



TRANSFORMATIVE ENVIRONMENTAL LEARNING THROUGH TEACHER EDUCATION

There is much discussion in South Africa about greening the economy and about ongoing degradation of the environment. However, not much is said about how to develop knowledge and skills for the green economy, or the knowledge, values and skills needed to halt ongoing environmental degradation. In the past few years there have been a number of major studies focussing on just this issue. One key finding from all of these studies is that there is an urgent need to focus on the 'foundations' of environmental learning – in our schools.

Fortunately the South African curriculum includes environmental content knowledge, in almost all subjects, and in some cases up to 50% of the content is 'environmental'. However, this brings other issues to the fore. A key issue is the preparedness of our teachers to teach this knowledge, much of which is new. How are teachers to teach new environmental knowledge, if such knowledge was not included in their teacher training or in their own schooling?

It is this question that has mobilised national collaboration between all major environmental organisations in South Africa, teacher education institutions and the Departments of Basic Education and Environmental Affairs.

Supported by GreenMatter (a sector initiative to strengthen green skills in South Africa), a consortium of environment educator partners, coordinated by Professor Heila Lotz-Sisitka of Rhodes University, was formally established. The aim was to pilot test models and approaches for strengthening environmental learning in teacher education. It has since expanded to a national network, named 'Fundisa for Change', and includes national environment and education sector partners. Its

goal is to strengthen transformative environmental learning through teacher education. Its focus is to prepare teachers to teach the environmental content in the CAPS curriculum.

A comprehensive pilot programme was conducted in 2012 that was carefully researched and evaluated. The results of the pilot showed that the programme was well received by teachers, that teachers' knowledge and teaching practice improved through the training, and that there was strong support to expand the programme.

In early 2013 GreenMatter agreed to fund co-ordination of the programme, in order to expand its outcomes and objectives. A co-ordinator was appointed (Ms Zintle Songqwaru) and a co-ordination hub now operates from the Rhodes University Environmental

Learning Research Centre, where further development of the initiative is taking place. A key focus is development of a strong partnership network and framework.

In January this year, partners in the network developed the programme rationale, implementation plan, strategic objectives, assumptions and risk analysis. An advisory committee and governance system was established, and further funding was obtained from Murray & Roberts for materials development, and from GIZ for the training of trainers, and training of teachers in 2013.

Since then, the Department of Basic Education (DBE) has approved the teacher training programme and a proposal has been submitted to the Education, Training and Development Practices Sector Education and Training Authority (ETDP SETA) for further funding of the teachers' training.

'Fundisa' is an isiXhosa word meaning 'teach'. The Fundisa for Change programme encourages teachers to 'teach for change'.

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NEWSLETTER

This newsletter was compiled by Janet Snow, with contributions from Zintle Songqwaru, Anisa Khan, Priya Vallabh, Delray Janse van Rensburg, Sirkka Tshinigayamwe and Heila Lotz-Sisitka.

Fundisa for Change is a collaborative programme that aims to enhance transformative environmental learning in South Africa through teacher education.

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Fundisa for Change partners are:

Delta Environmental Centre • Department of Basic Education • Department of Environmental Affairs • Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH • Eco-Schools South Africa • Environment Learning and Teaching • GreenMatter • The Lewis Foundation • Murray & Roberts • Rhodes University Environmental Learning Research Centre • South African National Biodiversity Institute (SANBI) • South African National Parks • University of KwaZulu-Natal • University of Pretoria • University of South Africa • University of Stellenbosch • Wildlife and Environment Society of South Africa (WESSA) / Share-Net





2013 Training of Trainers Programme

A focus on the teacher and teacher education

The focus of the Fundisa for Change programme is teachers, and teacher education. While a response which focusses on teacher education and advocacy will not be able to solve all problems in the South African education system, it can potentially contribute to improved teacher knowledge and teaching practice.

UNESCO have identified the *teacher* as the single most important factor in ensuring quality education.

Teachers have multiplier effects, as a good teacher will teach a large number of learners in his or her career. Investing in teachers can potentially make an enormous difference to the education process. While the teacher is at the centre of the Fundisa for Change programme, the programme rationale addresses a range of related education system issues.

