Vocational / Further Education & Training in South Africa

Quality Considerations for the Environmental Sector

Eureta Rosenberg & Jane Burt

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Executive Summary

In Vocational and Further Education and Training there is a great variety of learners, providers and learning programmes. It is a 'sector' that has blurry boundaries and is hard to pin down. Given its focus on vocational training and intermediate-level skills development, V/FET has been high on the agenda in the drive towards more equitable socio-economic development in South Africa.

Through the National Qualifications Framework, a South African Qualifications Authority (SAQA) with associated National Standards Bodies and Standards Generating Bodies, Education and Training Quality Authorities, Sector Education and Training Authorities (SETAs) and a national Skills Levy, a system has been put in place to achieve redress; to improve access to education, training and employment; to improve the quality of these provisions, and to mobilise the necessary funding.

Ironically, however, providers and learners alike struggle to access available sources. There are a number of sticking points in the system. While the SETAs are meant to play an intermediary role between the sector of employment – in this case the environmental sector – and education and training providers, stakeholders on all sides have found it hard to establish effective working relationships with SETAs.

Also ironically, measures to introduce equal standards and assure quality, such as accreditation of courses, providers and assessors, seem to be doing little to ensure quality, and could even detract from the quality of teaching and learning. In state FET schools and colleges, recapitalization efforts have not been matched with efforts to build a strong human resource base, and college staff struggle with limited curriculum knowledge and professional capacity; limited management capacity and ability to establish partnerships; limited teaching resources; and limited academic support for students who enter the system inadequately prepared by their earlier schooling. FET colleges are situated throughout the country, although mostly in urban areas, and in the face of high unemployment a renewed drive to increase the number of learners in this system is expected. However, without strong intermediaries, and effective quality assurance, there is not necessarily an uptake of the graduates of these institutions in the workplace.

Numerous non-state V/FET providers operate in the environmental sector, providing vocational training for school leavers, unemployed persons and the staff of a variety of environmental agencies including government, which outsource much of their environmental training to such consultants, universities or NGOs. This training has flexibility and can be highly responsive to emerging needs in a dynamic sector. However, there are concerns about uneven quality, and the lack of measures of quality, in the absence of a well-functioning SAQA system.

This report recommends that partners in the environmental sector:

1. Investigate the possibilities of 'green jobs' related to climate change action as well as other environmental management and conservation priorities.

2. Renew and strengthen the role of SETAs, to ensure the provision of high-quality and relevant training and education, to meet sectoral employment and development needs, and to unlock the resources in and intentions of the system. The Department of Environment Affairs could lead a civil society partnership linked to the Human Capital Development Strategies, to engage the relevant SAQA partners.

3. Encourage and guide partnerships between environmental agencies, particularly those in rural areas (such as SANParks), and FET schools and colleges, to improve access to affordable vocational training, the provision of suitably skilled personnel for environmental agencies and 'green jobs', and better alignment between training and employment opportunities.

4. Engage the Ministry of Higher Education and Training and Department of Education regarding the development of a wider range of learning programmes for the state colleges, to provide skills that can lead to employment or entrepreneurship in environmental agencies and 'green jobs'. Be mindful however of the limitations in the FET colleges where effective staff development , the development of resource materials, and financial aid for students, would be prerequisites. (3) and (4) should be aligned.

5. Support a bigger and more carefully planned investment in human resource development, to bolster both the educational understanding and the subject understanding of V/FET provider staff. (5) should take cognisance of (4).

6. Develop sectorally-based ('peer review') quality management systems for the myriad of short courses and workplace-related training offered by consultants, universities and other agencies in and to the environmental sector. Involve professional bodies, and/or Human Capital Development Strategy forums.

7. Strengthen the ability of human resource development managers in government departments to identify environmental training needs and suitable providers for such training, with a suitable level of quality.

8. In the short-course/workplace training context, prioritise courses that are customised for a particular work context, more comprehensive and with greater depth and therefore of long duration, and aimed at strengthening the individual learner/employee as part of an institutional system (reflecting a systemic approach to capacity development).

1. Introduction to the Report

This report is an initial exploration of the status quo, challenges and possibilities of Vocational/Further Education and Training in South Africa, with a view to informing human capital development strategies for the environmental sector. While it aims to provide some overview for perspective, its main focus is the quality and relevance of V/FET as it pertains to the environmental sector.

The following data sources have been used to compile the report:

- An FETI symposium[1] held in Johannesburg on 25 August 2009 (attended by Dr Eureta Rosenberg).

- A selection of literature, including sources and an overview report provided by Dr Volker Wedekind (reviewed by Eureta Rosenberg).

- Case studies on assessment and accreditation in the Marine Protected Areas Course, by Lawrence Sisitka, and the Marine and Coastal Stewardship initiative, by Dr Tracey Phillips (reviewed by Eureta Rosenberg).

- Visits to and interviews at a FET school in Cape Town and an FET College in the Eastern Cape (by Jane Burt).

The sources are limited and the report is not a comprehensive or in-depth overview of the V/FET sector and its issues. A bibliography is provided for further reading.

2. What is V/FET?

A great variety of education and training programmes are grouped under the label of Vocational/Further Education and Training. It is useful to start with considering what V/FET is not. V/FET *excludes*:

- General Education and Training (GET) – the nine years of basic, compulsory schooling (Grades 1-9, Level 1 on the National Qualifications Framework)

- Higher Education – in Primary Universities and Universities of Technology (from a NQF Level 5 National Certificate, to Degrees)

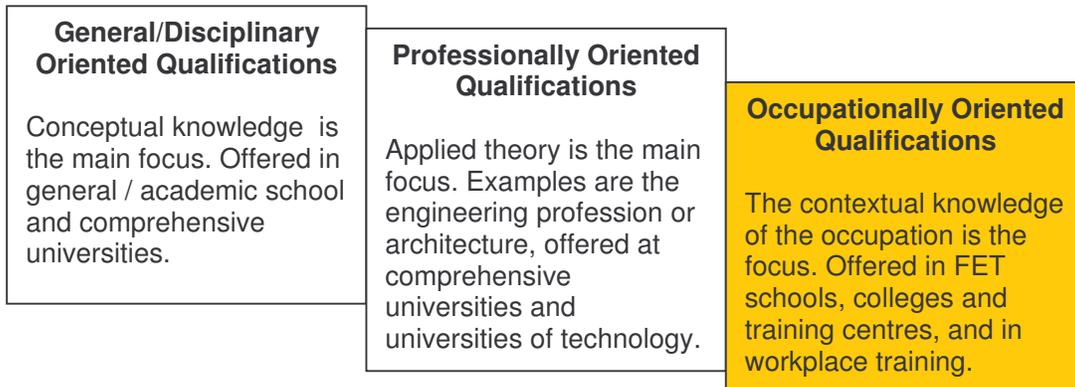- Adult Basic Education and Training (ABET) – basic literacy, numeracy and life skills programmes, NQF Levels 1-3.

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[1] Organised by the Further Education and Training Institute (FETI) of the University of the Western Cape and partners.

V/FET aims for the most part at intermediate level skills development at Level 4 on the NQF and *includes* programmes offered by*:*

- ⚑ Technical schools – The last 3 years of schooling (Grades 10-12) are offered in both general/academic schools and FET schools. The FET schools are vocationally oriented (formerly 'technical' , 'commercial' or 'agricultural').

- ⚑ FET colleges – Vocational training and some further education provided in state and private institutions including colleges for nursing and policing, and more general training related to, for example, business or engineering trades.

- ⚑ Training in the workplace; this is often not demarcated at a particular NQF level, but the focus would be on intermediate level skills, around NQF Level 4.

Many V/FET providers offer in addition to Level 4 FET programmes some ABET courses, some GET programmes, and some higher education programmes, with a particular convergence around NQF Level 5. The boundaries between academic education and vocational or technical training can be quite blurred. FET schools and colleges offer some foundational ('academic') subjects (*further* education), as well as subjects that are designed to prepare the learner for a specific vocation (vocational education). Higher education (HE) can also be more or less focussed on a particular career path, or a profession. One could explain the difference between these educational qualifications as follows:

General/Disciplinary Oriented Qualifications	**Professionally Oriented Qualifications**	**Occupationally Oriented Qualifications**
Conceptual knowledge is the main focus. Offered in general / academic school and comprehensive universities.	Applied theory is the main focus. Examples are the engineering profession or architecture, offered at comprehensive universities and universities of technology.	The contextual knowledge of the occupation is the focus. Offered in FET schools, colleges and training centres, and in workplace training.

