THE NATIONAL AQUATIC ECOSYSTEMS HEALTH MONITORING PROGRAMME: RIVER HEALTH COMPONENT

BIOMONITORING COURSE OUTLINE COURSE REVIEW

water & forestry

Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

Directorate: Resource Quality Services, Department of Water Affairs and Forestry

Republic of South Africa

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COURSE REVIEW

Department of Water Affairs and Forestry
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EXECUTIVE SUMMARY

The implementation of monitoring programmes which allow for the collection of data, such as the River Health Programme, is critical to the success of applying water resource management tools to water management. Training of biological practitioners to ensure effective data collection and acquisition, data management and storage, analysis, quality control and information dissemination, is required to ensure the success of the programme. A *National Short Course on Biomonitoring* was initiated in 1997 and run annually at venues in Pretoria and Grahamstown for a number of years. The course has required redesign as part of an update of the National Aquatic Ecosystems Health Monitoring Programme, particularly so as to ensure the course is in line with DWAF requirements and initiatives, e.g. the Ecological Reserve and compulsory licensing.

A survey of water practitioners regarding training requirements identified the need for three different types of courses, focussing on different components of biological monitoring and introducing tools useful for water resource management. Chapter 4 of this document presents an outline for the biomonitoring course. Approximate costs and methods for evaluating the success of the courses are also discussed.

In case DWAF decides to pursue the accreditation of a short course on biological monitoring, Chapter 5 explains the accreditation process and requirements thereof.

The types of courses that were identified by the survey are shown below:

- **Type 1:** General biological monitoring course, focussing on biological indicators and introducing the use of EcoStatus models.
- **Type 2:** Management course, including links to compliance, licensing etc. and information regarding setting up of monitoring programmes.
- **Type 3:** Courses per index showing the link between field sampling and more detailed analysis, e.g. the use of the associated EcoStatus model.

As the aim of this process was to produce one integrated course, a single course was designed which covers above-mentioned requirements. The first module is then the management module, allowing managers to exit the course at this point, or to continue with module two, which is the general biomonitoring course.

Note that the type 3 course on EcoStatus models is only covered in an introductory way during the general biomonitoring course, as detailed training on these models will be undertaken by the Chief Directorate: Resource Directed Measures (CD: RDM).

This document should be read in conjunction with Document 2 produced for this task, *Department of Water Affairs and Forestry, South Africa. 2008. The National Aquatic Ecosystems Health Monitoring Programme: Biomonitoring Course Outline. Record of Decision. Prepared by Scherman, Griffioen, van Zyl and Muller*. Document 2 describes the process followed during the revision of the biomonitoring course, includes details on contact lists, questionnaires, training courses, and background information on the biomonitoring indices, tools and initiatives that revised training courses should cover.

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TERMINOLOGY AND ACRONYMS

CD: RDM	Chief Directorate: Resource Directed Measures
CMAs	Catchment Management Agencies
CMF	Catchment Management Forum
DEAT	Department of Environmental Affairs and Tourism
DWAF	Department of Water Affairs and Forestry
D: RQS	Directorate: Resource Quality Services
ESETA	Energy Sector Education Training Authority
ETQA	Education and Training Quality Assurance
EWR	Ecological Water Requirements
FET-Water	Further Education and Training in the Water sector
FRAI	Fish Response Assessment Index
GAI	Geomorphological Driver Assessment Index
HAI	Hydrological Driver Assessment Index
IWRM	Integrated Water Resource Management
MIRAI	Macroinvertebrate Response Assessment Index
NAEBP	National Aquatic Ecosystem Biomonitoring Programme
NAEHMP	National Aquatic Ecosystem Health Monitoring Programme
NQF	National Qualifications Framework
NSB	National Standards Body
NWA	National Water Act
NWRS	National Water Resources Strategy
Ops	Operations
PAI	Physico-chemical Driver Assessment Index
P&R	Policy and Regulation
QMS	Quality Management System
RHP	River Health Programme
RQOs	Resource Quality Objectives
RPL	Recognition of Prior Learning
SAQA	South African Qualifications Authority
SASS	South African Scoring System
SDF	Skills Development Facilitators
SETA	Sector Education and Training Authority
SGB	Standards Generating Bodies
SOE	State of Environment
SSP	Sector Skills Plan
UMALUSI	General and Further Education and Training Quality Assurance Council
WRC	Water Research Commission
WRCS	Water Resource Classification System
WSIPs	Workplace Skills Implementation Plans
WSPs	Workplace Skills Plans
WUAs	Water User Associations

1 INTRODUCTION AND APPROACH

1.1 Context

The National Water Act (NWA) (Act No. 36 of 1998) and Chapter 3 of the National Water Resources Strategy (NWRS), requires the Minister to establish national monitoring and information systems that acquire, record, assess and disseminate information on water resources. As the custodian of water resources in South Africa, the Department of Water Affairs and Forestry (DWAF) is responsible for the protection and sustainable utilisation of aquatic ecosystems, and therefore launched the National Aquatic Ecosystem Biomonitoring Programme (NAEBP) in 1994. The programme initially focussed on rivers in a sub-programme that became known as the River Health Programme (RHP). The focus of the programme is to incorporate and assess the health status of all aquatic systems, and DWAF has adopted the inclusive title of National Aquatic Ecosystems Health Monitoring Programme (NAEHMP) to cover the collection of sub-programmes. The objectives and achievements of the RHP from its inception in 1994 to 2004 are described in Strydom *et al.* (2006), which also traces the history of the programme.

The Terms of Reference of the River Health Programme states that "The RHP has the overall goal of delivering the ecological information for rivers (and link up with other aquatic ecosystems, wetlands and estuaries monitoring initiatives), required to support the national management of these systems. The RHP is designed to develop the capacity and information base required to enable DWAF and other role players to report on the ecological state of South Africa's river systems, in an objective and scientifically sound manner. The information products generated by the RHP will assist in distinguishing between aquatic ecosystems exposed to sustainable utilization and those experiencing ecological deterioration. It would also allow subsequent audits of management strategies and actions implemented to improve or maintain the ecological status of aquatic ecosystems."

The 10-year review of the programme required that the NAEHMP be reviewed and re-aligned with the needs of clients and water legislation, and ensure linkages with Resource Quality Objectives, Classification and the Ecological Reserve. The National Coverage Phase of the NAEHMP was therefore launched in 2005, with a number of defined tasks. One of these tasks was identified as a revision of the *National Short Course on Biomonitoring*, launched in 1997. This is considered critical as the training of biomonitoring practitioners, and educating of water resource managers, is a vital step in ensuring the effectiveness of monitoring for aquatic health.

The specific Terms of Reference for this task was to revise and update the biomonitoring course in line with the latest requirements of the NWA, such as:

- The implications of the Resource Quality Objectives (RQOs) to a status and trends monitoring programme
- The role of the RHP in Ecological Reserve compliance (to license conditions) monitoring
- Linking with training institutions, such as universities, to ensure a broad capacity building drive

The main product of the task is an updated short course that can be used to train RHP practitioners and a basic document to drive the most needed capacity building, particularly when Catchment Management Agencies (CMAs) take responsibility for their roles in biological monitoring activities.

1.2 Approach

One of the main aims of the study identified by the project team was to develop a course which represents the requirements for training as determined by the *managers and custodians of the RHP*, *provincial biomonitoring teams and DWAF regional personnel*.

The approach to the study was therefore to undertake the following tasks:

- Prepare a list and then contact those persons who should have input to the structure and content of the course. **It is critical that input is received from the regional offices of organizations such as DWAF and DEAT, who are already or will be tasked with conducting biomonitoring surveys.**
- Together with stakeholders, compile a brief of the minimum requirements for the course, based on previous experience of running the short course in Grahamstown.
- Include the minimum requirements for evaluation and criticism.
- Consult with the custodians of the course and management team of the RHP regarding requirements of the course.
- Review other training courses (and other training opportunities) currently available regarding biomonitoring and Reserve studies, particularly FET-Water training. Note that training on specific indices, e.g. SASS, will be included in this review if available.
- Consult with the management team of the RHP and the quality control team regarding registration / accreditation requirements of the course.
- Source information on registration of courses with suitable bodies, e.g. Seta or SAQA, and consult with education authorities on the merits and procedures for accreditation at a national level.
- Source information on pricing of courses, best location etc., so as to ensure that the course is competitive.
- As part of the course development, design a process by which the course can be evaluated by participants. This feedback will ensure that the course can continually be reviewed and refined.

1.3 Deliverables

The deliverables of the task have been captured in two documents. **Document 1**, named "Course Review" is strictly related to the biological monitoring course, i.e. purpose, available courses, the proposed new course(s), course evaluation and accreditation. **Document 2**, named a "Record of Decision" document, outlines the process followed, and background on biological monitoring of rivers and monitoring initiatives in other aquatic systems.

