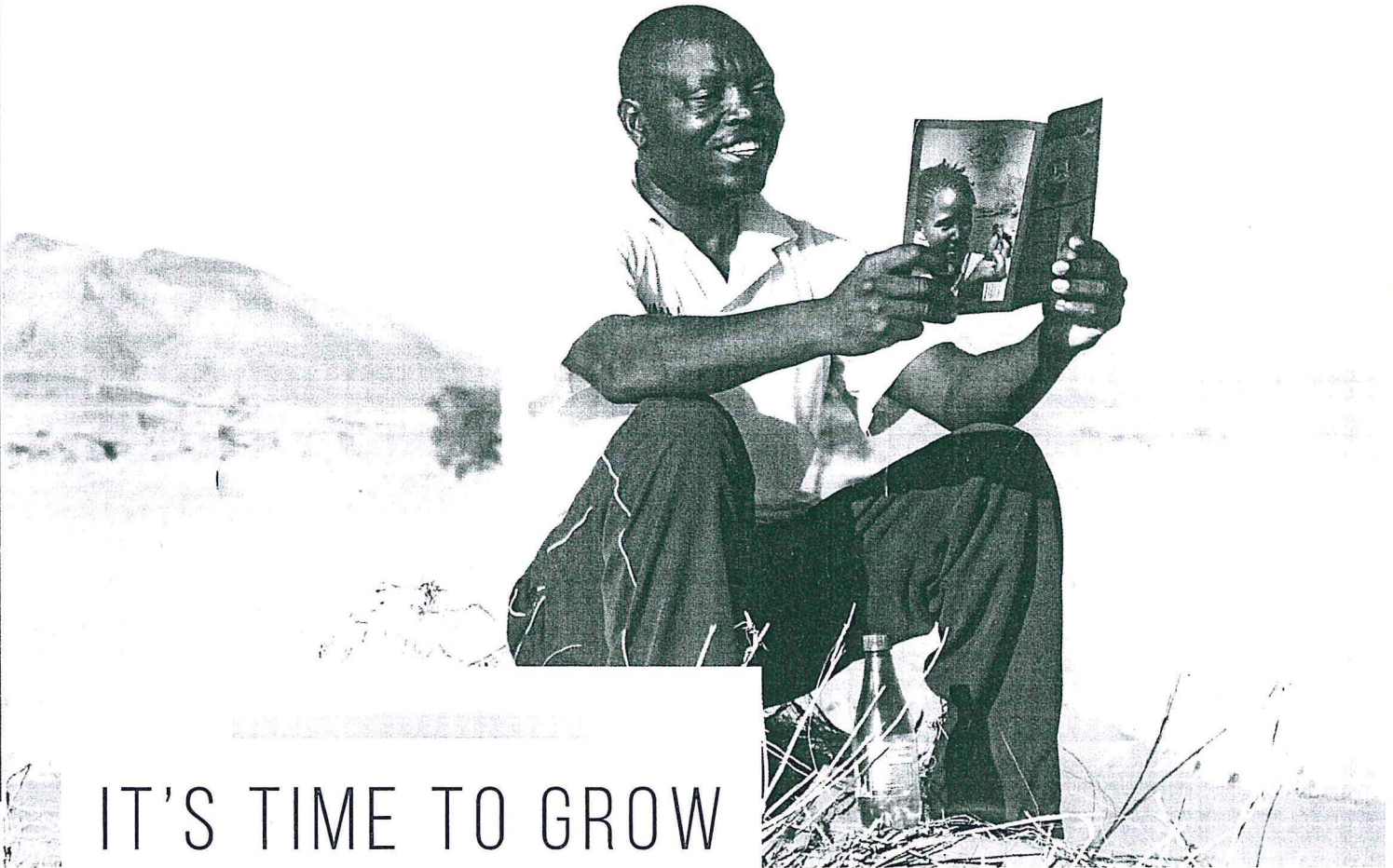


ARE NAMIBIA'S
CARNIVORES AT RISK?

MINING AND THE
ENVIRONMENT

HUMAN WILDLIFE
CONFLICT

THE SECRET LIVES OF WILD ANIMALS



IT'S TIME TO GROW

MAINSTREAMING EDUCATION FOR SUSTAINABLE DEVELOPMENT IN NAMIBIA

by Viktoria Endjala
NaDEET Centre Manager

Education for Sustainable Development is about enabling all people to constructively and creatively address present and future global challenges and thereby create more sustainable and resilient societies. This approach is not limited by age; children and adults alike can participate, and it should be mainstreamed in all levels of learning and teaching. Education for Sustainable Development has been emphasised at the international level through the adoption of the Sustainable Development Goals by world leaders at a United Nations Summit held in New York in 2015. Specifically, Quality Education (Goal 4) aims to ensure that *“all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles”*. Furthermore, this is a cross-cutting theme in the Namibian national curriculum.