As Section 3 shows, V/FET is for youth who have completed Grade 9 and want to complete the rest of their schooling, *and* for school leavers seeking employment, *as well as* for the retraining or 'up-skilling' of those already employed. This variety of intentions gives rise to a large variety of learners, learning programmes, providers and delivery modalities in this sector. One of the challenges in strengthening the 'sector', if it can be called that, has been providing policy, governance and guidance for both the further education and vocational education streams.

Partly because of the range of delivery modes, the size of the sector is hard to estimate, but see figures in Table 2. In 2007, an estimated 70%-80% of the students in registered FET institutions were broadly classified as black South Africans.

Knowledge of the V/FET sector is not easy to come by.

There is firstly a lack of reliable statistics on enrolment in the sector. Many private providers are not registered with the Department of Education, some do not keep records of students, existing records vary between institutions, and it is hard to standardise them, given the variety of delivery modes. A student may be included in a head count whether she has done a two-day First Aid course or a 12 month programme. Furthermore, while the Department of Education has some statistics on their EMIS (Education Management Information System) database, which can be accessed via their website www.education.gov.za, the data is not comprehensive or up-to-date. Quantitative studies commissioned by funders and agencies like the National Business Initiative (NBI) were not sustained, as the Department prioritized curriculum development, first for schooling and more recently for F/VET.

There is also limited qualitative insight into the sector. Dr Volker Wedekind (2008), who conducted an analysis on available research and compiled the bulk of the list of publications in the Bibliography at the end of this report, describes the state's FET colleges as 'a black box. He notes that we know particularly little about the learners in these institutions, and the lecturing staff, their motivation for working in these institutions, and their needs and aspirations. There also seems to be few studies to explain the high failure and non-completion rates reported for the sector.

On the positive side, HSRC researchers such as Glenda Kruss and Andre Kraak have done research on the sector since 2002 (and see e.g. Akoojee, 2005, for an overview of non-state providers); Umalusi (2007a, 2007b) conducted studies in relation to quality assurance; and there have been some studies regarding curriculum (Gamble and others) and the implications of outcomes-based qualifications design (Allais).

There seems to be a growing interest in researching V/FET. The Bibliography at the end of this report lists a number of post-graduates studies, often conducted by college staff themselves (note examples of M.Ed., M.Tech., PhD and D.Tech. studies).

3. Who are the Learners?

Following on the above, V/FET learners are diverse and have diverse motivations, some of which are illustrated in Table 1. Names are fictitious but scenarios are real.

Table 1: Illustration of Diverse Learners in FET Programmes

Rakesh (29) After school he obtained a certificate in computer technology at a technical college. He then found a job with a big ICT company that gave him in-house training in Sales. The company now sends him regularly on one-day courses offered by software suppliers.	**Mbulelo (21)** Attended a general high school in an urban township and failed matric. He is now enrolled at a public FET college to gain a practical qualification for a job. He had no funds and his high school subjects did not include Mathematics and Science, so his choices were limited. He 'chose' Panel Beating and Spray Painting, for which the education department provided bursaries.
Ashley (19) Went to a Waldorf school after which she enrolled at a public FET college to complete matric with technical subjects including Graphic Design. She now studies at a prestigious advertising academy towards a diploma. She chose a non-academic route to get a job where she would use her creative talent.	**Megan (20)** After completing matric she started to help out at her mother's salon. Although she is not really interested in further study, her parents insist that she 'gets a qualification', so she has enrolled at a private FET training centre for hairdressers, while thinking about her future.
Peter (35) Has no post-school qualifications and is not satisfied with his job as a driver for a car hire company. He registered with a private provider for evening classes in business studies, because he wants to start his own car wash business.	**Sibusiso (40)** Is a field ranger doing patrols in a protected area. Head office is encouraging conservationists to move away from law enforcement to public engagement, so S'bu's manager has sent him on a short course by an environmental NGO, that introduces new approaches to conservation.

Studies also show that some matriculants whose marks are too low for a university endorsement, enrol at FET institutions hoping to gain access to a university of technology. There is evidence that at least a small percentage succeed in this. The diversity of learners in the V/FET sector, with diverse aspirations, is an international phenomenon. It complicates teaching, provisioning, governance and support.

4. Who are the Providers?

Table 2: Overview of Types of Providers, according to Akoojee (2005)

State Providers
An estimated 320,679 learners and 5,987 lecturing staff (2007 EMIS data).
The majority of learners in V/FET schools and colleges are aged 18-22.
The state providers are governed by National and Provincial Education departments.
College principals have some autonomy, e.g. to set fees.
Fees are part subsidised by the Department of Education.

FET Schools and Colleges
50 state FET colleges (following enforced mergers) with 236 campuses.
Multiple roles: Completing schooling for learners from GET band - Further (foundational)
and Vocational Education towards a 3-year Level 4 National Certificate (Vocational),
and training those already in employment, or recently unemployed.
Delivery by distance and contact.

Non-State (Private or Non-Governmental) Providers
At the start of the decade there were 864 registered private providers with 4,178
delivery sites, catering for an estimated 707,884 learners.
58% of students in private training are older than 25.
Non-state training providers must register with the Department of Education; not all do.

Not-For-Profit Training Providers	For-Profit Providers	In-House/Industry Training Providers
Constitute 14% of the non-state providers. Role: Tend to try meet the needs of out-of-school youth and unemployed in disadvantaged communities. Include many of the environmental organisations providing FET training.	Constitute 75% of non-state providers. Role: Focus either on big corporates and government departments who outsource some or all of their training; or on the public – unemployed and employed individuals paying for their own studies.	Constitute 11% of the non-state providers. Three target groups: employees, clients (e.g. software providers), and communities, as part of corporate social responsibility (e.g. Mondi Forestry training for communities on neighbouring land).

A range of training providers are involved in environmental training. They are not well captured in the classification system developed by Akoojee (2005) on which the second half of Table 2 is based. Section 5 expands on this.

5. Locating Environmental Learning in the V/FET Landscape

A significant portion of the training in the environmental sector takes place outside of state education and training institutions. It is provided by NGOs, and/or consulting or training agencies, small or large, often in partnerships with the state (either as training provider, or employer, or both) or with higher education institutions. While much of this training is vocational in nature, and much also falls in the FET (Level 4) band, there is also considerable overlap in the training initiatives, with higher education level training and with ABET level training (notably in Expanded Public Works Programme initiatives in environmental rehabilitation and maintenance).

Providers of environmental training which is directly within the scope of V/FET include the following examples, which are simply illustrative and not comprehensive:

- The South African Wildlife College, a non-state training institution supported by the World Wide Fund for Nature (WWF, an NGO) provide field ranger and protected area management training for SADC wide employees.

- The Field Guiding Association of South Africa (FGASA), which trains field guides. FGASA is currently involved in the training of marine and nature guides from among the unemployed in the Northern Cape and Southern Cape, in partnership with WWF, the provincial para-statal CapeNature, and other parties..

- SANParks and provincial para-statal conservation agencies train alien clearing *contractors* for the Expanded Public Works Programme (EPWP) Working for Water, and other initiatives to control invasive alien plants[2].

- The Green Futures Horticultural and Life Skills College is an example of a partnership between a privately owned nature reserve and international funder; it strives for conservation-related employment creation by offering 12 month programmes in gardening and landscaping with indigenous plants.

- The Wildlife and Environment Society of South Africa (WESSA) provides a Level 5 learnership in Environmental Education, Training and Development Practices. While this has been developed within the higher education band, it has been offered to local government employees with matric, re-skilling and upskilling them from technical tasks, to a new vocational role as educators.

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[2] The training of EPWP *workers*, in DWAF's Working for Water and SANBI's Working for Wetlands programmes, is at ABET Levels 1-3, and mostly outsourced to accredited training providers registered on the Department of Labour's database; this training is mostly in general life skills rather than environmental topics.

Post-Apartheid reforms in the education and training sector saw rapid growth among the non-state providers, while in-house training by industry reduced. From 1993 to 1997, for example, there has been a 94% increase in enrolment in private colleges. The private providers exceed in number and enrolment figures the state V/FET providers, and higher education providers, and is only exceeded in size by state schooling.

The situation with environmental training provision to some extent follows the general national picture:

- Vocational or workplace training for both industry and governmental agencies has increasingly been outsourced, and is undertaken by NGOs, higher education partners or consulting/training firms, large or small. The latter are to a greater or lesser extent profit driven, and often consist of environmental scientists who may have been formerly employed in universities or government departments.

- Some employers (government, industry and NGOs) conduct their own training, and provide training for others - including stakeholder or neighbouring communities affected in some way by the company's business.

- NGOs like WESSA, WWF and others play a considerable role in initiating, seeking funding for and providing sector-relevant, not-for-profit training.