The content of each individual document is as follows:

Document 1: Course Review

- An evaluation of the types of courses that are required, and concepts that will need to be covered
- Training available in the field of biomonitoring and the Reserve
- Proposed course formats presented as brief guidelines regarding the content of each lecture
- Recommendations regarding location, pricing etc. of the course
- An assessment of the requirements and procedures for possible accreditation of the course
- A procedure for evaluating the course

Document 2: Record of Decision

- Information on who was contacted regarding current training courses in biological monitoring and the Reserve and the output of this survey
- Detailed information on who was contacted regarding course review, the questionnaire sent to 349 persons with an interest in water resource management, and the output and analysis of this survey
- A demonstration of the links between biomonitoring, the Reserve and licensing, and introduction to concepts that will be covered by the course: Note that this information is considered lecturing material and will eventually be captured in a course file.

It was suggested that training tools, e.g. video demonstrations of field indices, should be included as course material. Tools are being developed as separate initiatives; the development of a SASS video has been initiated and will be available as course material.

1.4 Types of courses

Questionnaires distributed to a wide range of persons identified the need for three different types of courses (see below). More information regarding an integrated biomonitoring course covering the requirements listed below, is shown in Chapter 4.

- **Type 1 course:** Management course, including links to compliance, licensing etc. and information regarding setting up monitoring programmes. This course should probably be presented as a 1.5 to 2-day course, and may be presented in-house.

  This course is intended for managers who will have to make decisions based on biological monitoring data, or implement monitoring programmes. Managers will have to understand the purpose of monitoring, the requirements of effective monitoring, how to implement a monitoring programme, what to do with monitoring data, and understand the usefulness of the data, e.g. as baseline monitoring for Reserve assessments.

- **Type 2 course:** General biological monitoring course, including an introduction to the indices and EcoStatus models (about 3-4 days). This course should not contain too much background information, but rather focus on biological monitoring itself.

  This course is intended for anyone wanting a general understanding of biomonitoring, including technicians who will be conducting field surveys. This course is similar to the previous *National Short Course on Biomonitoring.*

- **Type 3 course:** Courses per index showing the link between field sampling and more detailed analysis, i.e. the Fish Response Assessment Index (FRAI). These courses are not to replace existing index-specific courses (e.g. SASS courses), but should link, or be an extension of, the EcoStatus courses run in 2005 and 2006 as a WRC-funded initiative.

  These courses are intended for the specialists that will be running the EcoStatus models. They therefore have to have the relevant background to biological monitoring, understand the links between the various indices and models, and be proficient in the use of their particular model. These courses have previously been run by the Water Research Commission to support the implementation of the EcoStatus models. It is proposed that similar course material be used, but with more introductory information regarding general biological monitoring principles.

As the aim of this process was to produce one integrated course, a single course was designed which covers above-mentioned requirements. The first module is then the management module, allowing managers to exit the course at this point, or to continue with module two, which is the general biomonitoring course.

Note that the type 3 course on EcoStatus models is only covered in an introductory way during the general biomonitoring course, as detailed training on these models will be under the auspices of the Chief Directorate: Resource Directed Measures (CD: RDM).

2 BACKGROUND AND CONCEPTS

This chapter introduces the type of information and concepts that the proposed biomonitoring courses should cover.

2.1 Background: The regulatory environment

To understand the requirement for biological monitoring of South Africa's aquatic ecosystems, it is essential to present information on the current regulatory environment in the country. The policy document defining the role of monitoring in the management of water resources is the *Strategic Framework for National Water Resource Quality Monitoring Programmes* (DWAF, 2004a). Three tiers of management institutions have been identified:

- **Department of Water Affairs and Forestry**
- **DWAF Policy and Regulation branch (P&R):** Those parts of the Department with the responsibility for water resource quality management functions at the national level related to policy and regulations.
- **DWAF Operational (Ops) branch (includes concept of clusters), Catchment Management Agencies (CMAs) and certain Water Boards:** Those parts of water management institutions, whether they are currently part of DWAF or not, that are responsible for water resource quality management functions at a regional or catchment level (as defined in the context of the CMAs).

Types of monitoring programmes that are likely to be operated at the different tiers of water resource quality management are summarised in Figure 2-1 below.

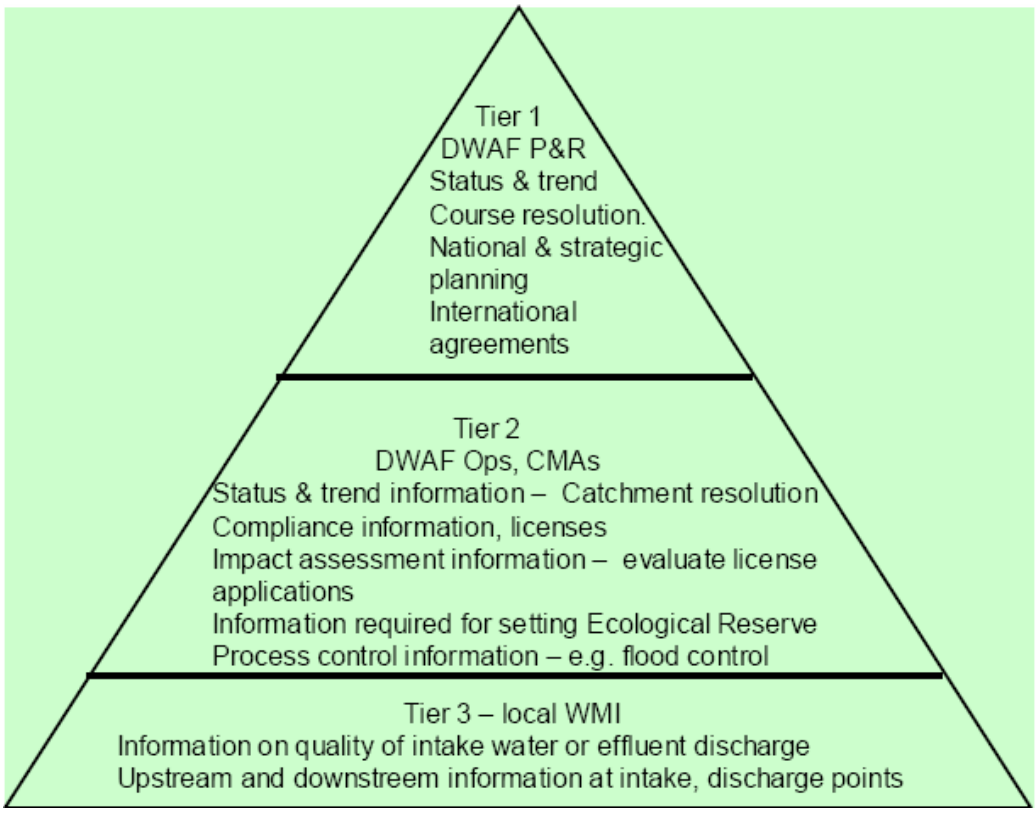


Figure 2-1 Examples of types of monitoring programmes included in monitoring programme portfolios aligned to the three different levels of information requirements (DWAF, 2004a)

The effectiveness of above-mentioned monitoring programmes obviously depends on well-trained staff. Training courses such as the biomonitoring courses are an important contribution to ensuring adequate capacity in South Africa.

2.1.1 Data acquisition, data management and storage, and information dissemination

The National Water Act requires that appropriate technological approaches to achieve integrated water resource management are utilised (Thompson, 2006). The increasing demands on aquatic ecosystems, and their subsequent complexity for management, therefore urgently require science-based decision making. Monitoring data obtained through scientifically tested methods and based on sound ecological indicators can provide the scientific basis for water resource management decisions to achieve a balance between human health, ecosystem protection and integrity and economic sustainability (Barbour *et al.*, 2004). Monitoring must take place over various spatial and temporal scales, at key points and throughout the water resource management cycle. The resultant increasing understanding of the interaction between physical, chemical and biological processes in aquatic ecosystems will culminate in a more integrated and holistic approach to water resource management.

Historical ecosystem data are valuable sources of information on past conditions (e.g. species diversity and abundances), and allow increased confidence in predictions to changing instream and land-use conditions (Downes *et al.*, 2002). The most difficult systems to manage are those for which there are no data. Ecological monitoring programmes therefore provide the data and information necessary for appropriate water resource management. Ecological assessments allow for the assessment of prevailing conditions and trends using field measurements, and can therefore direct management strategies that are required to deal with existing and emerging water resources problems (Barbour *et al.*, 2004). Good monitoring programmes are therefore the backbone of a process that promotes effective water resource management.

A well-designed monitoring programme will allow identification of impairments, determination of cause and effect, monitor changes over time and confirm management initiatives (Barbour *et al.*, 2004). Therefore, the planning of monitoring programmes is as essential as the implementation and evaluation of the monitoring programme, to allow for optimum data collection and yield the information necessary for integrated water resource management.

The development of the national RHP database has created a centralised data repository, allowing wide-spread access to the data, and effective data management and storage facilities. Such a centralised repository allows scientists and water resource managers to obtain access to data in order to further develop aquatic science knowledge and understanding of ecosystem processes, resulting in better management of the resources. The Rivers Database (Ewart-Smith and Dallas, 2003) provides the basic framework for capturing biomonitoring and environmental monitoring data. A considerable amount of data is currently housed in the database and the long-term vision is that this database will be integrated with DWAF's Water Management System (WMS).