Objectives of Fundisa for Change

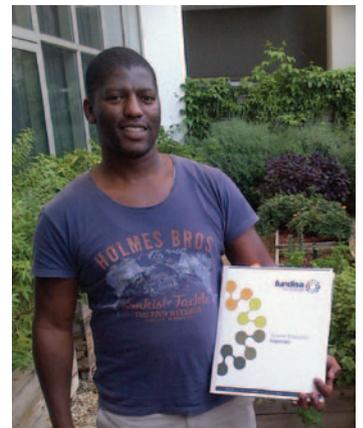
The overall development objective of Fundisa for Change is to enhance transformative environmental learning through teacher education.

There are four inter-related strategic objectives:

- 1) **Capacity building:** Develop teacher education capacity which in turn will be oriented towards teacher capacity development for transformative environmental learning in the schooling system.
- 2) **Policy and advocacy (influence):** Enhance national take-up of environmental learning within the national system of teacher education.
- 3) **Build a national system of engagement:** Expand the network of providers and the community of practice engaged with transformative environmental learning through teacher education.
- 4) **Strengthen and review curriculum and learning and teaching support materials, especially textbooks:** Seek to strengthen the quality, progression and validity of existing curriculum knowledge and its representation in the national curriculum system.

In 2013 funding was obtained from GIZ for a national Training of Trainers (TOT) programme for Fundisa for Change. The GIZ Fundisa for Change Training of Trainers programme is linked to a wider project called 'ESD Expertnet', which links Education for Sustainable Development (ESD) practitioners working across Germany, Mexico, India and South Africa. The objectives of the Fundisa for Change network and that of the ESD Expertnet are similar and some of the Fundisa for Change initial development work took place through the GIZ Expertnet project.

The ToT workshops started in April 2013 with four provincial workshops, with participants representing seven provinces. Trainers included staff from the Department of Education, Eco-Schools co-ordinators as well as staff from partner organisations such as South African National Parks, Department of Water Affairs, South African National Biodiversity Institute (SANBI), Department of Environmental Affairs, South African Environmental Observation Network and various other partnership organisations that were invited to join the Fundisa network.



The first workshops were co-ordinated by the Wildlife and Environment Society of South Africa (WESSA) in partnership with the Fundisa for Change co-ordination office, and were run by staff from Rhodes University Environmental Learning Research Centre, Delta Education Centre and Eco-Schools South Africa. "In general the feedback from the Training of Trainers Programme was very positive," said Ms Anisa Khan, co-ordinator of the ToT programme from WESSA. Angela Isaks from South African National Parks commented: "I received impressive feedback on the workshop from our two colleagues... this is an indication of how crucial it is to understand the broader education picture."

From the first round of training of trainers at provincial level, trainers were selected who could co-ordinate and run accredited training for teachers. A second stage ToT was then held at Rhodes University in June 2013. The second round of training of trainers consolidated a model for Training of Teachers, in which a Higher Education Institution (teacher education faculty from a university) works with an environmental sector partner and a Department of Education curriculum advisor / district official to offer the Fundisa for Change Professional Development Programmes. The groups participating in the second round of Training of Trainers implemented the teacher training which took place in four provinces.

"The model for training has been established, and will be expanded in future," said Professor Lotz-Sisitka at Rhodes University. "We think it is a successful model as it combines professional teacher education expertise with environmental sector expertise and provincial/district level Department of Basic Education expertise. This allows us combine the best of our expertise in ways that bring quality training to our teachers."