Environmental training provisions are often ad hoc, in the form of short courses and sometimes longer term programmes staggered over the course of a year. They can be very responsive to training needs, for example where former employees of the agency run the training. However, there is also an issue with the unevenness of the quality of the course content and delivery. These quality issues will be raised in sections 6 and 7. Here one can note that systems have been put in place to address issues of quality and standardisation, but they are not serving the sector well.

Key changes to the context of V/FET in the past two decades include:

- Policy and funding changes: To address the Apartheid legacy of inequality a National Qualifications Framework (NQF) was developed, with the aims of broadening access to knowledge, skills and employment; to provide greater mobility between educational options; recognise prior learning and experience; and increase equity, relevance and the quality of provision. SETAs were established to implement the NQF, contribute to quality assurance and administer the Skills Levy that was introduced so that employers would help pay for training, and function as intermediaries between employers and training providers (Kraak, 2009).

◈ Structural changes. Some 150 technical colleges and training centres were rationalised through mergers to form 50 V/FET colleges; these colleges were given a new level of autonomy and a wider remit.

◈ Governance changes: Attempts were made at some level of integration between the Department of Labour and the Department of Education. This experiment has on the whole not been a success. From 2009 a newly established Ministry of Higher and Further Education will be the authority for state FET colleges and private providers (as well as the SETAs).

◈ Curriculum changes: In 2006 the Department of Education announced that the NATED N1 – N3 qualifications will be replaced with a new National Certificate (Vocational). The first students taking the new curriculum are graduating this year. This curriculum is examined for its relevance for environmental learning, in Section 8.

6. General Challenges

Insufficient technical skills among large sections of the population, a persistent result of decades of Bantu Education and discrimination in the workplace, are seen to limit South Africa's economic development, and to contribute to the country's high unemployment rate. There has therefore in some ways been a great emphasis on and investment of financial resources in V/FET (Pampallis, 2009). Yet there is a view that the sector has not 'produced the goods' i.e. large numbers of qualified people with suitable skills for either employment or self-employment. Why is this the case? While this is not the place to analyse this situation, it is important to consider the challenges in the sector, if one is to invest in V/FET for the development of skills for the environmental sector, including a possible burgeoning of 'green jobs'.

The following are among the challenges affecting V/FET in South Africa:

- The low effectiveness or 'dysfunctional' nature of a number of the newly merged state colleges (Pampallis, 2009). Lack of suitable experience, historical legacies, weak capacity for self-governance and resource deployment may be key issues.

- The quality of tuition in both state and non-state V/FET institutions, although there are few studies to illuminate the issues involved.

- Poor preparation of learners in a significant portion of schools in the general education and training (GET) band (see Rosenberg, Nsubugo and Burt, 2009).

- The mental and other resources and motivation of learners from communities characterised by long-standing socio-economic challenges like unemployment and substance abuse.

- High failure and non-completion rates among V/FET students.

- Understanding, monitoring and keeping track of the sector (as noted above).

- Mobilisation of available resources, for FET schools and colleges, and students.

- Salaries of lecturing staff.

- Financial sustainability and regulation of private providers, with some providers defaulting on commitments to paid-up students, or providing poor quality training, resources and qualifications.

- The focus and delivery of the new curriculum (see below).

- The transition from initial Vocational Training to work, including difficulties in finding placements to develop work experience.

- The difficulty of responding to challenging and at times misaligned policies.

- Lack of integration among or alignment between state structures (e.g. Department of Labour and former Department of Education and Training)

- Limited management capacity at college level.

- The magnitude of the expectations of the sector, in comparison to the nature and magnitude of the support for the sector.

- Working with SETAs and SAQA to develop new qualifications, and accredit existing learning programmes and learnerships.

Some of these challenges are elaborated below.

The purpose is to provide background against which to better understand issues of quality and relevance for environmental training, and to assess the potential and the pitfalls for environmental training programmes in the V/FET sector.

Status of the Sector

Many of the issues associated with vocational and further training can be linked to the fact that it has a very low status in South Africa. This low status is in sharp contrast to a country like Germany, for example, where vocational training is prized for its contributions to and links with economic growth and industry. In Germany, both students and staff with high academic ability may go into vocational studies as a study and career direction of choice, rather than a last option or because 'they can do no better'. Dr Volker Wedekind recounts how he and his friends, growing up in South Africa and attending an academic school, would never have considered studying at a vocational training institution. His father though, who grew up in Germany, had chosen vocational training although he had the ability and opportunity to go into higher education, and he went on to make a successful career in industry. The situation is still the same for the current generation of Germans – recently an academically strong German cousin of Wedekind's also chose the vocational route. Wedekind ascribes the low status of V/FET in South Africa to its British origins and the associated classist distinctions between education and training, and related vocations.

Locally the low status of V/FET might be a factor in the poor salaries paid to staff, limited attention to the qualifications of staff, and other signs of 'neglect', despite numerous statements about its importance.

Responding to Diverse Demands

Despite its lowly status, our V/FET sector and in particular the state's FET colleges have a wide remit, including:

- Widening access to education for all
- Providing opportunities for lifelong learning
- Building a new citizenry
- Contributing to national and organisational human resource objectives, especially at the intermediate skills level.

With this wide remit, there is some confusion about what exactly the FET colleges – and the new National Certificate (Vocational) – are for. Uncertainty about their role and identity may be one of the reasons why resources have not been effectively mobilised by and utilised in FET colleges. The colleges are providers of:

- Bridges to higher education
- Bridges to employment in the formal sector
- Bridges to self-employment
- Ladders for upskilling those already employed.

It is feasible that colleges can play all these roles, but then they need to be clear on these roles and have the necessary capability. This capability would include:

- Understanding the national and regional (provincial) development context.
- Good knowledge of and contacts with partners who could resource programmes and/or employ students upon graduation, and a pro-active orientation to engage with these partners.
- Flexible training arrangements (FET colleges are allowed to run short courses in addition to their core 12 month programmes).
- The ability to attract the range of staff and students that would be involved.
- Managers and staff who can manage and mediate between the diverse roles, students and partners that would be involved in these multiple purposes.

A Demanding Brief – Addressing Unemployment and Economic Development

Given that limited economic growth and unemployment are often attributed to skills shortages, the V/FET sector is under immense pressure to address unemployment. Currently 41% of South African adults are looking for and unable to find work. This excludes those who work in the informal sector. The huge number of people who

have no work, and the associated inequality (at a rate of 0,7 now the highest in the world[3]) are linked in multiple ways to South Africa's social challenges.

FET colleges needed to become key drivers of a new economic reality, one no longer based on cheap unskilled and semi-skilled labour. Economic reform has been away from labour-intensive manufacturing, mining and agriculture, and much investment has been in 'high-tech' and high skill/high capital/less labour intensive industries. A gap persists, and in fact seems to be widening, between the provisioning of skills, and the demand. An Oxford University study confirmed that South Africa has a low labour demand; thus, even if skills are provided, they might not be employed. This is the paradox within which FET colleges operate, and possibly a large factor in their apparent inability to make the required impact satisfactorily.

Does a V/FET qualification get one a job?

A 2001 tracer study (Badroodien, 2003) attempted to make contact with 10,000 learners from the 1999 cohort of N3 college graduates across the country. With a 35% response rate, the study found that most learners were still studying, having gone on to N4-N6, with a small fraction having entered universities of technology. *Of those who had left college on completion of N3, only 30% of the sample were in employment.* For engineering students, only 25% had found employment.

A follow-up study in 2003 (Gewer, 2004) selected the 1,500 engineering students from Gauteng out of the earlier tracer study. It found that the employment rate of these students had increased to 41%, although *most were employed in fields other than engineering.* Many of these graduates, 5 years later, were still studying, although it is likely that they had been moving in and out of the system, depending on funds, employment opportunities and the success they were having in college.

It is clear that a V/FET qualification, even in a relatively high demand area such as an engineering trade, does not guarantee one a job. This could be related to the nature of the current economy (which might require higher level skills), or to the quality of the qualifications obtained, or both. The situation has prompted one commentator to ask whether FET colleges are simply "*warehouses for the youth*". Many V/FET (and higher education) institutions also struggle to find workplace placements for students, to complete their practical training.

Observations in the environmental sector suggest that many who have completed internships and learnerships do not subsequently find job placements. Staff in turn blame budget constraints, bureaucracy and other organisational factors for not filling posts, and may use training budgets to fill vacancies cheaply, as 'internships'.

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[3] An inequality index higher than 0,5 is a serious threat to the fabric of a society. Issues such as South Africa's crime rates, endemic violence, and the record speed at which the HIV/AIDS epidemic spreads in some localities, all have some links to socio-economic inequality, a lack of meaningful work and income.