Quality assurance is a key component of any monitoring programme, and allows for the measurement (and hence reduction) of sources of error. Standardization of methods allows for comparison of data even when data have been collected by different people and for different projects. In addition, based on the interpretation of results from biomonitoring programmes, new biomonitoring methods which may be more appropriate under different circumstances, can be developed and the development of techniques for the interpretation of data can take place. Scientifically rigorous methodologies, good programme design and strict adherence to quality assurance / quality controls are vital to the value of biomonitoring programmes and, importantly, their public acceptance (Barbour *et al.*, 2004).

Reporting and information dissemination functions are supported by the requirement for State-of-Rivers reports, which also provide input to DEAT's legal requirement for state of the environment reporting.

2.2 Concepts to be covered during the course: Links between the RHP, the Ecological Reserve and compulsory licensing

2.2.1 The RHP and the Ecological Reserve or Ecological Water Requirements (EWR)

EcoClassification (Kleynhans *et al.*, 2005) – or Ecological Classification - refers to the determination and categorisation of the Present Ecological State (PES) (health or integrity) of aquatic systems as compared to the natural or close to natural Reference Condition (RC). The purpose of EcoClassification is to gain insights into the causes and sources of the deviation of the PES of biophysical attributes from the natural state. This provides the information needed to derive desirable and attainable future ecological objectives for the aquatic system. The EcoClassification process also supports a scenario-based approach where a range of ecological endpoints can be considered for the purposes of determining the Ecological Reserve or EWR.

The state of the aquatic system is expressed in terms of the following biophysical components:

- Drivers: Physico-chemistry, geomorphology, and hydrology; which provide a particular habitat template
- Biological responses: Fish, riparian vegetation and aquatic macroinvertebrates

Different processes are followed to assign a category ranging from A to F, where A = Natural, and F = critically modified, to each component and to the integrated EcoStatus (see Table 2-1). Ecological evaluation, followed by integration of these components, represents the Ecological Status or EcoStatus of the system. Thus, the EcoStatus can be defined as the totality of the features and characteristics of the river and its riparian areas, or estuary and fringing estuarine vegetation, that bear upon its ability to support an appropriate natural flora and fauna (modified from: Iversen *et al*., 2000). This ability relates directly to the capacity of the system to provide a variety of goods and services to users of the aquatic system.

Note that the determination of the PES of the various components and the integrated state, the EcoStatus, is only one step within the larger EcoClassification process. The RHP therefore focuses on the RC and PES steps (i.e. EcoStatus) of the EcoClassification process (Kleynhans *et al.*, 2005).

Table 2-1 Generic ecological categories for EcoStatus components (Kleynhans *et al.*, 2005)

ECOLOGICAL CATEGORY	DESCRIPTION	SCORE (% OF TOTAL)
A	Unmodified, natural.	90-100
B	Largely natural with few modifications. A small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged.	80-89
C	Moderately modified. Loss and change of natural habitat and biota have occurred, but the basic ecosystem functions are still predominantly unchanged.	60-79
D	Largely modified. A large loss of natural habitat, biota and basic ecosystem functions has occurred.	40-59
E	Seriously modified. The loss of natural habitat, biota and basic ecosystem functions is extensive.	20-39
F	Critically / Extremely modified. Modifications have reached a critical level and the system has been modified completely with an almost complete loss of natural habitat and biota. In the worst instances the basic ecosystem functions have been destroyed and the changes are irreversible.	0-19

The RHP therefore focuses primarily on monitoring biological responses as indicators of ecosystem health, without necessarily defining the cause-effect relationship between the drivers and responses. However, the RHP and Ecological Reserve tools and indices should be complementary, as biological monitoring data is a valuable source of information when determining Ecological Water Requirements. The use of ecological categories for defining present state should therefore be the same, although the delineation of the resource for the EcoStatus assessment may be different. The RHP relies on defining Assessment Units rather than Resource Units (as used for a Reserve or EWR study), as DWAF management units are also taken into consideration (Kleynhans *et al.*, 1995).

Application of the EcoStatus approach to the RHP is therefore at the level of EcoStatus Level 3, i.e. the same approach as a Rapid III river Reserve assessment (Kleynhans and Louw, 2007) (Figure 2-2).

Note that the Geomorphological Assessment Index (GAI) Level 3 is now also available as a driver index for the RHP.

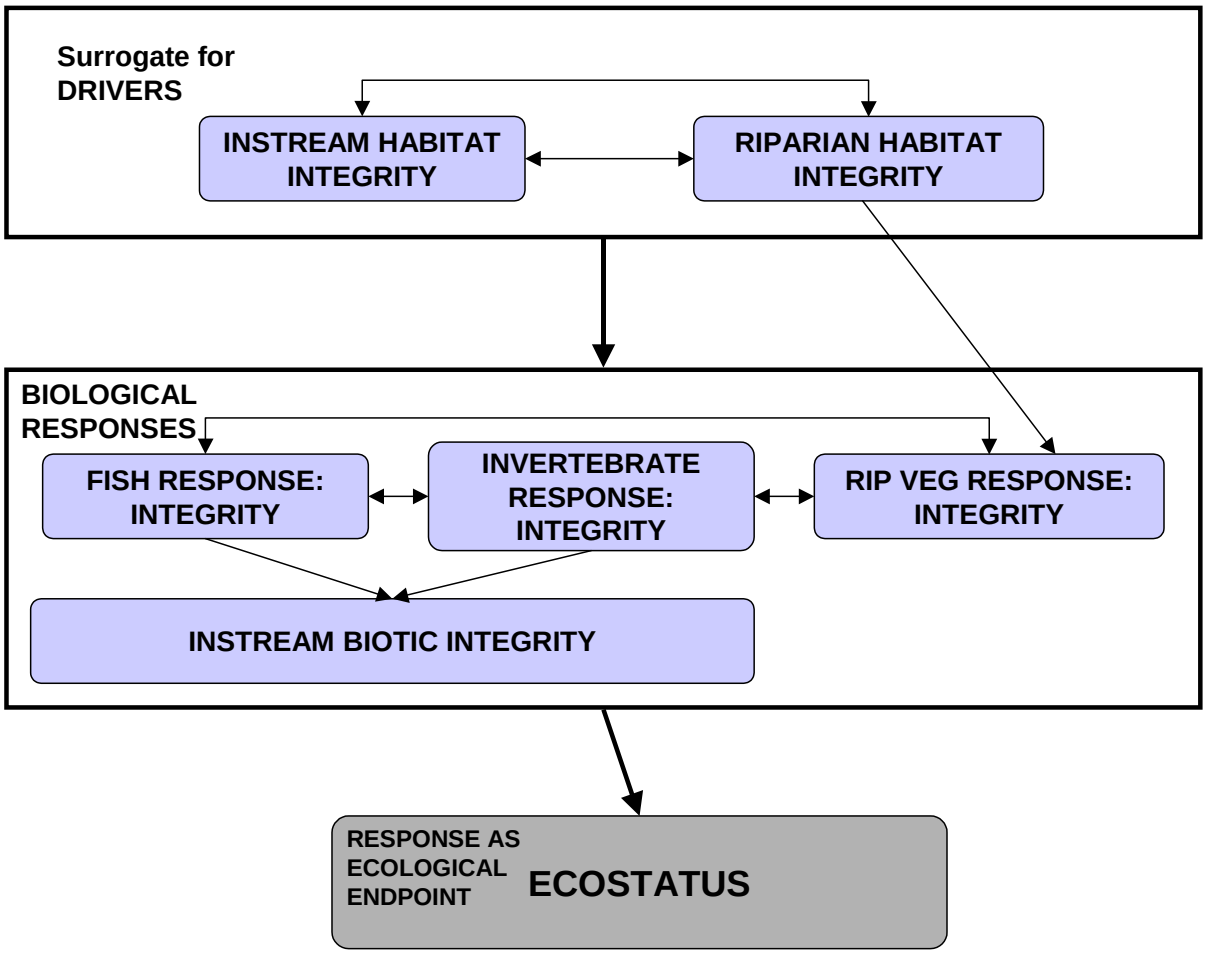


Figure 2-2 EcoStatus Level 3 determination (modified from Kleynhans *et al.*, 2005)

At this level of assessment, habitat integrity (Kleynhans, 1996) is generally used as a surrogate for detailed information on drivers (e.g. hydrology, water quality, geomorphology) of the system, and the focus is on the instream indicators. Note that hydrological data should be used if available. Components of the riparian vegetation model are used to assess riparian habitat integrity. However, in certain instances driver specialists are available to the RHP, e.g. the Buffalo and Mthatha River monitoring surveys in the Eastern Cape, and this information is included in assessing the present state of the system.

2.2.2 The RHP, the Ecological Reserve and compulsory licensing

Definitions for the RHP, Reserve, EWR and licensing / the water allocation process are shown in the text box below (modified from DWAF, 2004b: *Background Information Document for the Kromme / Seekoei Reserve Study)*.

Reserve: The quantity and quality of water needed to sustain basic *human needs* and *ecosystems* (e.g. estuaries, rivers, lakes, groundwater and wetlands) to ensure ecologically sustainable development and utilisation of a water resource. The ***Ecological Reserve*** pertains specifically to aquatic ecosystems.

