

PROGRAMME EVALUATION *informing* ENVIRONMENTAL EDUCATION

Introduction

Environmental Education (EE) is not new to Namibia. The methodologies, approaches and settings for environmental learning have however moved on with time and continue to change with the evolving needs of the environment and values of the people. Prior to Independence 13 years ago, 'formal' environmental education was mostly available to the minority of the population under the former regime. A few education centres did exist for this sector of the population however they tended to be more focussed on leadership skills, conservative Christian teaching and/or pure 'nature' experiences (Bridgeford, pers comm., 2003).

In the late 1980's and the early 1990's the Namibian government and a few non-governmental organisations took the initiative to establish the first "true" Environmental Education Centres for all Namibian youth. These Centres are primarily located north of Windhoek, including areas like Etosha National Park and the Kunene Region. Although these Centres have been operational for approximately ten years, little formal monitoring and evaluations have been done to determine their effectiveness. As these Centres are mostly viable through donor-support (government, international aid etc), it is crucial to recognise the importance of monitoring and evaluation. These tools can provide vital feedback to supporters and more importantly educators and participants to continuously reflect and improve on the environmental learning actually taking place.

This paper begins by looking at an EE Centre and programme located in the Otjiwarongo area for youth. A brief discussion about the nature and structure of the EE programme is given, followed by a description of an informal programme evaluation undertaken during 2002. The paper then focuses on the lessons-learned from the evaluation and how they have informed the development of a new EE endeavour in the south of Namibia. Lastly, the a critique of the content and approaches of EE Centres in general is given and focussing on how effective these may be for long-term environmental learning.

Brief Background of the AfriCat EE Programme

The AfriCat EE Programme began with the opening of the World Society for Protection of Animals (WSPA)/ AfriCat EE Centre in April 1998. The AfriCat Foundation had decided to build this Centre to help fulfil its aim of ensuring the long-term survival of Namibia's large carnivores. This paper reflects on the EE Programme during the four years from January 1999 to October 2002 when it was fully operational and under the direction of the author.

The AfriCat EE Programme's main aim was to inform and empower Namibia's youth about large carnivores, their conservation and the related environment (Paulick, 2002). The AfriCat EE Programme consisted of three parts: the EE Centre, School Outreach, and Learning Support Materials. The EE methods and processes engaged in were designed for learners to make their own decisions and understandings of the issues at hand by building upon information and experiences throughout the programme. The main themes addressed in the programme were Namibia's six large carnivores and their ecology, large carnivore conservation and general Namibian environmental issues.

The WSPA/ AfriCat EE Centre was the focal point of the programme. A two-day/ two-night programme was offered which was adapted slightly for each visiting group's different background and prior experience. The main activities that youth participated in were a slide show, research project, the "Predator-Prey" survival game, cheetah viewing and a nature walk. The Centre participants were mainly from grades 4-12 and came from a variety of communities ranging from wealthy urban environments to poor rural environments from all over the country except for the Caprivi Region. A total of 4105 youth from more than 125 groups participated in the Centre's programme from January 1999 to October 2002 (Paulick, 2002).

The AfriCat School Outreach Programme was initiated in January 1999 to address two issues: transport and marketing. In Namibia a major stumbling block for many schools to visit an EE Centre is obtaining transport due to logistical and/ or financial reasons. The AfriCat School Outreach therefore took its educational message to schools throughout the country using a slide show as the primary teaching method. The added advantage of the School Outreach programme was that it also promoted the AfriCat EE Centre, as well as, the work of the AfriCat Foundation. From January 1999 to October 2002, a total of 18 664 learners from 121 schools participated in the School Outreach programme (Paulick, 2002).

Learning Support Material development was initiated in January 2001 with a tri-annual youth mini-magazine, the *Carnivore Times*. The *Carnivore Times* was developed to address the issue of long-term environmental learning. After two years of operation, the concern had arisen that former participants of the Centre or Outreach had no way to continue their EE interaction and learning with AfriCat. The *Carnivore Times'* main aim was to provide follow-up educational materials for former participants, to provide information on additional topics and to create a forum for young people to continue to participate in EE. In October 2002, the *Carnivore Times*, which is free of charge, had a distribution of 3340 having started with an original distribution of 414 copies (Paulick, 2002).