The Scope of the Demand vs the Scope of the Support

We have noted that colleges are being expected to transform radically, and to respond to major and demanding policy challenges. However, these institutions are based on historically weak predecessors. When forced to confront conflicting questions about what they are for, they have limited resources on which to draw. This includes staff and institutional management capacity.

Given the deep and extensive nature of the transformation and contribution required of the V/FET section, there has been surprisingly little effort to roll out a strategic and effective staffing and professional development programme. Wedekind (2008, p.17) comments that *"Staff in the system have been consistently portrayed as conservative, ill-educated and out of touch with the workplace. Yet these same people are being expected to achieve a major transformation through little more than a few workshops on outcomes-based education"*.

Other commentators note that support for and effective governance of the college sector has fallen between the stools of the Department of Labour and the Department of Education, or that government and other development agencies have focussed the bulk of their attention on the transformation of schooling, and neglected to give the same depth of attention to V/FET.

In Denmark, which has a well-functioning V/FET system, individual providers have also been given greater autonomy and are encouraged, for example, to choose what programmes they develop and offer, in relation to local socio-economic needs. However, they also receive strong support from a central government agency, the Danish National Centre for the Development of Vocational Education and Training, which focuses on staff development and support, and assists colleges with organisational and programme development.

Governance

The fact that training resorted under two Ministries (Labour and Education) has been seen as a major stumbling block to the sector's development. Weaknesses in the governance capacity of the majority of state FET colleges have been identified as a significant threat to reform (Mabunda et al, 2006). College governance and management has been a major focus of reform around the mergers. Power has been devolved to individual colleges themselves, with reduced relationships with provincial (education) departments. This has had major implications, not least for staff, and perhaps also for resource allocation: In the Eastern Cape College where we conducted a focus group discussion, staff indicated that "we don't get anything from the [education] department". There is an opportunity for environmental organisations, who could link state FET institutions to partner networks in order to mobilise support and resources, much as has been done in the Eco-Schools programme, for schools.

Providing Access and Quality to All

Geographic spread: There is an urban bias to where both state and private colleges are situated. More than 75% of the national enrolment in private FET colleges is in those provinces with large urban areas: Gauteng, KwaZulu-Natal and the Western Cape (Akoojee, 2005). Our interview at an urban-based state college in the Eastern Cape revealed that it catered for both urban and rural youth, that those from rural areas and distant towns experienced difficulties to pay for their transport and board, and that this is a factor in high drop-out rates. The college used to have access to a state-sponsored bus for students from outlying areas, but this has fallen away, thus affecting enrolment from the outlying areas.

Most protected areas are situated in rural areas and some of these parks and reserves may be able to mobilise the resources to act as satellite training sites for V/FET. This could benefit existing conservation staff, and expose more school leavers to the possibilities of careers in conservation. However, some parks have had difficulties in reconciling educational programmes with tourism activities.

Funding: Although access is not an issue as far as academic background is concerned – almost everyone can be accepted at an FET college – it is clear that not everyone can afford to study, even when programmes are subsidised. The Department of Education is committed to paying 70%-80% of fees for certain programmes at state colleges, but some students can still not afford the remainder of expenses. Also, funding may dry up mid-way through a student's studies. Or, may fail to arrive (as at the college we visited, where bursaries had not arrived by the time of the interview in September). The critical task of deploying funds where they are needed seems to be a particularly flawed component of the system.

Academic support is another dimension of access. Students enter V/FET schools and colleges with a range of academic backgrounds, many of which have been very limited and resulted in limited literacy, numeracy and study skills. There is ample evidence that a majority of general schools inadequately prepares students for further study. (See Rosenberg, Nsubuga and Burt, 2009, for the background on quality issues in general schools.) Lecturers in our case example noted that students 'don't seem to know what it means to study' when they arrive at the college, and that many require additional support in order to master the required learning outcomes. At this particular college, three lecturers interviewed were not aware of how an academic support programme functioned, if indeed there was one, beyond that they had been requested to pass on the names of students who struggle. The sense is that not enough has been invested in quality-related issues.

Funding and Resources

Prof John Pampallis (2009), advisor to the new Minister of Higher Education and Training, notes that the FET sector has been 'awash' with resources, but that there has been little to show for the investment.

Ironically though, our site visits and interviews revealed the predominant feature of these institutions to be a context of resource constraints. Staff mentioned low salaries, state subsidised transport for rural learners that has been stopped, limited teaching resources, and a desire to form links with the university in order to try and access more.

It may be that we have underestimated the size of the investment that is required to have an effective vocational education and training system. Consider the following comparison with Germany and Denmark – two countries with a culture of vocational training that is deeply entrenched in the fabric of society[4]:

Table 3: Level of investment in terms of V/FET staff, per country[5]

Country	Population size	Number of FET lecturers
South Africa	50 million	10,000 (approx)
Denmark	5,6 million	15,000
Germany	18 million	100,000

Funding for programmes in the FET band may currently be accessed through a number of sources. These include:

⊠ The Skills Levy, through SETA accreditation and learnerships.

⊠ The Skills Levy through the Department of Labour, where a proportion of the National Skills Fund may be used for developmental programmes such as the training of unemployed and/or retrenched persons, the youth and SMMEs.

⊠ Department of Education subsidies which are provided for certain curricula (referred to as Report 190/1 courses). There may be some funding through this window, for programmes that gain the approval of the provincial education departments.

But available funding is not being mobilised and effectively deployed. Taylor and Perreira (2004) noted one of the bottlenecks in the system, namely the slow response of the SETAs to applications to register learnerships. They attribute this to administrative inefficiencies in the SETAs, and the unfamiliarity on the part of

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[4] Also consider the age distribution in these populations: South Africa has a much higher youth component than the two European countries.
[5] Data provided at the FETI Symposium held in Johannesburg, 25 August 2009.

applicants with SETA requirements. They also suggest that the development of programmes that respond to local labour market conditions, has been hampered by the absence of a curriculum framework from the Department of Education, for certain programmes. Taylor and Perreira also note inefficiencies on the part of parastatal agencies with a support role, such as the Umsobomvu Youth Fund, Ntsika and the National Development Agency, in responding to the skills needs of small and medium enterprises.

Case Study 1 demonstrates how, in the environmental sector, NGOs and other agencies take on a role of mediating between employers and training agencies. This is a role which would ideally be played on a far bigger scale by a response Sector Education and Training Authority. Non-governmental role players recognise the potential value of accrediting training, but in the absence of an responsive system to access the National Skills Levy, they look for alternatives.

Case Study 1: The Case of the Cape Peninsula Marine and Coastal Stewardship Certificate Initiative

On the Cape Peninsula, government and NGOs in the environmental sector have identified the need for an FET level qualification in Marine and Coastal Stewardship. Agencies like the Depart of Environmental Affairs (Social Responsibility Policy & Project Unit), the Table Mountain National Park (SANParks), Anchor Consultants and the Kommetjie Environmental Awareness Group have been employing individuals from disadvantaged communities on the Peninsula, to act as marine and coastal stewards. Many of these stewards have been identified in the EPWP initiative, Working for the Coast, for their potential for further employment. They provide monitoring services such as shark spotting, baboon monitoring and monitoring of resource use by humans; help with beach clean-ups and rehabilitation work. With training, they could give information to the public, and assist with research, community engagement and emergencies like oil and sewage spills (Phillips, 2009).

More than 90% of the stewards in the Working for the Coast projects in the Western Cape, Northern Cape and on the Wild Coast are at NQF Level 1, that is, they do not have a qualification higher than Grade 9 (Phillips, 2009). A Cape Town based NGO, Capfish, which trains sea fisheries monitors, reports that 90% of their trainees with matric have literacy, communication and numeracy skills which are actually below this level.

Training could open up a learning and career path for promising marine and coastal stewards. It would improve the skills of the stewards, and allow them to rotate between jobs that can otherwise become monotonous. Better skills and motivation would enhance their retention in the system and their availability and value to the employers, while demonstrating the value of environmental management and conservation as a site for poverty alleviation and employment creation.

An investigation spearheaded by WWF South Africa and the Table Mountain Fund (see Phillips, 2009) showed that this kind of training was already taking place, but it was being provided by a range of agencies, without any coherent framework. The training opportunities were not designed to 'fit' together and did not provide trainees with articulation or pathways to a recognised qualification. None of the courses were accredited, and although this was not necessarily a comment on their quality, it did have implications for the employers (in terms of funding) and the individuals (in terms of career prospects).

As noted earlier, when the NQF was set up, one of its aims was to respond to exactly this kind of situation, through a coherent framework within which learners from disadvantaged backgrounds in particular, could gain access to quality training that responded to the needs of employers and the country. This was to take the form of a comprehensive suite of building blocks (unit standards) which would articulate with each other so that it was possible to climb a ladder, or move sideways, in ways which would improve the learner's competencies and chances to do meaningful and gainful work in a formal economy. The SAQA, Skills Levy and SETAs were all to serve the purpose of developing people, in line with the country's needs. In this case, there is a need for on-the-ground environmental management, and associated employment opportunities for suitably skilled individuals.