Reserve requirements: The quality, quantity and reliability of water needed to satisfy the requirements of basic human needs and the Ecological Reserve.

Ecological Reserve determination study: The study undertaken to determine Ecological Reserve requirements.

Licensing applications: Water users are required (by legislation) to apply for licences prior to extracting water resources from a water catchment.

Ecological Water Requirements: The quality and quantity of water flowing through a natural stream course that is needed to sustain instream functions and ecosystem integrity at an acceptable level as determined during an EWR study.

Water allocation process (compulsory licensing): A process where all existing and new water users are requested to reapply for their licenses, particularly in stressed catchments where there is an over-allocation of water or an inequitable distribution of entitlements.

River Health Programme: The aims are to measure, assess and report on the ecological state of rivers in South Africa, and report on trends and emerging problems.

The RHP and assessments of EWR are both Resource Directed Measures (RDM) aimed at protecting the sustainable use of aquatic ecosystems, i.e. tools based at the level of the resource itself. Until now, development in RDM has focussed on the development of tools and methods for the determination of Ecological Water Requirements, but the integration of these RDM into the water use allocation process is becoming critical in South Africa. A DFID-funded project (Tlou & Matji *et al.*, 2005) investigated the inter-relationships between RDM and the process of water allocation, with a focus on how the RDM can be seen to complement water allocation reform while still ensuring that the resource is environmentally sustainable. One of the tasks of the study was to develop methods for water use allocation and monitoring.

Note that the recommendations of this report have not been implemented to date, but provide important information on the links between RDM tools (such as the RHP and the Reserve) and compulsory licensing. The document prepared by Tlou & Matji *et al.* (2005) was also written in the absence of a Classification System, which has subsequently been designed and is being gazetted this year.

The output of the study was a set of process and flow diagrams illustrating licensing steps with the associated RDM steps, so as to align existing RDM process into the proposed licensing procedure. RDM processes can be applied using different levels of detail, and the RDM steps required for each licensing step are shown (Tlou & Matji *et al.*, 2005).

The final step in the Reserve process is to develop a monitoring programme against which compliance with the Reserve can be tested. Giving effect to the Reserve, and undertaking monitoring programmes, form an important part of the integrated management of water resources, in terms of Operationalizing the Reserve (DWAF, 2003). Interviews with DWAF staff at the outset of the DFID-funded study showed that Reserve determinations are constrained by the need for data and an overall picture of the catchment. The implementation of monitoring programmes to allow for the collection of data, such as the RHP, is therefore critical to the success of RDM in resource management. This data then sets the “baseline” against which future change is measured.

3 CURRENT TRAINING OPPORTUNITIES IN BIOMONITORING AND ASSOCIATED FIELDS

3.1 Approach

A study undertaken in November 2005 and during 2007 examined the type of biomonitoring or similar water-related short courses being offered by educational institutions in South Africa.

E-mail requests sent to 45 people working in relevant fields in all educational and training institutions enquired whether their department offered any short courses related to aquatic biomonitoring or water management, and if so, a course brochure was requested. A list of all the institutions contacted during the survey can be found in the Record of Decision document produced for this study.

Following on from the information gathered during the e-mail survey, all the participants' and linked websites were searched in order to source further information on aquatic biomonitoring or water management courses, the results of which are in Appendix 1b of the Record of Decision document.

3.2 Results

The following examples of courses were identified by the 2005 and 2007 survey. The full list of institutions involved in training and course descriptions are in the Record of Decision document.

3.2.1 University training courses

University of Zululand
The Department of Biochemistry at the University of Zululand does not offer short courses as such, but rather 8-week modules that are run during the university term. The water related modules currently on offer are: Introduction to Water Biochemistry, and Water Microbiology. Unlike short courses though, participants would not receive a certificate after completion of one of these modules.

University of Venda
The following reply was received from the Department of Biological Sciences at the University of Venda for Science and Technology (end 2005 survey):

"At present we do not have a standing official programme that offers short courses in aquatic biomonitoring on a regular basis. However, as part of our university's new mandate, we are in the planning process to offer certificates and diplomas over and above our existing BSc degree in Aquatic Biology. As part of this we are preparing short courses on the various biomonitoring "tools" that form part of the River Health Programme (FAII, SASS and RVI) and have recently presented a 3-day course in SASS. At the moment these short courses are prepared on a "demand" basis. We are in the process of preparing a FAII course for the Northwest Province (NW-DACET) to be presented during 2006. The Department of Water Affairs and Forestry (Limpopo) is also negotiating with us and the plan then is to expand so that all RHP monitoring tools are included."

University of the Witwatersrand
The following information was received regarding a 6-week course on river and wetland function aimed at third year students (Rountree, pers. comm.).

The Rivers and Wetlands in Savannas course integrates the disciplines of ecology, geomorphology, hydrology, law, conservation and catchment management. Central to the course are:

1) the roles that rivers and wetlands play in ecosystem functioning;
2) the legal, social and ecological aspects of South Africa's new water legislation, widely cited as the most innovative in the world; and
3) the current research/management of the rivers in the Kruger National Park.

The course aims to provide students with understanding and practical skills in the face of a rapidly growing environmental employment field in South Africa. A compulsory fieldtrip to Mpumalanga will introduce the students to many of the current methods used in South Africa for environmental flow determination studies.

Other training initiatives

Umgeni Water

Umgeni Water has run training courses on SASS and river health; they are SANAS accredited to run SASS5. The course is coordinated by the head of the Biological Science section, and the training done by their SASS practitioners, who are also technical signatories. The course is offered through their client services department.

Reserve training courses: FET-Water

Training courses (jointly funded by the DWAF and Flemish government) and referred to as FET-Water (i.e. Further Education and Training in the water sector) courses, were developed at a range of levels, primarily for capacity building and training of DWAF staff for the Reserve initiatives of CD: RDM. A number of initiatives exist or are currently being prepared:

(1) An introductory module was developed (DWAF, 2003), primarily for the training of DWAF personnel, which mentions monitoring initiatives in terms of collecting baseline data to be used for Reserve determinations.

(2) An MSc course, named Integrated Environmental Water Management (IEWM), has been developed and is being presented at the University of Cape Town (2007). Appendix 1 shows more information on this course.

(3) FET-Water funding has been allocated (second half of 2007) for the development of training modules, either to be conducted as an accredited Masters degree, or individual short courses. The purpose is to provide training opportunities, particularly for managers of DWAF. Courses are to be piloted by a number of selected universities, e.g. the University of Johannesburg. Proposed modules are as follows:

Module 1: Wetland and river functional ecology
Module 2: Water quality and pollution
Module 3: Monitoring of wetlands and rivers
Module 4: Estuaries and the marine environment
Module 5: Wetlands, river and the law
Module 6: Wetland and river management
Module 7: Wetland and river rehabilitation methods

SASS and river courses

SASS courses have traditionally been offered by AfriDev, and now by Nepid Consulting. The course is run on demand, but generally takes place every second year. A course was run in April 2007, with one planned for April 2008.

General *river introductory courses* have previously been offered by Paul Fouché and Mick Angliss. These courses were aimed at providing general river and biological monitoring information to interested stakeholders, students and government officials.

EcoClassification courses

These courses were run to introduce environmental practitioners to the EcoClassification approach, and more specifically, the EcoStatus models. The courses were funded by the WRC, and were directly linked to the publishing of the EcoClassification manuals of Kleynhans *et al.* (2005), version 1 produced for training purposes, and version 2 (Kleynhans and Louw, 2007). All EcoStatus models were introduced, discussed and used during the courses. The application for Reserve determinations and the RHP was introduced in both the manuals and courses. Although valuable, it is unlikely that more EcoClassification courses will be run, hence the requirement for Type 3 biomonitoring courses (Chapter 4).

WWF-funded courses for capacity building

An initiative currently under development is a series of courses to be funded by the World Wildlife Fund (WWF), with the objective of capacitating stakeholders in catchments so as to assist them in making informed decisions regarding water management (February and Muller, pers. comm.). The contract to develop the courses was awarded to Rhodes University's Environmental Education Unit and associates. The exploratory research was based on the Olifants-Doring catchment in the Western Cape, and was aimed at identifying what type of information stakeholders need to function effectively as part of Water User Associations (WUAs) and Catchment Management Fora (CMF). The outcome was a requirement for training at a generic level regarding concepts such as general river function, freshwater ecology, the Ecological Reserve, biological monitoring, etc.

It is the opinion of the authors that the courses currently being designed by this initiative could serve as entry-level courses for capacity building, with the suite of courses discussed in this report serving as the next "level" of courses. Communication and liaison between DWAF and the Environmental Education Unit will be required to appropriately dove-tail the courses to meet a wide range of requirements, and to prevent duplication of information.

4 PROPOSED COURSE OUTLINE

An extensive internet search was conducted in order to compile as comprehensive a list as possible of all relevant stakeholders. Searches included DWAF, DEAT, universities, technikons, Water Managements Areas, government agencies, conservation agencies, NGOs, consultants, water laboratories, editors of water-related publications, etc. A detailed stakeholder database of 349 e-mail addresses and other contact details was compiled. The questionnaire, contact list and analysis of the results are captured in Document 2 for the study, i.e. the Record of Decision document. Every person was contacted and requested to participate in the survey, in order to have input to the structure and content of the national biomonitoring course. Input from the management team of D: RQS was based on a meeting in Pretoria on 17 February 2006, and responses to Drafts 1 and 2 of this study document.