The AfriCat EE Programme attempted to take a multi-faceted methodological approach to environmental learning by combining the three approaches. The programme was very focused on promoting learning about large carnivores and wildlife in a structured hands-on environment as it had a very specific role to play within the AfriCat Foundation.

AfriCat EE Evaluation: Motivation and Structure

After four years of operation, the AfriCat EE Programme was well known and the EE Centre was always fully booked. These facts were however not enough for stakeholders as EE staff were often asked, "Does it work?" "Will this programme significantly contribute as a response to the carnivore crisis in Namibia?" For staff involved in the programme on an everyday basis, these inquiries were both easy and difficult to answer. To the EE staff it was clear that the programme in general was a success, but it was unknown what the impacts were. An evaluation form had been given to the supervisors of every visiting group since 1999 to provide on-going feedback to the environmental educator. The responses in the evaluations provided feedback on a short-term basis; however they were not detailed enough to provide valuable answers to stakeholders regarding the medium and long-term impact of the programme. With this in mind, it was decided to conduct an internal evaluation of the three main components of the AfriCat EE Programme.

The main aim of the evaluation was to provide informed feedback to AfriCat and other stakeholders including supporters, EE practitioners and the general public on the impact (short, medium and long-term) of the EE programme. The evaluation was to help EE staff determine if,

and to what extent the programme was fulfilling its own aims. Lastly, the programme evaluation was to also record the work, successes and failures of the AfriCat EE Programme.

Regarding the planning phase of the evaluation, several factors are important to mention. One person who was the founder, primary educator and director of the EE programme also conducted the evaluation. The evaluation was also done in conjunction with the evaluator's participation in the Namibian Environmental Education Certificate (NEEC) course. The course assignments and materials, as well as tutors provided feedback and guidance in the design of the evaluation. As with all evaluations, time and resources available influenced the methods used. The evaluation scope was considerable because relatively thorough records of all visiting groups including participant contact details and numbers had been kept. This allowed the evaluation to include past participants of the programme and to try to look at a "medium-term" impact as well as immediate impressions of current participants. Although stakeholders were interested in long-term impacts, the evaluator felt a four-year old programme was not able to have made any impacts on a "long-term" basis. Rather this time span could give feedback on a short and medium term. Some time was taken to explore various methods to conduct the evaluation such as questionnaires, interviews and case studies. Ultimately it was decided to use written questionnaires because of the time constraints of the evaluator.

The time span of the evaluation was a total of five months with four months of data collection and one month of analysis and reporting. As mentioned previously, the evaluation consisted of the three main components: the EE Centre, School Outreach and the *Carnivore Times*. Each one was evaluated separately using written qualitative questionnaires.

Lessons-learned from Evaluation: Processes, Methods and Analysis

There were many valuable lessons-learned from the programme evaluation as a whole. The evaluation gave feedback in one way or another on a variety of topics including Centre logistics, programme content, overall aims and objectives and the role of EE in Namibia.

In general the evaluation process itself was extremely helpful to the evaluator as it provided a formal setting for her to reflect on the methods and approaches used in her own praxis. It gave the evaluator an opportunity to compare her own intuitions about the programme's impact with what the participants felt and recorded on their written questionnaires. It also emphasised to the evaluator the importance of taking the time to step back and reflect on the EE programme as a whole, instead of only focussing on current and future activities. Lastly, it encouraged the practice of gathering data from relevant stakeholders to make well-informed decisions rather than just making uninformed changes for the sake of change.

There are several evaluation methods that could be improved in the future to obtain better results. Firstly, the evaluation was a huge task. Although the evaluation had been designed knowing there was only a limited amount of time, it still required more time than was actually available. This resulted in too much time being spent on gathering the questionnaires than analysing the data. Secondly, as the evaluation was purely in a written questionnaire format, there were often answers given by participants that left room for interpretation on the evaluator's part. Other evaluation methods, like interviews, may have provided more insightful responses from the participants. Lastly, many past participants unfortunately did not return their questionnaires. For the School Outreach questionnaires the lack of returned questionnaires made it difficult to make any concrete conclusions. Despite these hindrances, the information that was gathered was analysed to provide programme feedback.