There is clearly considerable merit in a national system that logs and rates qualifications on a national 'grid'. The NQF allowed the Marine and Coastal Stewardship training investigation to find some relevant unit standards and qualifications already registered: a Level 2 Certificate in Resource Guardianship; a Level 2 Certificate in Environmental Practices; and Literacy and Numeracy in registered Vocational programmes at Levels 2-4. It also showed the investigators the opportunity to articulate their programme with existing Level 4 and 5 certificates in Compliance, Resource Management, Conservation, Environmental Education, Guiding, Emergency, Communications, Animal Protection, and so on (Phillips, 2009).

However, the existing qualifications could not be put together in the package required to meet the needs for this particular training context, and some required units of learning were missing. Hence the investigation suggested that the stakeholders embark on the development of a tailor-made certificate with Level 2 marine related topics and Level 4 education related modules, modelled on an Enviro-Tourism course offered by WESSA.

One of the intended roles of the Sector Education and Training Authorities (SETAs) was to mediate between the world of work and the training sector, to ensure that the skills are provided which are needed in the workplace (Kraak 2009). Another role was to administer the Skills Levy and make the funding available for quality training programmes relevant to organisation's training needs, as identified in their Workplace Skills Plans.

Unfortunately most environmental agencies which attempt to engage with the SETAs report frustration and a lack of success. They cite difficulties to establish effective working relationships with the SETAs, opaqueness and over-elaborate procedures and requirements, systems which fail to give effect to the original intentions of the NQF, and incompleteness of the qualifications or unit standards which have been developed. The group proposing a coherent training programme for marine and coastal stewards (Case Study 1) noted, as others had done, that "accreditation is ideal, but the accreditation process is long and complicated and training and service / management needs are immediate".

If the training is accredited as a learnership, a monthly stipend of R3,000 could be provided to each learner for the duration of a year's training. Until it is able to access and use the elaborate system in place, however, the marine and coastal partnernership must instead charge a minimum of R6,500 in course fees from each organisation per promising steward sent for training. This places an additional burden on cash-strapped conservation agencies, and individuals without the back-up of an organisation with access to funds, would be unlikely to afford the training.

In summary, it would seem that the bulk of the attention to transformation of the V/FET sector has been at the structural and policy level, with the assumption that institutions now had to take the new powers devolved to them, and 'get on with it'. Yet the new structural and funding arrangements have not been functioning optimally. And, the crucial element of the human resource base which needs to work with new structural arrangements and give expression to new policies, have been sorely neglected. In this context many of the well-intended changes have been perceived as 'yet another thing from government'.

A significant effort to strengthen the human capacity of the V/FET institutions is required, in the form not of advocacy, but of well-thought-through professional development and support. The discussion about quality (of provision) that follows in section 7 has a focus on staffing.

It is also critical to address the fact that the strong and still very appropriate intentions of the NQF are not being optimally realised through the structures, processes and procedures of the relevant instittutions. More open and effective working relationships between the relevant SETAs, and the employers and training providers in the environmental sector, are urgent, as are more streamlined, well-communicated and easily accessible provisions and procedures. Case Study 2 in Section 7 highlights issues related to accreditation and associated assessment practices.

7. Quality Issues

Why focus on quality issues? This report complements the more quantitative sector analyses which have been conducted to inform the Department of Environment Affairs' Environmental Sector Skills Plan and associated Human Capital Development Strategies. A review of quality issues can help explain patterns observed in quantitative data. It also highlights issues that must be addressed if the Human Capital Development Strategies recommend an investment in V/FET.

There is little empirical research on the quality of the educational provision provided at V/FET institutions (Wedekind, 2008). What is generally accepted, is that there are high drop-out and failure rates at some institutions, and that the quality of the skills developed and qualifications issued at some institutions, are not highly regarded by employers. The often-cited figures on high unemployment among graduates include a significant percentage of diploma and certificate holders from V/FET institutions (Bhorat, 2009).

Among the diversity of providers of V/FET training in the environmental sector (see Section 3) there is also variance in the quality of courses and programmes offered. Many factors are involved in quality of provision: the written and taught curriculum; the pedagogical framework of theory of learning and teaching methods used; the appropriateness of assessment, which can become the focus of learning and teaching; the knowledge and experience of teaching staff; the quality of teaching materials; classroom - and curriculum management. Broader management, both of the institution itself, and of the broader support structures, also influence quality.

Quality related issues which have been noted in the environmental sector and more generally include:

⌖ Varying levels of subject and educational expertise among those offering programmes.

⌖ Inappropriate assumptions about educational processes (pedagogy and epistemology).

⌖ The influence of assessment frameworks which may be either very narrow, or over-elaborate, or both, and/or fail to support the epistemological and pedagogical framework of the learning programme.

⌖ The influence of the interpretation of the outcomes-based education framework, on curriculum development, teaching and assessment.

The discussion here will focus on staffing, assessment and educational processes. The national curriculum is discussed in Section 8, in relation to its relevance for environmental learning. Our investigation into other aspects of quality of provision

was hampered partly by the small size of our study; partly by the limited focus on environmental topics in the V/FET curriculum (see Section 8).

V/FET Educators

"*Staff in the system have been consistently portrayed as conservative, ill-educated and out of touch with the workplace. Yet these same people are being expected to achieve a major transformation through little more than a few workshops on outcomes-based education*" (Wedekind, 2008, p.17).

This statement pertains to state V/FET institutions, but in private training institutions, too, staff generally do not have a good reputation, and education specialist are often doubtful about the quality of courses presented by environmentalists with no educational background. It would be more accurate, however, to describe the quality of V/VET educators as uneven. In addition to under-qualified, inexperienced and indifferent trainers and lecturers, there are also those who are very good at what they do and dedicated to their role.

In the college interview conducted for this report, the three staff members participating were to varying degrees enthusiastic, and keen to explore institutional linkages, both to try and mobilise additional resources for the college, and for their own development. Yet they also said that, should a better opportunity come along, they would leave the college immediately. Working conditions are tough and salaries unrewarding. The teaching conditions include under-prepared students, limited teaching resources, a 'full' curriculum which inhibits creative teaching and learning interactions, and an 'assessment conundrum' (Lolwana, 2009) accompanying the new outcomes-based education (OBE) framework.

Although the Department of Education does not keep a record of V/FET staff and their qualifications, a spokesperson (Singh, 2009) reported that staff qualifications vary greatly, with some lecturers (e.g. in Business Studies) qualified at a Masters level; others have a (school) teaching qualification but no technical background; some have a trade background but no educator training; and others ('matriculants') have no background in either a trade or education/training. Appointments are made by the colleges themselves, on what Ms Singh calls an "inconsistent" basis in the absence of guidelines or criteria. Contrast this to the situation in Denmark, where lecturers are appointed on the basis of their ability to act as role models promoting the work in a particular sector; this includes a thorough knowledge of the field in which they will be teaching, and up-to-date exposure to that field.

In a survey in the Eastern Cape, to which 550 FET college lecturers responded, 50% indicated that they were not confident in their teaching; 50% were not teaching 'what they were meant to teach'[6]. Singh reports that there is a shortage of lecturers with the

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[6] Quoted at the FETI Symposium held in Johannesburg, 25 August 2009.

necessary disciplinary background, in Engineering, Mathematics and Science. It would seem that the investment in 'recapitalizing' the colleges did not adequately attend to the human resource component, both in terms of numbers and in terms of attracting, developing and retaining quality educators.

Where training of FET lecturers has taken place, it has been done mostly by private providers, and tended to take on (or to be interpreted as) advocacy work on behalf of government. The focus has been on providing a brief orientation to OBE, to new assessment frameworks and to the new curriculum for the National Certificate (Vocational). Mechanisms for enabling lecturing staff to visit the workplace and 'catch up' are described as 'complex' (Singh, 2009).

On the positive side, there is a growing body of research from within colleges themselves. A number of college staff have embarked on masters or doctoral studies at primary universities or a universities of technology (see Bibliography). Their studies tend to focus on management at the college level, and also significantly on staff development, and perhaps in the majority of instances, on pedagogy (e-learning, cooperative learning, mode switching). This indicates an interest among staff to advance their ability to help their students learn better, and to respond to the academic challenges posed by their student body.

Recent FET policies have 'raised the bar' for V/FET staff qualifications and a new national framework gives lecturer qualifications a new legitimacy and status, which may encourage more universities to specialise in training, professional development and support for V/FET staff. There may be important opportunities to strengthen staff's capacity in teaching the environmental components of the NC(V) and any new environmental programmes developed. Universities with programmes for the professional development of V/FET staff include the University of the Western Cape (Further Education and Training Institute) and the University of the Witwatersrand.