4.1 Introduction

As mentioned in Chapter 1, questionnaires distributed to a wide range of interested and affected parties identified the need for different types of monitoring courses (see Appendix 2c of the Record of Decision document). These requirements are covered by the integrated course shown below, which will consist of two modules.

- **Module 1:** Management module, including links to compliance, licensing etc. and information regarding setting up monitoring programmes. This course could be presented as a 1.5 day course.

- **Module 2:** General resource monitoring module, including an introduction to the indices and EcoStatus models (5 days). Note that attendees of this course will also be attending the management module.

- **EcoStatus courses:** Courses per EcoStatus model will probably be presented under the auspices of the CD: RDM, and not as part of the River Health Programme. EcoStatus courses should link with the EcoStatus courses run in 2005 and 2006 as a WRC-funded initiative, although more introductory information regarding general biological monitoring principles could be included. These courses would be intended for the specialists that will be running the EcoStatus models, and should include the relevant background to biological monitoring, understand the links between the various indices and models, and be proficient in the use of their particular model. It is suggested that separate courses are run over 3 days, but links are shown as follows:

    - Fish + Macroinvertebrates: two separate courses run at the same venue, so that the final day can be used to demonstrate how an instream EcoStatus is derived.
    - Water quality + Geomorphology: two separate courses run at the same venue, so that the final day can be used to demonstrate how driver EcoStatus is derived.
    - Riparian vegetation index
    - All courses should demonstrate the use of the Hydrological Driver Assessment Index, as the driver and instream responses are governed by flow.
    - All courses should demonstrate how an integrated EcoStatus is derived for the Resource Unit (for the Ecological Reserve) or Assessment Unit (for the RHP).

Note that all courses assume some understanding of aquatic systems and ecosystem function, and none of the courses mentioned above replace existing index-specific courses (e.g. SASS courses). Table 4-1 provides detail on the modules of the integrated resource monitoring course outline, and indicates the exit point for managers. The course should contain a mix of lectures, practical sessions and discussion groups. A field survey is highly recommended, and the use of visual material is encouraged. Lectures should be approximately 30-45 minutes in length (although lectures on indices and EcoStatus models may be longer), and consist of relevant sub-sections drawn from the following list:

- Introduction to topic; including concepts to be introduced
- Context in which the method can be applied, particularly in a regulatory environment
- Explanation of the method and data acquisition / collection step
- Data analysis, management and storage; including quality control and accreditation
- Usefulness of data and limitations of method, including qualification and experience of user
- Specific training opportunities available (e.g. SASS courses)

Besides these pointers, presentation methods and lecture content should be at the discretion of the specialist presenter. Presenters should be qualified and have experience of the topic being presented. D: RQS should provide an oversight role by reviewing lecture outlines and ensuring appropriate lecturers are used.

4.2 Module 1: Management

Module 1 is largely aimed at management and must therefore demonstrate the links between management tools. The focus of the course is to provide basic background information on the Ecological Reserve, the national River Health Programme and compulsory licensing. As the Water Resources Classification System (WRCS) is due to be gazetted in 2008, it is presumed that these tools (and Integrated Water Resource Management) should be discussed within the context of the Classification System. Table 4-1 shows the exit point for managers from the integrated course.

This course is intended for managers who will have to make decisions based on biological monitoring data, or implement monitoring programmes. Managers will have to understand the purpose of monitoring, the requirements of effective monitoring, how to implement a monitoring programme, what to do with monitoring data, and understand the usefulness of the data, e.g. as baseline monitoring for Reserve assessments.

4.3 Module 2: General resource monitoring

Module 2 is a general environmental monitoring course and includes introductions to the various available types of driver and biological response monitoring and the indices that have been developed for the South African River Health Programme (Table 4-1). The focus of the course is to provide basic background information for each of the environmental drivers and response variables with an exploration of their application in the national River Health Programme.

This course is intended for anyone wanting a general understanding of biomonitoring, including technicians who will be conducting field surveys. This course is similar to the previous *National Short Course on Biomonitoring*, although an introduction to EcoStatus models has been included.

Table 4-1 Proposed integrated resource monitoring course outline

DAY	TOPIC
1	Introduction to Integrated Water Resource Management (IWRM), legal requirements for IWRM and environmental monitoring.
	What is environmental monitoring and how does this relate to the national River Health Programme?
	What is the Reserve, specifically the Ecological Reserve?
	What is compulsory licensing and the Water Allocation Process?
	What is the Water Resource Classification System (WRCS)?
	How does the RHP link with, and how does it contribute to Ecological Reserve assessments, Resource Quality Objectives (RQOs), licensing and the WRCS
2	Making water resource management work: the links and responsibilities of DWAF Planning and DWAF RDM directorates
	Designing a monitoring programme
	Important components of the biomonitoring programme (including drivers & responses) **(END OF MANAGEMENT MODULE)**
	Delineation of assessment units
	Eco-Hydrological monitoring (HAI)
	Geomorphological monitoring (GAI)
3	Physico-chemical monitoring (PAI)
	Habitat Integrity (IHI)
	Invertebrate monitoring, including an introduction to MIRAI
	Fish monitoring, including an introduction to FRAI
	Diatom and algal monitoring
	Riparian vegetation monitoring, including an introduction to VEGRAI
4	Field work on the methods above
5	Data capture and quality control (National Rivers Database)
	Data analysis (including achieving integrated EcoStatus)
	Refining monitoring programmes
	Technical reports and State-of-River reporting

* Material should be provided and studied in advance.
* Most of the material has already been developed and references should be provided to such.
*** All models should cover QC/QA in the content where appropriate.**
***** Managers need only attend day 1 and part of day 2, however they may also attend subsequent days.

4.4 General information

There are a number of course-related issues that are difficult to assess before courses are run, e.g. the frequency of courses, locations etc. Appendix 2c of the Record of Decision document clearly shows input received from participants in the survey regarding these issues, however, the output from every course should be carefully evaluated and course material and details adjusted accordingly. The results of the survey showed the following – note that the majority opinion is shown below:

- **Frequency:** Annual
- **Location:** Various venues
- **Length of course:** 2-3 days
- **Reasonable price (vat excl.):** R3 500 – R5 000
- **Certificate of competence vs. certificate of attendance?:** Certificate of competence preferred. A number of people suggested being given a choice.
- **Number of presenters:** Smaller number of presenters preferred

Requirements regarding the types of courses needed, as well as the terminology to be covered, is shown earlier in this chapter (types of courses), Chapter 2 of this document (terminology) and Appendix 3 (terminology) of the Record of Decision document.

5 ACCREDITATION OF THE TRAINING COURSE

DWAF has decided not to pursue the accreditation of the national biomonitoring course at the moment, but has requested the inclusion of the accreditation process for future reference.

The following web-sites and documents were used to provide the information for this chapter.
http://www.saqa.org.za/
http://www.eseta.org.za/
Criteria and guidelines for short courses and skills programmes; June 2004.
Criteria and guidelines for Providers; October 2001.
Information Provision Manual; June 2005.

5.1 Training and education quality assurance

Various bodies have been established to regulate and oversee quality training and education in South Africa. Organisations, employees (learners) and the economy as a whole benefit from this structure. The South African Qualifications Authority (SAQA) advises the Ministers of Education and Labour on education and training matters. Training and education standards ensure that providers of training have guidelines to lead learners to achievement of outcomes that are aligned with national standards of employment practice in the relevant fields and sectors. Providers of learning are accountable to the relevant ETQA (Education and Training Quality Assurance) for the development and delivery of learning programmes and services leading to standards and qualifications for which they are accredited. Learning providers are responsible for quality learning experiences and the recording and researching of achievements of learners.

The education and training quality assurance structure is shown graphically in Figure 5-1.

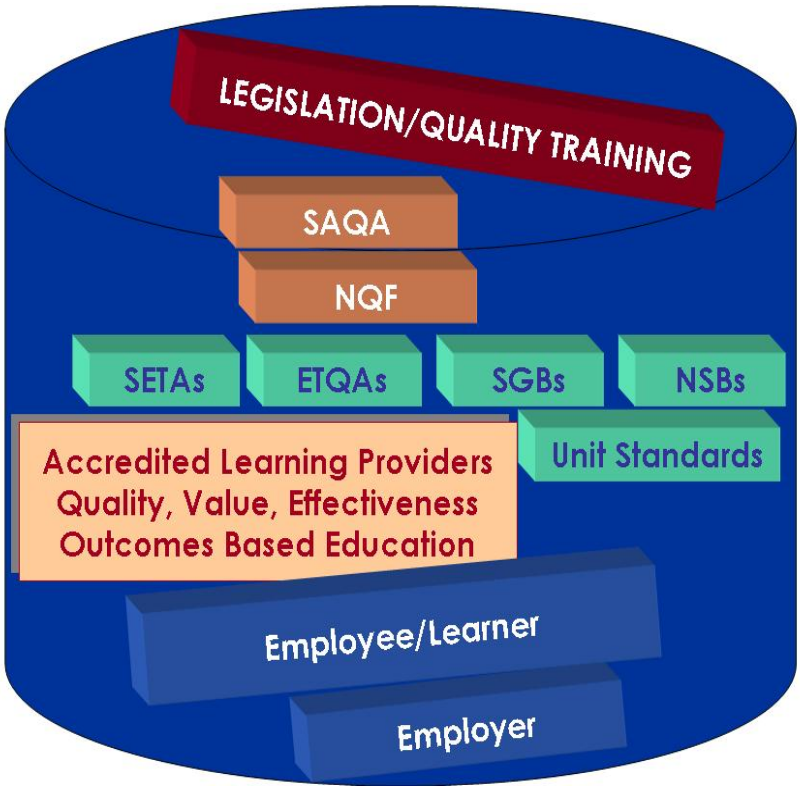


Figure 5-1 A diagrammatic representation of training quality assurance structures

5.1.1 Legislation

The following Acts and regulations apply to quality education and training in South Africa.