The analysis of the evaluation set out to examine what impact the AfriCat EE Programme had and if the EE Programme was indeed fulfilling its aim. Did the AfriCat EE Programme evaluation therefore answer the original stakeholder question: “Does it work?” The evaluation analysis came to the conclusion that the EE programme did inform and in some ways empower Namibia’s youth about large carnivores, conservation and the environment. The overall results of the evaluation were very encouraging as most participants gave positive feedback. “Supervisors commented that the EE Centre affected them and their learners in a positive way. They indicated that the hands-on learning, the type of activities and the overall experience of taking a trip to the Centre were beneficial” (Paulick, 2002: 40). The whole evaluation, including methods, analysis and descriptive records of the AfriCat EE Programme, were compiled in a comprehensive profile.

The lessons-learned from the outcome of the programme evaluation go beyond the information that was actually being sought. The programme evaluation was most valuable in that it raised several fundamental questions regarding the requirements for real environmental learning. What are the most appropriate aims for a youth environmental education programme? What can be expected from an EE Centre and its related activities? What and how should environmental education be taught? Where should environmental education in Namibia be heading? It is known that there is not one right answer to any of these questions, however, an attempt to answer some of these questions will be given in the next section.

The Next Step: Building upon the Evaluation

These fundamental questions that arose during and after the programme evaluation are explored here from an EE Centre perspective through the following two topics: content and approach. Content and approach of EE Centres are closely linked and should be complementary to one another. EE Centre content is what is being taught while the approach is how it is being taught. Both content and approach can be divided into two levels: the micro-level and the macro-level. For the content, the micro-level and macro-level are both within the EE Centre setting while for the approach the micro-level is within the Centre setting and the macro-level is beyond the EE Centre. In both cases, the micro-level is the environmental learning programme conveyed through the main activities and programme, while the macro-level is the environmental learning that happens in addition to the main focus and outside of the EE Centre.

EE Centre Content: Micro and Macro level

Most Environmental Education Centres in Namibia are focussed on nature and/ or wildlife. Some are sponsored by non-profit organisations that have the aim to conserve one or more particular species of wildlife while others are government sponsored and are located in protected areas (nature). The content of the EE programme is usually dictated by the natural surroundings and/ or the particular wildlife species (ie. cheetahs, rhinos etc). The basic aims and objectives, as is the case with AfriCat, are to convey the wildlife/ nature subject matter to the participants to make them aware and knowledgeable about the conservation issue that the wildlife/ nature is faced with. In some cases, programmes are just focussed on the surrounding environment and the natural resources. The main purpose is to educate youth about the problem so that they will not perpetuate it.

Can EE Centres be single-subject focussed? Of course, but they have an opportunity and obligation to not only address their particular issue, the micro-level, but also to include basic environmental concepts and values into their aims and objectives. Rarely, do single-subject focussed programmes have enough time and/ or motivation to properly address general environmental concerns. Single subject focussed programmes at times give participants the

impression that they should “save one thing to the detriment of another” or that “the environment is only wildlife and nature”. This impression that only the particular environmental issue is important does not arise because the environmental educators are teaching it, but rather because of what they are not teaching. It seems quite counter-productive to educate about ‘saving a cheetah’ and simultaneously have leaky taps in the Centre’s bathrooms. Centre-based EE programmes have an advantage in that they are usually in a natural, outdoor setting where hands-on learning in all aspects of the programme is almost by default the primary teaching method. It is here where a tremendous amount of opportunity is lost. Instead of the Centre being a model of environmental living in everything that it does, it is purely focussed on its subject, the micro-level, and other aspects of ‘environment’, the macro-level, are not included in the programme. The environmental learning programme is also limited to the official activities and the other hours of the day are not fully recognised nor utilised as learning opportunities. The content of the Centre’s programme is therefore limited to environmental learning on a micro-level and is leaving out opportunities available on the macro-level.