Quality Issues in Environmental Short Courses

Our review suggests that most of the environmental training at the FET level takes place outside of the formal government structures. Here, the quality of offerings has varied greatly. Some programmes are carefully crafted with attention to the needs of the environmental sector, the employing organisations and the individual learners, who are either employees or prospective employees of environmental agencies (see e.g. Case Study 2). These courses are often of a longer duration and strive for appropriate depth and the application of the training in the workplace. In other cases, there is less attention to the application of the training, and to the suitability of the training format for particular learner groups.

Among the issues observed in a number of case examples[7] and the sectoral analysis for the Department of Environment Affairs' Environmental Sector Skills Plan, are the following:

- Work Place Skills Plans tend to prioritise generic work skills courses (e.g. in management, business writing, computer skills) even though employees in environmental agencies also report specific environmental training needs; the generic courses are often offered at too low a level. In these and other instances course content might be 'thin' and superficial, or simply too generic for trainees to apply it back in the workplace (observation on generic project management course attended by a large number of WESSA employees).

- Employees find it difficult to integrate across a variety of short courses attended, sometimes on quite an ad hoc basis, and thus to apply the learning in the workplace. This has been recorded during an evaluation of the Table Mountain Fund Capacity Development Programme (Rosenberg and Sisitka, 2007a) and in other forums.

- While in a higher education context, scientific and educational expertise is often combined, in the V/FET context training sessions occur where presenters have technical expertise, but give little attention to educational considerations. As a result sessions may be: too full in terms of content; in a language not well understood by the majority of learners; lacking a variety of delivery modes and opportunities for interactive learning; failing to mobilise learners' prior knowledge, or to connect with the trainees' experience, interest or training needs. Such observations have been made, for example, by Raven (2009) in an evaluation of a catchment management training pilot, and by Hoffman in reviews of other training initiatives in the water sector.

- The field lacks quality assurance mechanisms. There have been a number of calls (for example, at the 2008 National Wetlands Indaba) for 'standards' and accreditation of training providers, in order to ensure adequate and consistent quality of training. Unfortunately, as was noted at the 2009 FETI conference, the formal mechanisms to assure quality have not been successful. They have been experienced as too rigid, bureaucratically demanding, and ironically, often detract from rather than add to the quality of training provisions. This has been observed in longer training programmes, such as offerings of the Environmental Education Training and Development Practices Learnership, where a laborious assessment process imposed on a 2008 offering of the learnership has not assured the quality of the course, but introduced the risk of detracting from its value and feasibility. Case Study 2 is also illuminating.

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[7] For example, Pat Hoffmann's unpublished review of worker and contractor training in the Working for Wetlands programme; a review of a capacity-building initiative for catchment management groups in the Olifants Doorn catchment; and an evaluation of the Table Mountain Fund Capacity Development Programme (Rosenberg and Sisitka, 2007).

Quality Assurance, Assessment and Accreditation

Case Study 2: The Marine Protected Areas Management Training Course

While South African has a long and proud history in parks and reserves to protect terrestrial wildlife and biodiversity, marine protected areas (MPAs) are a new phenomenon on the landscape, and conservationists needed special training in order to manage these areas. WWF-South Africa, which has worked with government to establish such protected areas, initiated the development of a suitable training programme. It called on the Environmental Education and Sustainability Unit at Rhodes University for assistance, as this Unit has a recognised track record in professional development and training in the environmental arena.

Like other universities in the country, Rhodes University has considerable experience in providing environmental management, law and education courses that meet needs in the workplace. With access to both educational and environmental expertise, the Rhodes Unit custom-designed a course for MPA managers. The development phase included six month's of consultation with stakeholders, including employers. The course eventually included modules with content similar to internationally-comparable courses. Its innovation lay in its methodology and delivery, which included the following features:

- The students were drawn from MPA staff, but also partner agencies, to encourage them to learn from each other's experiences and contexts, and to establish or strengthen working relationships, partnerships and viable 'communities of practice' – vital, given that managing and protecting marine and coastal resources require cooperative governance and multiple partnerships.

- The course was offered in a multi-level format; this meant that a range of employees could benefit, and that a team-based approach, similar to how parks are managed on the ground, could be followed. A manager and his assistants could therefore attend (components of) the course together, and discuss and plan together for initiatives they would have to implement together. Similarly, MPA staff and compliance staff from the Department of Environment Affairs' Marine and Coastal Management division could work together on the course and learn from each other's contexts.

- This first principle meant that there were students with different educational entry levels on the course. A minimum benchmark was set, and those not meeting the expected standard were asked to repeat assignments until they did. But even those students who easily met this standard were encouraged, through qualitative feedback on assignments, to 'stretch' their understanding and skills.

- ⧈ A better understanding of the relevant content and issues was to be developed through an engagement with each other and course presenters, with carefully custom developed core texts, additional materials on a CD-Rom, site visits to different MPAs, and applied assignments to be completed back at work.

- ⧈ Individual assignments were an opportunity for reflection and consolidation of learning. Group and individual assignments also developed and provided an opportunity for the assessment of skills such as reasoning, logical structuring, and communication (verbal and written), all of which are required in the workplace and widely reported to be needed improvement.

- ⧈ The course explicitly aimed to develop practical skills and resources for the workplace, e.g. through students developing documents that feed into MPA management plans. These skills and resources were the focus of assignments, which were also detailed enough to give the course coordinator and facilitators, responsible for their assessment, an indication of the growth, development and competence of the student.

- ⧈ Assignments allowed for a context-specific focus, so that students could apply the more theoretical learning into their own context, and produce a document that could be used directly in their workplace context.

- ⧈ The course was coordinated, facilitated and assessed by professionals experienced and knowledgeable in marine and protected area training, with considerable tacit knowledge. It also drew on the educational expertise built up with and within the Rhodes Unit through a number of collaborative projects. Significantly, the course developers also led the delivery of the course.

- ⧈ The course offered access to a range of resource persons with different areas of expertise, through which students could also build up longer-term human resource networks. In these and other ways the course aimed to develop more than individual competencies in isolation, but to create enabling environments which would strengthen the employee's capacity to work effectively, even as it strengthened institutional capacity.

- ⧈ The course also set out to raise the profile of marine protected area management in the sector.

Lawrence Sisitka, who was centrally involved in the design and delivery of the course since 2003, reports that stakeholder organisations and students wanted the course to be accredited, so that the students could work towards a formal qualification in this field. However, not all the required learning units or Unit Standards were available on the NQF. The group did not have the resources (time, funds) to embark on the development of new qualifications. Information on how best to address accreditation of the course was in short supply, and there were many blind spots and grey areas, with little clear communication from SAQA structures, to guide the group.

One grey area was that the course was offered under the auspices of Rhodes University, which is a recognised education provider, with quality assurance from the Council for Higher Education. The university has guidelines for the approval of short courses offered under its auspices, and these have been followed and met by the MPA course developers. However, when the SETA responsible for training in the marine sector was approached, the THETA would not recognise this accreditation and declined to give programme approval.

Therefore, after running the course successfully over a number of years and extending the capacity of a large number of conservationists in the field, the course was moved from the university to a provider registered with the THETA. This institution appointed a consultant to re-develop the course materials and assignment criteria so that they could be used within the framework for accreditation provided by the SETA. This was interpreted as having to meet all of the learning outcomes specified in the relevant unit standards that would make up the qualification.

In the revised course, assessment was done and accreditation achieved through the introduction of a set of workbooks with questions, in which students had to copy answers that they would look up in the course materials. The original course assignments, with their central role in achieving the course aims, were not used for assessment purposes, although they still had to be completed. However, the new mode of assessment started to marginalise other assignment work, and there was a drop in the quality of the written assignments. The 'question and answer' assessment tasks were demanding, not so much intellectually, but in terms of time required. Students started to 'fill in' their workbooks during presentations in contact sessions. Mid way through the course the remaining original assignments were scrapped, to ease the burden on students and the staff who had to mark all the assessments.

Another shift that was unintentionally achieved, related to the understanding of knowledge (epistemology) underpinning the course. The new 'question and answer' assessment implied one correct answer, and re-positioned the text not as a stimulus for the mobilisation of prior knowledge, discussion and the development of further insights, but as the source of the required one right answer. This implied that learners' prior knowledge and the knowledge developed among course participants through joint reflections and deliberations on their practice, was less significant: the most important answer had already been provided by the author of the text.