- South African Qualifications Authority Act, Act No. 58 of 1995
- Skills Development Act, Act No. 97 of 1998
- ETQA regulations; Regulations under the South African Qualifications Authority Act, Act no. 58 of 1995)
- NSB (National Standards Body) Regulations; Regulations under the South African Qualifications Authority Act, Act no. 58 of 1995)

5.1.2 South African Qualifications Authority (SAQA)

The South African Qualifications Authority is a body of 29 members appointed by the Ministers of Education and Labour. The members are nominated by identified national stakeholders in education and training. SAQA reports to Parliament via the Minister of Education. The functions of the Authority are essentially to develop and implement the NQF (National Qualifications Framework), as follows:

- By formulating and publishing policies and criteria for the registration of bodies responsible for establishing education and training standards or qualifications and for the accreditation of bodies responsible for monitoring and auditing achievements in terms of such standards and qualifications
- By ensuring the registration, accreditation and assignment of functions to the bodies referred to above, as well as the registration of national standards and qualifications on the framework. It must also take steps to ensure that provisions for accreditation are complied with and where appropriate, that registered standards and qualifications are internationally comparable.

The office of SAQA is responsible for implementing the policies and decisions of the Authority.

5.1.3 National Qualifications Framework (NQF)

The National Qualifications Framework is a framework on which standards and qualifications are registered. Education and training stakeholders throughout the country agree on these standards. The main objective of the NQF is the social and economic development of the nation at large – advantages of such a framework to different bodies is shown in Table 5-1. The NQF is responsible for ensuring the quality (relevance, credibility and legitimacy) of the standards recommended to the Authority responsible for registering, and when necessary, establishing Standards Generating Bodies (SGBs).

Table 5-1 Advantages of the NQF

STAKEHOLDER	ADVANTAGE / BENEFIT
Learner/employee	Receive quality education, career advancement and in the end, where possible, qualifications which enjoy national recognition and possibly international comparability.
Employer	Competent and skilled work force which enables a competitive global economy.
Society	A learning nation with the intellectual ability to adapt and change in an ever demanding technological world.

5.1.4 Sector Education and Training Authorities (SETA)

Sector Education and Training Authorities are established by the Minister of Labour in terms of the Skills Development Act. Members of SETAs include employers, trade unions and government departments.

5.1.5 ETQAs in context

These bodies are mainly responsible for promoting quality training amongst providers. ETQAs are responsible for accrediting providers of education and training standards and qualifications registered on the NQF, monitoring provision, evaluating assessment and facilitating moderation across providers, and registering assessors. ETQAs are SETAs accredited by SAQA.

There are two identified sectors for ETQAs accredited by SAQA (Table 5-2); namely:

- the Economic Sector
- the Education and Training Sub-system Sector

Table 5-2 The two ETQA sectors

ETQA SECTOR	PURPOSE
Education and Training Sub-System sector: Deals with multi-purpose providers such as public and private Institutions. A multi-purpose provider is a provider that offers education and training that covers a wide range over the spectrum of education and training fields, without having the majority of its activities focused on one specific education and training field.	The two ETQAs of the Education and Training Sub-System sector are: 1. The Council on Higher Education (CHE) that deals with all Public and Private Higher Education institutions, and 2. UMALUSI, General and Further Education and Training Quality Assurance Council, that deals with all Public and Private General and Further Education Multi-purpose institutions.
Economic sector: Sector Education and Training Authorities (SETAs) were established in terms of the Skills Development Act of 1998 to administer the levy grant system, and to perform ETQA functions in the economic sector they cover. They all had to apply to SAQA for accreditation as Education and Training Quality Assurance bodies.	Develop and implement sector skills plans, register and promote learnerships.

The Economic sector is applicable to the Biomonitoring short course. The SETA that deals with water-related qualifications and training is the Energy Sector Education and Training Authority (ESETA); as confirmed with the SAQA Directorate: Quality Assurance and Development. Examples of accredited ETAQs are shown in Table 5-3.

Table 5-3 Examples of Accredited ETQAs

ETQA	DESCRIPTION
BANKSETA	Banking Sector Education and Training Authority
CETA	Construction Education and Training Authority
CHIETA	Chemical Industries Education and Training Authority
ESETA	Energy Sector Education and Training Authority
ISETT	Information Systems Electronics and Telecommunication Technologies
SAICA	SA Institute of Chartered Accountants

5.1.6 Standards Generating Bodies (SGBs)

In 1998 SAQA published the National Standards Bodies (NSB) Regulations whereby provision was made for the registration of National Standards Bodies and Standards Generating Bodies. These bodies are responsible for the generation and recommendation of qualifications and standards for registration on the NQF. An SGB is recognised or established by an NSB for the purpose of the generation of specific standards and qualifications within a framework of sub-fields. Table 5-4

shows the structure of quality assurance for the country, with Figure 5-2 providing more information on the Economic and Education & Training sectors.

Table 5-4 The quality assurance structure and terminology

BODY / TERM	CAPACITY/SCOPE
Accreditation	The certification, usually for a particular period of time, of a person, a body or an institution as having the capacity to fulfil a particular function in the quality assurance system set up by the South African Qualifications Authority in terms of the Act. Accreditation is for the institution as a whole. However, as part of the accreditation process, providers will also be required to submit learning materials as part of programme approval.
Course	The content of a learning programme whereby learners may progressively attain the applied knowledge as described in unit standards and/or qualifications.
Exit-level outcome	An exit-level outcome has the same meaning as an outcome, but is expressed as the overall result of learning for a qualification.
FET	Further Education and Training
Field	A particular area of learning used as an organising mechanism for the NQF.
GET	General Education and Training
HET	Higher Education and Training
NSB	A body registered in terms of the SAQA Act, responsible for establishing education and training standards or qualifications.
NQF	The NQF is the set of principles and guidelines by which records of learner achievement are registered to enable national recognition of acquired skills and knowledge, thereby ensuring an integrated system that encourages life-long learning.
Learning provider	A body which delivers learning programmes and managers the assessment thereof. Accredited by one ETQA, shared primary focus, quality management system, ability to develop, deliver and evaluate learning programmes for specified registered standards or qualifications, financial, administrative and physical resources, policies and practices for staffing, learner services, assessment management, reporting and ability to achieve desired outcomes using available resources and according to ETQA procedures.
Outcome	An outcome is the demonstrable and assessable end products of a learning process.
Programme approval	The process that checks if the learning programme is aligned to a unit standard or qualification.
Provisional accreditation	Granted for an agreed, limited period of time according to an agreed programme of development to enable full accreditation criteria to be met, provided that the interest of learners are protected.
SAQA	SAQA accredits Education and Training Quality Assurance (ETQAs) bodies (which include SETAs and other professional bodies) to ensure that the education and training which learners receive is of the highest quality. These ETQAs in turn accredit providers who offer education and training in accordance with the standards and qualifications registered on the NQF.
Sector	Means a defined portion of social, commercial or educational activities used to prescribe the boundaries of an ETQA Body.
SGB	A body registered in terms of the SAQA Act, responsible for establishing education and training standards or qualifications.
Unit standards	Describes the outcomes of learning for which the learner will receive credit. Learning content and end results are transparent.