A major part of a young person’s experience at an EE Centre is the facility itself. For most youth, it is their first time not only at an EE Centre but also on a school trip away from their home region. The EE Centre including where they sleep, bathe, cook and eat makes a considerable impression on them. Unfortunately, most EE Centres do not take advantage of this macro-level experiential learning opportunity as the energy and water needed to provide services are from a traditional source and usually non-sustainable. For example, at the AfriCat EE Centre the infrastructure consists of a main building that includes two bathrooms with flush toilets and washbasins, two large 5-metre by 5-metre tents and an open-fire area for cooking. The energy needed for food preparation is from firewood collected on the farm, lights were originally powered by a diesel generator and only recently by NamPower and if hot water for bathing is desired, it is heated by wood as well. Ten thousand litres of water, pumped from a borehole into two tanks, is readily available from numerous taps. Although there are informational posters promoting ‘wise-water-use’, there is no water source, including the regular flush toilets, that is in any way limited or has a water-saving device. The AfriCat EE Centre is by no means the only Centre that uses traditional resources to provide these living services. Most government centres also have NamPower, cook with wood or gas and have an ‘unlimited’ water supply. Some Centres with a more basic infrastructure do not have electricity and therefore use paraffin and/ or gas lamps instead. Recently simple demonstration models for solar lights, heating and/ or cooking have been included at some Centres (Wilson, pers comm. 2003). However prior to this year, only one Centre, just outside of Windhoek, has truly incorporated alternative technology and living into its programme and services as much as possible (Komen, pers comm. 2003). With the majority of EE Centres relying on traditional methods and resources for their energy requirements and water it raises the question: Is a Centre actually an Environmental Education Centre if it is not environmentally appropriate? Do demonstration models of alternative technology change programme participants’ attitudes, behaviours and values? Looking at the general lack of alternative technology being implemented throughout the country, the answer seems to be no. There are a variety of reasons why most EE Centres do not use alternative technology including poor planning, tight budgets, and use of old materials and existing infrastructure. More critically there seems to be a lack of importance given to how these basic necessities are provided at EE Centres. Planners are focussed on getting the Centre ‘up and running’ to have participants come to the Centre ‘as soon as possible’ to learn about whatever specific topic the Centre is going to focus on. At times, planners intend to implement alternative technology at a later stage, but this rarely happens as once the Centre is functioning, there is little motivation to invest more money and effort into the infrastructure that is ‘doing the job’.

So what do EE Centre facilities and services have to do with programme content? Everything. The facilities and services are an environmental learning opportunity on a macro-level in addition to the micro-level subject. At the AfriCat EE Centre although the programme's activities cover a 'full-day', there are still six to eight hours that participants need to cook, eat and bathe. These 'free-time' hours can and must be utilised to have participants not just learn about the environment, but live for the environment. To make an Education Centre truly environmental, it must provide the basic services using a variety of alternative living methods and technologies. For participants to actually use alternative technology to cook their food, heat their water and have electrical lights is creating a truly hands-on learning experience. Instead of just hearing about it or seeing it, the participants have no option but to use a solar cooker to prepare their meals. Environmental Education Programmes can therefore go beyond their primary subject content, be it wildlife and/ or nature, and include fundamental environmental principles by merely converting a Centre into an Environmental Education Centre. Participants will not only remember that they saw a cheetah, but also that they *lived* differently. Through a sustainable living experience, participants can begin to question how they live and bring their newly learned environmental concepts home with them. For many Namibian children, the Centre's main subject (i.e cheetahs, rhinos etc) is not something that is part of their everyday, 'normal' life. Cooking, bathing and living however are.

EE Centre Approach: Micro and Macro level

The micro and macro level approaches to an Environmental Education Centre both concern themselves with teaching and learning. The micro level is the activities within a programme while the macro level is the programme structure and beyond. Although the educational approaches implemented on the micro-level are key to environmental learning this section will look at the under-estimated role of the macro-level in environmental education.