The view of knowledge as originating in an authoritative text is inappropriate in fields such as environmental management, where science informs decisions, but practitioners need to some extent to seek and work out better practices and solutions to emerging management challenges. Communities of practice do this around the world, and have done so for decades; the new tools of 'adaptive management' build on this tradition. In such a context, there are few right or wrong answers - mostly only more appropriate or less appropriate ones. The appropriateness of a response is determined by experience and tacit knowledge of the field. In the revised course, however, the learners' competence in MPA management can be assessed by

anyone who is generically accredited and can read the course materials, even if they have no knowledge of the field.

As has happened in other programmes, a new assessment protocol introduced for greater alignment with accredited Unit Standards unintentionally started to influence the curriculum of the MPA course in Case Study 2. Because of the intention to achieve a tight fit between the assessment criteria and the Unit Standards, the latter led to reworked materials, different dynamics of learning, and different messages about what knowledge counts. As the late Prof Ben Parker and former head of the research programme at SAQA was at pains to explain, this was not the intention of the Unit Standard system. Some commentators however believe that it is an almost unavoidable and highly problematic risk of an outcomes-based education framework (see e.g. Allais, 2003). An MPA course developer believes that the efforts to accredit the course (and therefore ensure standards) have resulted in a less rigorous course[8]. The course management team have recognised the arising problems, and will be working towards overcoming them in future offerings of the programme.

This case study also highlights the MPA course, as one of a number of more in-depth V/FET initiatives developed by environmental NGOs, consultants acting as resource persons, and university-based units. Where partners are not constrained by a commercial or funding sustainability imperative, courses tend to be longer, have a broader scope, are less costly to clients (although more expensive to design, because they are more closely customised for a context) and more generous with resources, e.g. the time of coordinators and the provision of additional resource materials. Quality of short courses offered in the environmental sector needs to be assessed in the light of the need for different courses for different purposes. Perhaps not all courses need to raise the profile or status of the field, or establish longer-term networks, or consider how institutional strengthening is benefited by the course. However, courses that do meet these aims are more likely to contribute in and to a *systemic approach* to capacity development.

In a review of a short course programme in environmental education, Lausanne Olvitt identifies the following areas as most influential in quality and relevance:

- **Contextual relevance** This involves not only relevance to a local context (such as working in a particular nature reserve), but also being able to situate the local situation in relation to a 'bigger picture', what Olvitt calls holistic relevance: "It seems that students gain a lot from seeing the big picture" (such as national policies and programmes, international developments) "and how this relates to their small-scale, contextually relevant foci".

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[8] It is a situation reminiscent of what is happening in schools, where emphasis on compiling portfolios to give evidence of learning and quality, are taking up much actual teaching and learning time (also see Allais, 2007).

- **Institutional support and wider networks**: The quality of learning is better when it does not occur in a professional 'vacuum', but is linked to institutional objectives and/or wider networks of relevant activity in the environmental field. When students do not have opportunities to apply what they have learned on a course, once they return to the workplace, because their occupation or professional practice is not adequately valued, understood, recognised, supported or managed (as has been the case with environmental and environmental education occupations), then the acquired insights or competencies may soon be 'lost' or reduced.

- **Learner support on courses ('tutoring')**: The combination of educational and environmental competencies is uncommon, yet providing learning support on courses requires this combination, including the ability to accommodate and respond to a diversity of students' learning styles and contexts. Strengthening the educational competence of environmental trainers may be an important area in which to invest.

- **Funding**: With access to adequate funding, training providers can offer bursaries to stronger and more motivated students. They can also afford experienced course presenters and tutors, and/or to invest in the further development of presenters and tutors, and in customised course materials. All this can add to the quality of courses.

- **Accreditation**: A high percentage of students on professional development courses are pursuing a qualification chain and an associated career path. As providers seek accreditation for programmes, they need to ensure that the educational goals and orientations of their courses are not negatively affected (see Case Study 2).

- **Wider education and training context and structures**: Technicist/managerialist strategies that have come to dominate in the skills development sector need to be highlighted and problematised and the links between such approaches and concerns for quality and relevance need to be clearly articulated.

Short course development can also benefit from a consideration of curriculum principles for adult learning programmes identified in the SADC Regional Environmental Education Programme (Lotz, 1999) and in water management training programmes (e.g. Du Toit, 2005; Rosenberg and Sisitka, 2007b). These include:

- **Responsiveness** to students' workplace, social and ecological contexts, as well as their educational needs, learning styles and existing knowledge.
- **Participatory** and active learning processes which encourage learners to mobilise their existing understandings, and which allow 'learning through doing' (which is distinct from 'learning to do').
- **Praxis** – Course processes involving ongoing interaction between theory and practical components, rather than one preceding or dominating the other.
- **Assessment** which not only evaluates learning, but also advances it.

8. Curriculum and Relevance

Training provided outside of tight regulatory frameworks, for example short courses run by consultants or university departments outside of their formal programmes, have the advantage that it can be responsive to emerging needs, particularly when there is a close working relationship between the employer (e.g. a government agency) and the provider (university or consulting firm), or if the course coordinators are, as is often the case, former employees of the contracting clients. The downside is that these courses are more difficult to monitor and quality impossible to control.

The existing official curricula, where quality control and standardisation have been a focus, might on the other hand not always be relevant for environmental learning. This is explored here in relation to the new National Certificate (Vocational).

A new qualification at Level 4 on the NQF, the National Certificate (Vocational), has been the focus of the Department of Education's attention to V/FET over the past three years. It replaces the NATED N1 – N3 courses. It is offered in year-long programmes at levels 1, 2 and 3 and has a bigger 'foundational' (literacy, numeracy and life skills) component than the NATED courses had. The NATED courses were semester programmes and led to "unrealistically speedy" qualifications being attained, according to the foreward to the NC(V) posted on the Department's website. The NC(V) has a stronger theoretical component within the vocational subjects, and aims to meet the cognitive demands that most occupations now require, even of 'semi-skilled' workers. An analysis done in 2004[9] suggested that 'theory thresholds' create glass ceilings for artisans, and that progression requires engagement with the formal knowledge domain.

The NC(V) curriculum consists of foundational and vocational subjects. The vocational subjects allow for specialization, and are clustered within learning programmes. A student must specialise in one learning programme, although he or she can choose one subject outside that specialism. The curriculum allows for 200 hours per subject (about one hour per week, over the course of a year).

The Department registered 13 learning programmes for the NC(V). A selection are listed in Table 4 (first column). Those not listed include Civil Engineering and Construction; Electrical; Engineering and Related Design (including cars); Information and Computer Technology (ICT); Finance, Economics and Accounting;

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[9] Referred to by Dr P. Lolwana at the FETI Symposium, Johannesburg, 25 August 2009.

and Hospitality (for the complete list of subjects see Appendix 1, or download the full curriculum from www.education.gov.za).

The 13 priority areas have, according to the Department, been informed by a number of considerations including Asgisa priorities: Infrastructure development, Tourism, Agriculture, and Business Practices Outsourcing.

Although the Department will currently only subsidise and recognise these 13 learning programmes, stakeholders can also identify and develop new learning programmes and subjects, based on a template provided by the Department for this purpose. The new curriculum areas would then be submitted for approval by first the provincial and then the national Department of Education.

Table 4: Subject Options in the NC(V)

3 Compulsory Foundational Subjects		
These subjects overlap about 80% with those offered in the general school curriculum	Mathematics or Maths Literacy	
	Language	A language of the learner's choice; must also be the Language of Teaching and Learning
	Life Skills	Has a strong computers component
Choice of 4 Vocational Subjects – for Specialisation		
At least 3 must be from one Learning Programme		
Learning Programme Examples (13 in total)	*Vocational Subjects Examples*	*Career option examples*
National Certificate (Marketing)	Advertising & Promotions; Marketing Communication …	Marketing, marketing research, public relations,
National Certificate (Office Administration)	Business Practice; Office Practice; Applied Accounting … or Second Language	
National Certificate (Primary Agriculture)	Soil Science; Plant Production; Animal Production; and Agribusiness.	Farm management; forestry; botany; horticulture; agricultural science; viticulture …
National Certificate (Tourism)	Tourism operations; Science of tourism; Client service and human relations; and Sustainable tourism in SA.	Accommodation management; conference & events planning; restaurant & food services; tourism development; travel counselling; game ranging; safari work; further study at universities of technology
List continues … See Appendix 1		

Observers have noted a number of issues associated with the new curriculum, including uncertainty about its exact purpose, and staff capacity to effectively teach it. Here our concern is however with its relevance in terms of environmental learning.

Foundational Subjects in the NC(V)

Regarding the Foundational Subjects, it is worth noting that language communication skills are necessary in most intermediate skills-level jobs in the environmental sector (see e.g. the competencies required by environmental stewards and monitors, noted in Case Study 1). Similarly, many if not most environmental occupations require some numeracy skills.