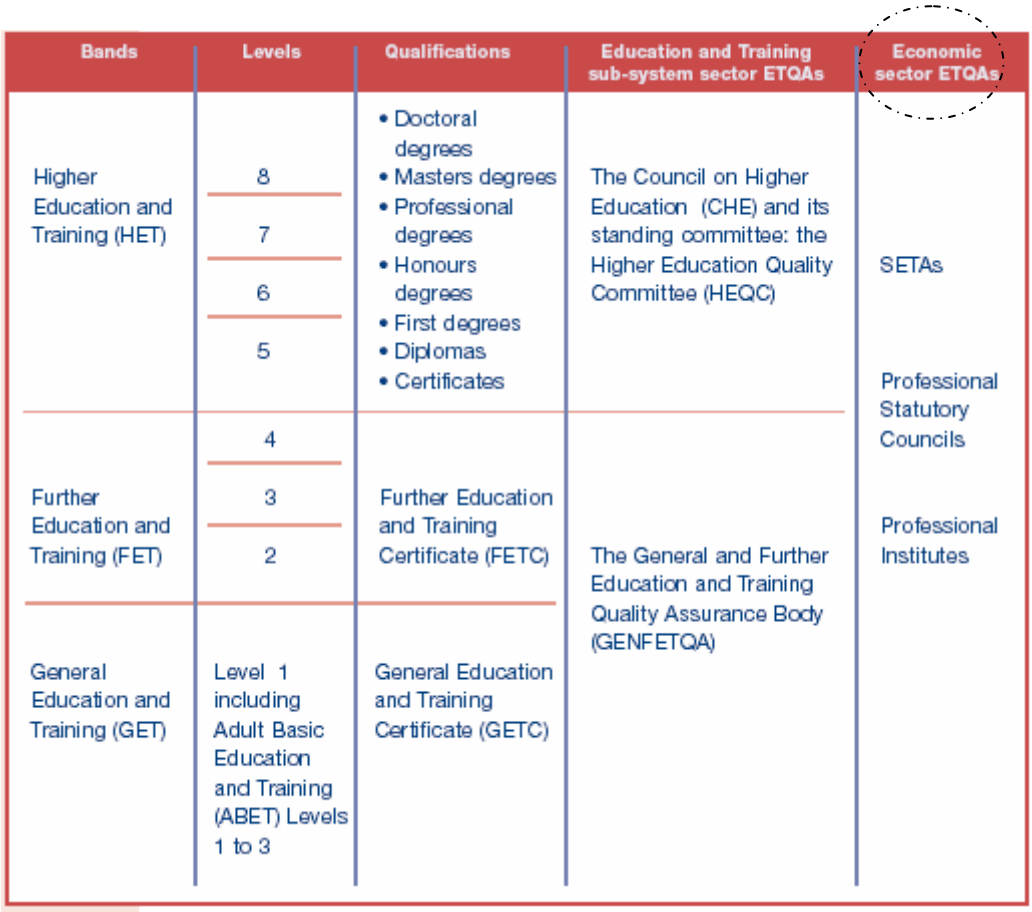


Figure 5-2 ETQA accreditation sectors: Economic and Education & Training sub-system sector

5.2 Short courses and provider recognition

Short course provisioning is one of the most dynamic features of South Africa's emerging education and training system. These courses are particularly associated with 'just in time', and 'just enough' learning to meet specific needs in workplace environments. This approach is a viable and common method for optimal workplace functioning in many contexts. It makes access to learning manageable, and saves the employers and the employees money, time, energy and resources. In essence, a short course is a type of short learning programme through which a learner may or may not be awarded credits, depending on the purpose of the programme.

In the new approach to education and training, short course provisioning has a particular place in the system and is important in the development, up-skilling and multi-skilling of human resources. Because short course provisioning occurs in all education and training sectors and bands, it needs to be subject to the same accreditation and quality assurance processes.

5.2.1 The NQF objectives

Quality assured short course providers and programmes will support and enhance learning by ensuring the application of the following principles:

- Enhancement of the articulation possibilities and mobility of learners within education and training by ensuring that short learning programmes are credit bearing and that the learning is portable
- Provide learners with flexible pathways to achieving education and training qualifications
- Education and Training Quality Assurance Bodies (ETQAs) will quality assure short learning programmes and so protect learners who acquire education and training by these means

- Enable a “seamless” system of access and articulation with other education and training programmes
- The dynamic nature of short learning programmes will increasingly support the setting of standards and the development and review of qualifications

5.2.2 Relationship between a short course and a skills programme

A skills programme is occupationally based and when completed will constitute credits towards a qualification registered in terms of the National Qualifications Framework. Provisioning is undertaken by a training provider accredited by an Education and Training Quality Assurance Body (Skills Development Act No. 97 of 1998). A skills programme is a type of short learning programme.

A short course is a type of short learning programme through which a learner may or may not be awarded credits, depending on the purpose of the programme. Short courses are offered at all levels and in most fields of learning of the NQF. Short courses range from courses for continuing Professional Development to skills-based courses.

5.2.3 Types of short courses

A ***credit-bearing short course*** is a type of short learning programme for which credits, in relation to the course's contribution to a particular programme, unit standard and/or (part) qualification, are awarded. A credit-bearing short course contains less than 120 credits, e.g. skills programmes leading to the achievement of credits in relation to a qualification.

A ***non-credit-bearing short course*** is a type of short learning programme for which no credits are awarded in relation to unit standards or (part) qualifications depending on the purpose and/or assessment of the programme. An example is programmes where less than 1 credit can be awarded. Non-credit bearing short learning programmes may therefore be workshops, refresher courses and seminars.

5.2.4 Register as a provider of short courses

To be registered as a provider of short courses means to be registered as a provider in terms of the applicable legislation and confirms the right to practice.

It is advisable for short course providers to select at least one (or a group) of their short courses and convert it/them into a learning programme which leads to the achievement of at least one registered standard. The provider can then seek accreditation with the ETQA of primary focus for that standard. This will bring the provider into the quality improvement cycle. Once accredited for one programme, it will be easier to market all products. Gradually the provider could evaluate the courses it offers and see whether there are other courses that could be combined into appropriate learning programmes that lead to registered standards and qualification, and then request an extension of their accreditation accordingly.

No credits will be awarded to learners who have achieved unit standards or qualifications through a training provider that is not accredited.

5.2.5 The length of a short course

There is no specific answer to this question. Technically any course that leads to the awarding of less than 120 credits (i.e. the minimum number of credits for a certificate) could be considered a short course.

However, one must be careful to separate provisioning from assessment against a specified standard or qualification. For example, a company may offer a series of five one-day courses, at the end of which a learner could be assessed against the outcomes and assessment criteria of a

specific unit standard. The five courses offered as a unit, then, become a learning programme and the provider may seek accreditation to offer this programme. This is provided they are also able to carry out appropriate assessment of the learners or contract an assessment agency to assess on their behalf. In such a case, the conditions for accreditation would clearly stipulate the circumstances under which accreditation is granted.

Alternatively, a provider could provide a series of short courses and direct learners to an assessment agency that could apply appropriate Recognition of Prior Learning (RPL) processes to determine whether a learner has achieved the outcomes of a specific unit standard. The assessment agency would have to be an accredited provider of assessment.

As the nature of short course provisioning differs substantially from sector to sector, ETQAs will have to consider what is appropriate within their sector. For instance, in some sectors it may be appropriate to accredit a provider of a course that leads to the achievement of a unit standard of three credits while in another sector, it may not. It may be appropriate for a provider to combine a number of unit standards into a single course, arrange for assessment thereof and apply accordingly for accreditation by the appropriate ETQA.

5.2.6 Non-accreditation

A large number of providers fall within this category. This is applicable to learning material that falls outside of unit standards and qualifications. This category includes training that is workplace specific where employers want to have the assurance that trainees will come out of the learning programme with real workplace-related skills and knowledge.

5.2.7 Criteria for accreditation of short course providers

To be accredited the following criteria must be met:

- Define and describe the purpose of the organisation (including a description of the vision and the mission of the provider)
- Develop and document a Quality Management System (QMS) including policies and procedures of or programme delivery, staff, learners and assessment
- Develop and document review mechanisms in terms of the implementation of policies and procedures
- Maintain management systems, including financial and administrative resources and physical infrastructure of the provider

Refer to Appendix 2a for more detailed information about ESETA Short Course Provider Recognition and Registration.

5.3 ESETA accreditation

Accreditation is about evaluating what needs to be in place to ensure the quality of learning provision, and to demonstrate to the relevant ETQA that quality processes and practices for all learning provision and achievements are in place. A body may be accredited by an ETQA whose primary focus coincides with the primary focus of the provider; in this case the ESETA (Energy Sector Education and Training Authority.

A provider that wishes to be accredited for the provisioning of learning and assessment of learners against NQF registered unit standards or qualifications, must apply to its ETQA of primary focus for accreditation (in the case of the national Biomonitoring course accreditation will be by the ESETA).

The need for accreditation stems from the need to award credits toward unit standards and to recognise the learning attained through a short learning programme.

A provider that either offers assessment or arranges for its learners to be assessed against specified standards or qualifications by an accredited assessment agency, should apply to its ETQA of primary focus for accreditation.

5.3.1 Accreditation for employers

Employers can claim back their levies when making use of accredited providers (Skills Development Levies Act). When not making use of accredited providers, employers can also recover levy payments based on the submission of Workplace Skills Plans (WSPs), Workplace Skills Implementation Plans (WSIPs) and the submission of the names of Skills Development Facilitators (SDFs).

The Regulations to the Skills Development Act (No.97 of 1998) stipulates the following grants among others:

- A workplace skills grant
- A workplace skills implementation grant

Payments of mandatory grants by the relevant SETA will be done as long as an employer submits the application correctly and on time (as assessed by the relevant SETA/ETQA). Payments of grants are based on the extent to which an employer implemented the WSP and the extent to which this is in line with the Sector Skills Plan.