Most Centre-based EE programmes in Namibia vary in length from 1-4 days. Very often Centre participants are attending such a programme for the first and unfortunately only time in their school career. Environmental learning in the Centre-based context is therefore usually limited to the number of days during this visit. Although the environmental learning that takes place during the length of the participants' visit can be quite effective in fulfilling the aims of the EE Centre, it is limited purely by the nature of a Centre-based programme. Most participants come to an EE Centre without any previous knowledge or experience of the content, participate in the programme and then return to their home community without any continued contact with the EE Centre. The AfriCat EE Programme somewhat addressed this issue through its multi-tiered approach. It took the AfriCat EE Centre as the focal point of the programme and added a pre-Centre component, the School Outreach, and a post-Centre component, the *Carnivore Times*. The multi-tiered approach that the AfriCat EE Programme took was however not necessarily a co-ordinated effort. Participants of the School Outreach did not always come to visit the Centre because its primary motive was to bring the EE Programme to disadvantaged schools that could not afford or access transport to the Centre. Therefore it was not actually a pre-component but a substitute for the Centre. In some cases, the School Outreach did help to bring the school to visit the Centre, but it still did not guarantee that the participants were the same as many schools purposefully brought learners that had not participated in the School Outreach. On a micro-level, the main activity of the School Outreach, a slide show, was also done at the EE Centre. Therefore it was a repeat and not a building block activity. On the other hand, the introduction of the *Carnivore Times* as a post-Centre component was purposefully done to address the issue of environmental learning on a macro-level. After several years it became clear that participants wanted to somehow continue their relationship with AfriCat, but no appropriate forum existed for meaningful participation. The *Carnivore Times* therefore built upon the programme at the AfriCat EE Centre covering large carnivore issues that were recent or not included in the Centre's programme.

The majority of Centres in Namibia do not offer any other programmes outside of the Centre-based activities. The few that do also conduct outreach programmes with similar motives as the AfriCat School Outreach. Again these outreach programmes normally are not intentionally designed as a build up to the Centre's programme nor is there coordination of the participants in the two programmes. Several NGOs as well as various government departments develop resource materials that can be used during or independently of a Centre-based programme. Although these resources serve a vital function they usually do not address environmental-learning on the macro-level. The macro-level is crucial to environmental learning because it can provide the necessary continuity needed for effective and life-long environmental education. Several once-off EE experiences are much less effective than a coordinated continuous EE experience. There still can be separate EE activities, as long as they are complementary and build upon each other.

There are several ways in which continuity within environmental learning can be approached to expand a Centre-based programme from a once off to a continuous experience. Informal Centre-based programmes can team up with the formal education sector thereby making more connections to the school curriculum. Existing EE Centres can collaborate and coordinate their efforts by information sharing and harmonising their programme activities. Both of these macro-level approaches could be well planned and therefore create environmental learning experiences for participants that build upon each other. These are only some of the macro-level approaches that EE Centres could take to make environmental education in Namibia not only effective but also much more efficient.

The Namib Desert Environmental Education Trust (NaDEET) is a new initiative in the South of Namibia that is trying to include the micro and macro level in both its EE Centre content and approach. NaDEET's holistic subject content and innovative macro-level approach to its EE programme is described in the following section.

The Namib Desert Environmental Education Trust (NaDEET)

Aimed to promote sustainable living and create environmental empowerment, NaDEET has designed its programme having included the lessons-learned from the AfriCat EE Programme evaluation to improve upon Namibia's available EE programmes. NaDEET is located 100 km South of Sesriem on the NamibRand Nature Reserve. The focal point of the trust is the NaDEET Centre built in a Namib dune valley. The main subject focal areas are sustainable living, biodiversity and of course, the Namib. As previously stated, NaDEET is striving to create environmental learning opportunities on the micro and macro-levels in its EE Centre content and approach.

The NaDEET Centre is being constructed based on the philosophy of sustainable living. The infrastructure and facilities are to support environmental learning instead of undermining it by utilising the 'free-time' hours. The design philosophy is based on close interaction between the programme participants and the Centre's facilities and services. Participants will be divided into Sustainable Living Teams in which the values of teamwork and cooperation will be emphasised through simply living. Each Sustainable Living Team will share an accommodation unit, ablution facility, toilet and water supply. The teams will also share cooking, cleaning and other relevant living tasks together. To best illustrate the philosophy of the Centre's facilities and services, it can be divided into the three basic necessities for sustaining life: food, water and shelter.

Food:

- Meals

Living Teams alternately are responsible for the preparation and clean up of the group's meals. All meals are prepared using parabolic solar cookers, solar ovens and hay boxes. Other technology like, fuel-efficient stoves will also be explored.

- Waste Management Facility

Living Teams help to manage the group's waste. In Living Teams, participants separate and place the rubbish in the correct area: reusable, recycling, composting and other.

- Small Garden

Living Teams contribute to the tending of the Centre's little garden. The garden provides mostly herbs for the group's meals and is watered with 'recycled' water.