Teacher Education Materials Development

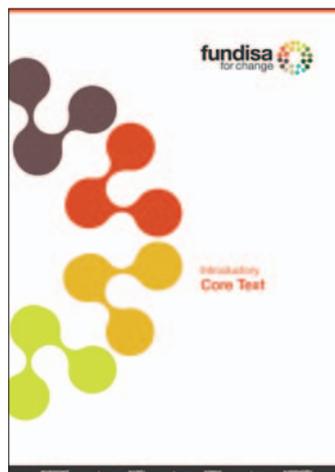
Combining experts to offer training is not enough, however. There is a need for high quality teacher education materials to support the training. "Good quality teacher education materials are an issue in South Africa; there are few that actually address the challenges teachers face in their classrooms," says Zintle Songqwaru, co-ordinator of the Fundisa for Change programme, and a former teacher herself. To address this, the programme has launched a collaborative materials development effort that brings together professional teacher education expertise with environmental sector expertise.

"We have teams of authors working on materials focussing on expanding teachers' knowledge on the different environmental topics that are found in the CAPS curriculum, and on how to teach and assess such topics," says Ms Songqwaru. Key to the development of these materials is the involvement of the national institutions of teacher education. Currently the Fundisa for Change programme is working with teacher education authors from the University of Pretoria, the University of Cape Town, Rhodes University, the University of South Africa, Stellenbosch University and the University of KwaZulu-Natal. They, in turn are working with environmental sector partners such as Delta Environmental Centre, SANBI and WESSA to make sure that the most up-to-date perspectives on environmental concerns are provided for teachers. "Our concern is to develop high quality teacher education materials," says Ms Songqwaru, "and in future we wish to work with more universities in South Africa, and many have already shown an interest in participating in the Fundisa for Change Programme."

"Developing teacher education materials is not easy," says Professor Rob O'Donoghue from Rhodes University. "It is not the same as developing materials for use in classrooms." One needs to consider the foundational knowledge related to an environmental concern, as well as the pedagogical processes, and in South Africa it is also important to consider assessment practice and progression of learning, as this is a neglected area of teacher professional development. "Professor Chris Reddy from Stellenbosch University has many years

of experience in this area, and he proposed that we combine teacher education materials with access to classroom practice materials," says Ms Songqwaru.

Nine 'units' for teachers have been developed, edited and printed so far. "It was found that we needed some generic materials to provide orientation to all teachers, *in addition to* the subject specific topic materials," says Ms Songqwaru. "Thus two types of materials were developed: generic materials and subject specific topic modules." Further topic modules are in the final stages of development and will be launched at the Fundisa for Change conference in February 2014. The generic materials can be downloaded free from the Fundisa for Change website, while subject specific materials are made available to partners offering Fundisa for Change training programmes for teachers.



Authorship of the materials was distributed to ensure that we have authors from *different universities and different environmental partners* producing the materials. This is another way of combining our collective expertise to bring the best to our teachers. The materials development component of the programme has been generously supported by the Murray & Roberts Corporate Social Investment division.



Continuous professional development for teachers

"With piloted, tested and high quality materials, and with a strong team of trainers, we were able to launch training programmes for teachers," says Professor Lotz-Sisitka. Provincial teacher workshops were held in Gauteng, Mpumalanga, Western Cape, Eastern Cape and Northern Cape in 2013, with support from GIZ and GreenMatter. "We agreed to work to a six-credit framework, with a common assessment task, adapted to the subject specific needs, topics, context and materials of specific training programmes," she continued. This provided the basic framework for the courses, and partners used the Fundisa for Change materials in the training as a basic foundation, enriching these with their own expertise, experience and local environmental contextual knowledge and conditions. A total of five days of training is involved in all programmes, sometimes spread over afternoons or weekends to reduce time out of schools.

The workshop in Gauteng, strongly supported by the Gauteng Department of Basic Education working with Delta Environmental Centre, was held with Subject Advisors in the FET Life Sciences. In other provinces the training has been predominantly focused on teacher participants but with close DBE involvement and co-facilitation.

The model used has been based on a principle of "work together" in the training course, and then "work away" in classrooms on an applied assignment. Through this approach, teachers have been implementing tasks aimed at improving their teaching practice. They try out new ideas and then reflect on this practice and report back to their 'cluster'. This process of developing reflexivity contributes to the improvement of knowledge and teaching methods to support sustainability practices and learning at school. According to Ms Songqwaru, "teachers appreciate the focus on their actual practice, while also enriching their knowledge".