Commentators saw the role of the Life Skills subject in the NC(V) as unclear. At the college we visited the subject was used to develop computer skills among those who were not taking ICT as a subject. In another study[10], however, we noted that the LEAP Science and Maths schools[11] place high value on Life Orientation, giving the subject a considerable percentage of the available contact time with students, because the opportunity to develop personal and inter-personal competencies was seen as a prerequisite for success in further study and the workplace.

Vocational Subjects in the NC(V)

Only two subjects in the NC(V) have overt application in the environmental field: Primary Agriculture and Tourism. Research in schools suggests that possible and applicable environmental content is likely to be taught only if time permits, if the lecturer is familiar with this content, and if suitable resource materials are available. At the college visited for this study, Agriculture was not taught, and the Tourism lecturer was not available for an interview. Other staff mentioned the need to take students on excursions or fieldwork, which was constrained by a lack of funds and a full curriculum. The college had plans to establish links with a nearby game farm.

In summary, it would seem that the current curriculum has some limited opportunities for environmental learning, but to have any chance of this being taught meaningfully, much attention to staff - and resource development would be required. Partnerships with environmental partners in agriculture and tourism would also be important.

Additionally, there seem to be opportunities to develop new learning programmes and subjects. Given the possibilities for 'green jobs' associated with climate change mitigation and renewable energy technologies; waste minimisation and better waste management; the mainstreaming of biodiversity conservation; mining rehabilitation; cleaner production and better business journeys, among others, a case could be

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[10] For the quality report on schooling see Rosenberg, Nsubuga and Burt (2009).
[11] LEAP schools focus on developing the ability of youth from disadvantaged backgrounds to go into higher education with Mathematics and Science subjects.

made for the development of a number of new learning programmes, and the addition of new subjects to existing learning programmes. Staff development and resource development considerations must feature high in these initiatives.

These and other recommendations are summarised in the next, final section.

9. Opportunities and Recommendations

New Developments in V/FET

There are a number of opportunities within the V/FET landscape which can be utilised for human capital development in the environmental sector. These include:

- A new Ministry of Higher and Further Education, which is set to 'continue to prioritise V/FET over the next five years' (Pampallis, 2009). New leadership might create opportunities for the environmental sector to engage in a concerted manner with the system, to try and achieve leverage for environmental training at the significant scale which seems to be required if the country is to respond adequately to challenges and opportunities.

- Recent FET policies to give college lecturer qualifications a legitimacy and status in universities: A Level 5 qualification for vocational educators, listed on the Organising Framework for Occupations (OFO) is being developed. Wits and UWC have formed consortiums to work on this, and other universities have been invited to join in efforts to strengthen V/FET staff competencies. Specifically, the Department of Education wants universities to develop a Vocational Education Orientation Programme (VEOP) to be offered within a 120 credit higher certificate. The goal is a large-scale initiative to re-skill and up-skill college staff.

- The Department also wants to greatly increase the number of students in FET. Questions about the capacity of state colleges to successfully absorb the large numbers continue to loom large, however, along with question as to whether and where employment will be found. Here, partnerships with environmental agencies, both as possible training partners, and employment opportunities within a potential 'green jobs' framework, or the local / regional economy of a particular institution's catchment, could be significant.

- There is general recognition that 'accreditation doesn't necessarily ensure quality'. Calls are being made in the sector for a 'lighter touch' in which providers would conduct self-evaluation; and for a quality management system that would signal a shift from the strong accreditation focussed system that has developed in the past decade, to ensure quality. This could support the development of quality management systems in the environmental sector that are based on, for example, peer review, rather than formal accreditation.

- Acknowledgement that the SAQA systems has not delivered effectively and adequately on its intentions, and the review of the system. Chris Vorwerk (2009) suggested a stronger but changed role for the SETAs' research division, with monitoring and evaluation being used to create a more responsive system.

- A new system for the development of vocational qualifications promises to deliver better and faster, by "cutting through a lot of the burocracy of the past 10 years" (Peo, 2009). This system allows for occupational profiles to be drawn up by working groups with members who are active in the occupation. They would populate an electronic template, and then consult with a reference group. The framework has been simplified; for example, occupational competencies are simply described in terms of: Knowledge/theory; Practical skills; and Workplace experience.

Green Jobs

Africa and South Africa are yet to capitalise on the employment opportunities associated with climate change action. There are many other possibilities associated with so-called green jobs (see examples in Section 6 and below). However, they need to be investigated in the context of government and partners' plans for social-economic development. The forthcoming consultation and proposed research into green jobs recommended in the DEA ESSP process, could clarify such opportunities. If such opportunities are to be unlocked, it would almost certainly necessitate a vigorous investment in V/FET programmes to meet the new and/or expanded skills needs.

Possible Curriculum Innovation and Partnerships with V/FET Colleges

Could state FET colleges play a bigger role in environmental training than is currently the case? This would firstly require an opening up and expansion of the possibilities in relation to the existing curriculum, perhaps through adding new subjects, and certainly through staff exposure and professional development. Possibilities include:

- Eco-tourism entrepreneurship, servicing, interpretation and guiding (in the Tourism Learning Programme).

- Organic farming, food security, alien clearing management, game ranching and climate change mitigation initiatives (in the Primary Agriculture Learning Programme).

- Recycling entrepreneurships, renewable energy technology and climate change mitigation initiatives (in Engineering) etc.

There might also be potential in the establishment of partnerships between V/FET colleges and industries and organisations in the environmental sector. A report by Taylor and Pereira (2004) to the Gauteng Legislature recommended that V/FET colleges adopt a strategic approach to partnerships, which takes into account both national policy context, SETA/skills priorities, and the priorities of relevant industries, particularly those in their catchments. If the colleges were able to follow up on such a

recommendation, it would require that environmental agencies in the college catchments make themselves known to these institutions. It would also require a dynamic and informed approach from college or campus heads. Environmental agencies could assist with the research into scarce skills in local labour markets, that would be necessary to inform subjects offered.

Taylor and Pereira (2004) noted that individual colleges may develop areas of specialisation in different labour market sectors. This will enable them to develop higher levels of specialist expertise in niche fields, thus increasing the impact of their skills training, and the effectiveness of partnership projects. The downside is that students might need to travel further, if their intended specialization is not taught at the college nearest to them. Partnerships with environmental agencies can assist, by helping colleges to see the environmental employment and training possibilities in their catchments. These are often the economic sectors in which learners show an interest for further study. For example, in the Southern Cape school children express an interest in further study in the nature-based tourism sector, which happens to employ a significant portion of the population in that region (Fabricius, 2009).

College staff training, to respond to newly identified needs, would be essential. As noted above, universities have been earmarked by the Department of Education as key institutions in this regard. Several universities have environmental expertise.

In conclusion, this report recommends that partners in the environmental sector:

1. Encourage and guide partnerships between environmental agencies, particularly those in rural areas (such as SANParks), and FET schools and colleges, to improve access to affordable vocational training, the provision of suitably skilled personnel for environmental agencies and 'green jobs', and better alignment between training and employment opportunities.

2. Engage the Ministry of Higher Education and Training and the Department of Education regarding the development of a wider range of learning programmes for the state colleges, to provide skills that can lead to employment or entrepreneurship in environmental agencies and 'green jobs'. Be mindful however of the constraints in the FET colleges - support for staff development , the development of suitable resource materials, and financial aid for students, would be prerequisites. (1) and (2) should be aligned.

3. Support a bigger and more carefully planned investment in human resource development, to bolster both the educational understanding and the subject understanding of V/FET provider staff. (3) must align with (2).

4. Investigate the possibilities of more 'green jobs' related to climate change action, waste minimization, biodiversity conservation, rehabilitation of

degraded ecosystems and other environmental management priorities.

5.   Renew and strengthen the role of SETAs, to ensure the provision of high-quality and relevant training and education, to meet sectoral employment and development needs, and to unlock the resources in and intentions of the system. *The Department of Environment Affairs could lead a civil society partnership linked to the Human Capital Development Strategies, to engage the relevant SAQA partners.*

6.   Develop sectorally-based ('peer review') quality management systems for the myriad of short courses and workplace-related training offered by consultants, universities and other agencies in and to the environmental sector. Involve professional bodies, and/or Human Capital Development Strategy forums.

7.   Strengthen the ability of human resource development managers in environmental organisations to identify environmental training needs and suitable providers for such training, with a suitable level of quality.

8.   In the short-course/workplace training context, prioritise courses that are customised for a particular work context, more comprehensive and with greater depth and therefore of longer duration, and aimed at strengthening the individual learner/employee as part of an institutional system (reflecting *a systemic approach to capacity development*).

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