The Namib Desert Environmental Education Trust (NaDEET) offers Education for Sustainable Development through several projects managed from its centres on the NamibRand Nature Reserve and in Swakopmund. NaDEET's environmental literacy project is aimed at promoting and encouraging environmental learning at different levels in education. This is done through the production of a variety of environmental learning materials. One of the booklets – *It's Time to Grow* – is written for young children just entering school. Developed in 2013, this booklet was originally meant to be used as a child's environmental learning pack at home. In practice, however, it was primarily used in a school setting. We consequently received feedback

that the booklet was too small for use in the classroom, as teachers reported that they *“could not use it with many children”*. Another issue for many teachers was that it was written only in English.

A Quality Education Platform hosted jointly by the University of Namibia and UNESCO focusing on Education for Sustainable Development and mother tongue instruction in schools inspired NaDEET's Director to translate and reconceptualise our *It's Time to Grow* booklets. The new project also aimed to integrate various components of NaDEET's work to improve the overall impact. As part of our new approach we trained lower primary school teachers in Education for Sustainable Development concepts and invited them to translate the booklet series into their own mother tongues. This doubled our impact by increasing teacher ownership over the environmental literacy material.

Sixty teachers nationwide participated in one of three of our training workshops in 2017, during which time they translated the booklets into Oshindonga, Otjiherero and Khoekhoegowab. *It's Time to Grow* comprises four booklets. They cover themes of *Water, Sun, Animals & Plants and Recycling* to ensure that teachers and learners incorporate



these themes in teaching and learning, thus enabling learners to practice sustainability at a young age.

Combining translation of the booklets with the workshops helped build capacity among lower primary teachers to teach their learners the Environmental Studies curriculum in their respective languages. Overall it was an empowering experience, as participants not only learnt about how to practice sustainability, but also broadened their vocabulary for teaching about sustainability their own languages. During translation it became clear that a concept such as recycling is not used in everyday conversation in many local languages. Therefore it was important that the teachers not only translated but also learnt in depth what these concepts mean.

After the first phase of the project teachers were able to:

1. incorporate stories from their own cultures in the booklet
2. produce a teacher's A4 'big book' and convert the children's copies into an A5 format
3. create 4 'Memory' card games directly linked to the booklets

With new funding from Brot für die Welt and additional support from the Ministry of Education, we expanded the project in 2019 by another two local languages, Rukwangali and Silozi, as well as English. Two multi-day workshops were hosted during this second phase with 40 pre-primary and lower primary teachers, advisors and lecturers, who were introduced to the practical application of sustainability at the NaDEET Centre. Topics included waste management, water saving methods and sustainable energy. After the workshop a participant exclaimed: *"I never knew a chance like this would reach me, where I would use my language to teach children about the environment"*.

Through this project we aim to change the way people think and empower them to work towards a sustainable future. *It's Time to Grow* helps reach this goal using mother tongues. It allows children to combine learning about numbers, shapes and colours in the lower primary curriculum with environmental topics. Learners acquire knowledge and develop skills in recycling and water saving, the importance of energy as well as personal growth through storytelling, games and puzzles. Furthermore, this material uses local examples and artwork that learners can relate to while being made aware of important aspects of sustainable development.

The first phase was sponsored by the Namibian National Commission to UNESCO through the UNESCO Participation Programme, which published and distributed 50 learning packs per language (a total of 150 packs) throughout the country. In the second phase the same number of packs will be distributed (50 per language). However, this time not only to schools, but the English versions will be given to institutions of higher learning where they will be used for training



pre-service teachers. Each pack consists of 50 booklets per topic for children, which means that 2,500 children will benefit in each language group. There are over 18,000 Rukwangali learners and 8,000 Silozi learners in Grades 1-3 alone. Although these printed packs will not be enough for each learner, soft copies will be available for teachers to print out for their classes. A representative from the National Institute for Educational Development who took part in one of our workshops appreciated this project, saying: *"There are not enough children's resources in Silozi"*.

NaDEET is committed to supporting the national school curriculum and the Namibian government's education efforts. All of the school programmes we offer are therefore developed in line with the national school curriculum.

MORE ABOUT NADEET

The Namib Desert Environmental Education Trust (NaDEET) offers Education for Sustainable Development programmes to primary and secondary school children, educators, youth and community groups. NaDEET is a small but vibrant non-governmental non-profit organisation whose mission is to protect the natural resources of Namibia by educating its citizens to practice a sustainable lifestyle. For over 15 years NaDEET has offered unique hands-on experiential learning opportunities through educational programmes presented at the NaDEET Centre on the NamibRand Nature Reserve. Four main themes are covered: biodiversity, water, energy and waste. Although our main operations are based in the Hardap Region, participants come from all over Namibia. To date, over 14,000 Namibians have taken part in over 400 of our educational programmes. In 2018 NaDEET was awarded the UNESCO-Japan Prize on Education for Sustainable Development. This international prize is awarded annually to only three outstanding projects and programmes worldwide.