"The in-classroom practice is supported with resources and support from Eco-School coordinators in a whole school learning environment," says Ms Anisa Khan, co-ordinator of the South African Eco-Schools programme, which currently supports over 1000 schools to strengthen practical aspects of environmental learning. "In future we also plan to link this training to the DBE's concept of professional learning communities," says Ms Songqwaru. "We are having discussions with the South African Council of Educators on how to link this programme to their CPD points system."

SHORT REPORT:

Western Cape Geography FET teachers learn about climate change

The Western Province (Overberg Region) Fundisa for Change Climate Change Short Course was hosted at the Whale Coast Conservation Green House in Hermanus in September 2013. Facilitators included staff from the University of Cape Town and Rhodes University, the Western Cape Education Department (WCED) and Eco-Schools. The course was attended by Geography teachers concerned with how to teach the new climate change content in the Geography FET CAPS curriculum.

Delray Janse van Rensburg, Overberg Eco-School's co-ordinator, reflected, "All activities were well received by the participants, who enjoyed drawing up their own mind maps depicting their expectations and knowledge of Climate Change, playing the global warming game, experiencing the salinity experiment and watching a video clip." She went on to say, "Different energy displays were used to illustrate the Laws of Thermodynamics and facilitators explained how to teach learners to live towards sustainable energy management both in their homes and communities. A field trip to the ABAGOLD abalone farm was held, where the Wave Energy Converted model was demonstrated and explained."

"Important to this training," she added, "is the emphasis on assessment practice and how to engage with the specific assessment requirements of the FET Geography curriculum, as these pertain to the topic of climate change."

OTHER NEWS & EVENTS

CONFERENCE: In February 2014, Fundisa for Change, in partnership with Department of Environmental Affairs and GreenMatter will organise the first **Fundisa for Change Conference**. The conference will provide a platform to integrate and support environmental learning teacher education initiatives across the South African teacher education landscape.

All higher education institutions and major environmental partners involved in providing teacher education oriented towards transformative environmental learning are invited to attend. Visit the Fundisa for Change website for more information on this conference and for further news on training programmes and materials.

WEBSITE: The Fundisa for Change website was launched in August this year. It shares news, materials, and provides updates on the programme.

Visit the website www.fundisaforchange.co.za

SHORT REPORT:

Eastern Cape Life Sciences teachers learn about biodiversity

"With high enthusiasm from both teachers and trainers, the training kicked off on a Friday morning (12 July 2013)," said Sirka Tshiningayamwe, a PhD scholar researching the Fundisa for Change systems that enable teacher professional development through teacher professional learning communities. The key focus of the training was biodiversity: definitions of biodiversity, causes of biodiversity loss, responses to biodiversity, and other key concepts and topics relevant to biodiversity such as biomes and taxonomy. The teachers already had broad knowledge of biodiversity, and how it is represented in the CAPS curriculum, particularly in the FET phase, but they were not very familiar with the local biome, or biodiversity found in the local context.

Ms McLean, the Eastern Cape Eco-Schools Provincial Programme Manager, who helped to run the programme, reflected, "After a series of activities and an excursion on biomes, teachers were able to relate local biomes and biodiversity found there to ways in which they could teach biodiversity". Local field guides produced by WESSA were used in combination with the Fundisa for Change materials on biodiversity in the training programme. "Teachers were excited about how to use field guides to identify the different plant and animal species in their contexts," said Ms McLean. Teachers also found new ways to make sense of complex concepts such as taxonomy, and learned how to use everyday locally available biodiversity resources to teach taxonomy.



While there was much excitement and enthusiasm for the Fundisa for Change training programme, because it addresses teachers' knowledge and teaching practice needs directly, a Life Sciences subject advisor in the Eastern Cape DBE, Ms Nomaledi Mbambisa, who helped to co-ordinate the Fundisa for Change training programme, noted that "there is a need to continue to support teachers in their communities to enhance their knowledge and practices on environmental learning topics such as biodiversity. One training programme will not be enough as there are many environmental topics in the curriculum."

Fundisa for Change work has only just begun!