Water:

- Ablution

Each Living Team shares one abluion facility. It contains a bucket shower, washbasin and 100-litre tank of water. On a 24 hour basis, the 100-litre tank is filled by the participants from a central tap to an appropriate amount based on the number of participants. The Living Team discusses and decides how the water is to be used (i.e how much for drinking, showering, etc.) The whole process is recorded and monitored.

- Hot Water

Living Teams will explore and compare a variety of solar hot water techniques including hot boxes and black PVC piping.

- Kitchen

Similar to the abluion system, the Kitchen will be supplied on a 24-hour basis with water for the whole group's needs.

- Toilet

Only dry toilets will be used, including a variety of "Eco-toilet" models. For toilet maintenance a minimal amount of water is needed which can be sourced from appropriate 'recyclable' water.

Shelter:

- Accommodation Units

Each Living Team will share an accommodation unit. This unit will have a simple 12-volt light run on a battery that is charged by a solar panel.

- Main Building

Solar Panels will provide lighting and electricity to the Main Building (Classroom and Kitchen).

The NaDEET Centre programme consists of not only the activities related to the subject matter of biodiversity and the Namib, but also the learning revolved around alternative approaches to living. It is designed for participants to have a full, holistic environmental learning experience during their stay at the Centre. This sustainable living content at the NaDEET Centre is combined with a macro-level approach to NaDEET's environmental education programme.

The NaDEET Centre offers a four-day programme to all schools and youth groups in Namibia based on the school curriculum. The NaDEET Centre however is a part of a three or more staged environmental learning programme that merges the Centre-based activities with the participants' home environment. The At-School-Programme (ASP) is a coordinated pre- and post-Centre activity at the participants' school. Prior to a school classes' visit, ASP will come and conduct introductory activities with the upcoming Centre participants. These activities will give the learners an opportunity to start to engage with the learning concepts and the NaDEET educator will have the chance to gauge the prior knowledge and level of the learners. The appropriate grade-based

Centre programme can be adjusted to meet the needs of the upcoming group. After the group's visit, ASP will again visit their school to conduct follow-up activities. These activities are based on the participants' experiences and learning at the Centre, as well as, on a particular environmental issue that they have chosen to investigate further and address in their home community. Based on the participants' needs and own initiative further visits and/ or support through ASP will be given to promote and encourage environmental participation and action. Through the ASP monitoring and evaluation is also incorporated into the NaDEET Programme. The follow-up visit can easily be used to also evaluate previous programme activities and their impact. The NaDEET Programme on a macro-level is therefore beginning to address the need of continuity in environmental learning.

Conclusion

A Chinese proverb says, "If you are thinking one year ahead, plant rice. If you are thinking ten years ahead, plant a tree. If you are thinking one hundred years ahead, educate the people (Spellerberg, 1996)." Perhaps another sentence should be added to this proverb, "If you are thinking one thousand years ahead, monitor, evaluate and adapt."

The environmental education ventures in this country are commendable for the various contributions they make in addressing environmental concerns in the region. There are definitely several environmental education projects that are active and involved. Youth are attending EE programmes; however are these programmes as effective as they could be? Currently, there is no general answer to this question as there is a lack of monitoring and evaluation to provide informed feedback. These tools could be valuable in providing the necessary information for the Namibian EE community to answer some of the fundamental questions raised by the AfriCat EE Programme evaluation. One of the questions had been: "What can be expected from an EE Centre and its related activities?" Evaluate. EE Programmes should evaluate themselves on an institutional level but also in relation to its role within Namibia. The evaluation needs to answer if the EE programme is significantly contributing to instilling the awareness, behaviour and most importantly environmental values in young people that will hopefully create the common global vision of a sustainable future. A post-evaluation Namibia can then adapt by adopting the appropriate methods and approaches to genuine environmental learning.

REFERENCES:

Paulick, V. 2002. AfriCat Environmental Education Programme 1998- 2002 Profile.
Spellerberg, I. 1996. Conservation Biology. Pearson Education Limited, England.

PERSONAL COMMUNICATION:

Bridgeford, P. NamibRand Nature Reserve, 2003
Komen, L. NARREC, 2003.
Wilson, G. NEEN, 2003.