5.3.2 The accreditation process

The first step in the accreditation process is the completion of a letter of intent that is submitted to the ETQA body. This is a one-page document that covers aspects such as contact details, the type and form of the training programmes and the titles of the training courses that are offered. This will be looked at to ascertain whether the majority of the education and training provision does indeed fall within the ESETA.

A letter of confirmation of receipt of the provider's letter of intent will be sent to the applicant, and the provider details will be captured onto the ESETA database, after which the provider will receive the Application for Accreditation Documents that will need to be completed and returned to the ESETA.

The application is then recorded and an initial check for compliance conducted, after which an investigation team is tasked to assess and evaluate the application. The assessment includes staff accreditation and a site visit. The ESETA ETQA's intent to accredit the provider is published on the ESETA website for stakeholder comment.
Should the Accreditation be granted, ESETA would issue a certificate to that effect.

5.3.3 Criteria for accreditation

Criteria fall within three components.

Specific criteria
These criteria specify minimum compliance for all providers within the Energy Sector and are non-negotiable.

Required documents/records
This component refers to various documents and records which the provider may submit in order to demonstrate compliance with the elements. These documents and/or records (written or electronic) will be verified during the ESETA ETQA audit of the training provider.

Observable evidence
This component refers to further evidence that providers may prepare for compliance with the elements. The size of the provider's organization will determine the amount of evidence required. Examples of evidence are given in the Guidelines.

Refer to Appendix 2b for more detailed information about ESETA accreditation.

6 RESOURCE REQUIREMENTS

This section of the report provides some indication of costs (as at the 2007/2008 financial year) for running the resource monitoring course (including the management module Note that course attendance assumes some understanding of aquatic systems, ecosystem function and DWAF regulatory policy. Basic ecology will not be covered, and although terminology related to resource protection will be covered, it is assumed that participants are knowledgeable of DWAF responsibilities and functions. Prior field experience is not required, although tertiary education (degree or diploma) is anticipated.

6.1 Notes regarding the budget

The costs are based on previous experience of running biomonitoring and other courses in Grahamstown. The costs vary according to the numbers of delegates attending the course (although their course fees are not set and not considered in the budgets), and the numbers of lecturers used to deliver the courses. The assumptions on which the costing is based are shown below. Courses are to be run by qualified personnel, i.e. a course director who is a professional knowledgeable in the field of biomonitoring, and a course co-ordinator who is experienced in running courses.

- Course is not run in Pretoria, but in a venue such as Grahamstown (i.e. worst cost scenario as there is no airport for easy access)
- Based on twenty-five delegates
- Five-day course
- Five lecturers, of which four are from outside the course location
- Thirty course files
- Opening function (e.g. cocktail party) – assumed 25 delegates + 5 lecturers + 10 guests

Figure 6-1 shows an indicative budget for running this type of course.

GENERAL RESOURCE MONITORING SHORT COURSE

Assumes - 25 participants in Grahamstown
Assumes - 5-day short course

PROFESSIONAL FEES

ACTIVITY	RATE	HOURS	TOTAL FEE COST
Logistical setup and management			
Course director	420	32	R 13,440
Course co-ordinator	180	120	R 21,600
Lecture preparation			
Lecturer 1	350	20	R 7,000
Lecturer 2	350	20	R 7,000
Lecturer 3	350	16	R 5,600
Lecturer 4	350	16	R 5,600
Lecturer 5	350	16	R 5,600
Course management			
Course director	420	32	R 13,440
Course co-ordinator	165	24	R 3,960
			R 0
Lectures			R 0
Lecturer 1	350	16	R 5,600
Lecturer 2	350	16	R 5,600
Lecturer 3	350	16	R 5,600
Lecturer 4	350	8	R 2,800
Lecturer 5	350	8	R 2,800
Post course wrap-up and evaluation			
Course director	420	8	R 3,360
Course co-ordinator	180	24	R 4,320
TOTAL FEE COST (VAT EXCLUSIVE)			**R 113,320**

DISBURSEMENTS

ACTIVITY	RATE	NUMBER	COST	TOTAL DISBURSEMENT COST
Venue hire	200	5	R 1,000	
Course notes - printing	140	25	R 3,500	
Course materials (files, paper, pens)	60	25	R 1,500	
Disbursements (fax, tel, print, copy)	4000	1	R 4,000	
Collation of course files	40	16	R 640	
Lunch 30 people x 5 days	35	150	R 5,250	
Teas 30 people x 6 (am+pm)	8	180	R 1,440	
Opening function (night 1) - cocktail party	65	40	R 2,600	
Supper night 2 - restaurant	45	30	R 1,350	
Supper night 3 - Finger meal at pub	35	30	R 1,050	
Vehicle mileage	5	150	R 750	
Name tags	5	30	R 150	
Sweets for tables	30	3	R 90	
Bottled water - 1.5 bottle pp pd	4	135	R 540	
Laptop hire		5	R 0	
Data projector hire		5	R 0	
Accommodation for lecturer 1	350	2	R 700	
Accommodation for lecturer 2	350	2	R 700	
Accommodation for lecturer 3	350	2	R 700	
Accommodation for lecturer 4	350	2	R 700	
Flight and rented car for lecturer 1	2500	1	R 2,500	
Flight and rented car for lecturer 2	2500	1	R 2,500	
Flight and rented car for lecturer 3	2500	1	R 2,500	
Flight and rented car for lecturer 4	2500	1	R 2,500	
TOTAL DISBURSEMENTS (VAT EXCLUSIVE)				**R 36,660**

COURSE COST	
Professional fees	R 113,320
Disbursements	R 36,660
Total cost (Vat exclusive)	**R 149,980**

Figure 6-1 Indicative budget for running a resource monitoring course

7 COURSE MATERIAL AND COURSE EVALUATIONS

7.1 Course material

Course material will be developed by the lecturers involved and prepared for distribution by the course co-ordinator. Additional tools such as the Geomorphology Manual, SASS video and other training tools and manuals will be distributed and included in the course fee. It is assumed that these tools are being prepared as separate initiatives and will be available. A SASS video has been produced, but requires some further development and finalization.

7.2 Course evaluation

An important part of course development is a process to allow participants to evaluate the course. Feedback will be used to review and refine the course.

The simplest approach is to provide a questionnaire for each course participant to complete at the end of the course they have attended. The questionnaires will be completed anonymously as such information should be kept confidential.

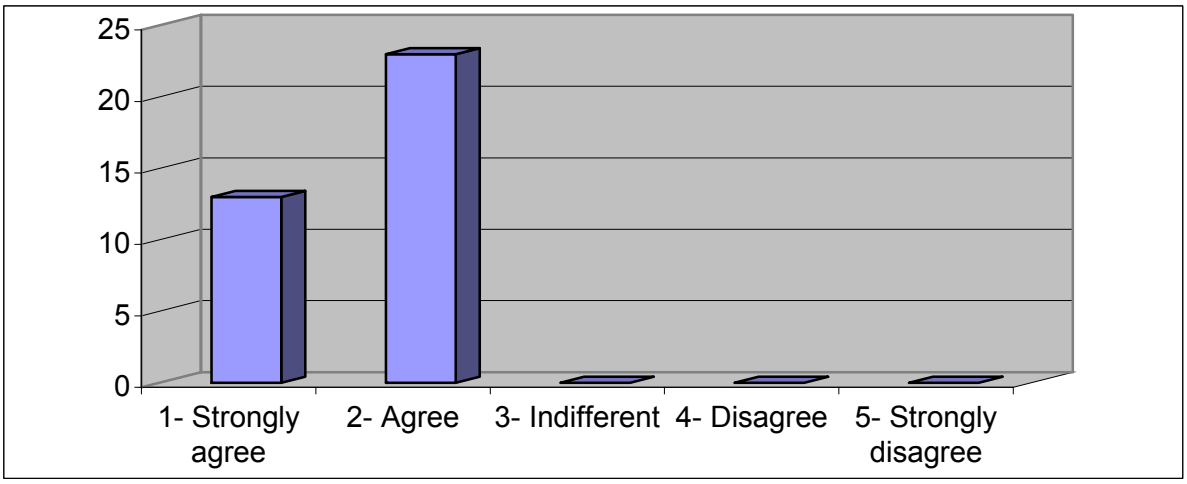
Past experience has shown that course participants should be encouraged to read the course evaluation questionnaire at the beginning of the course, so that the questions remain fresh in their minds as the course progresses. The results of the completed questionnaires should be analysed and presented in a neatly summarised format, including histograms (for example) and general comments, as per the examples discussed below (and see Appendix 3). The results will be used to identify shortcomings and improve future courses.

Course evaluation feedback can be **synthesized** in the following way (see example below). This description should be seen as an overview of the evaluation forms returned by course participants, rather than a statistical analysis of opinions. Note that the document contained in Appendix 3 is only an example of what can be produced once course content has been finalised. This example pertains specifically to the Reserve Process, and is based on documents prepared for the DWAF Thukela Reserve project undertaken in 2003.

- Histograms can be used to synthesise responses to the first eleven questions (see Appendix 3 and the example below).
- Results can also be summarized into tables (see the example below) with answers displayed in categories
- Qualitative summaries are provided for comments regarding the various sessions, as well as any general comments made.

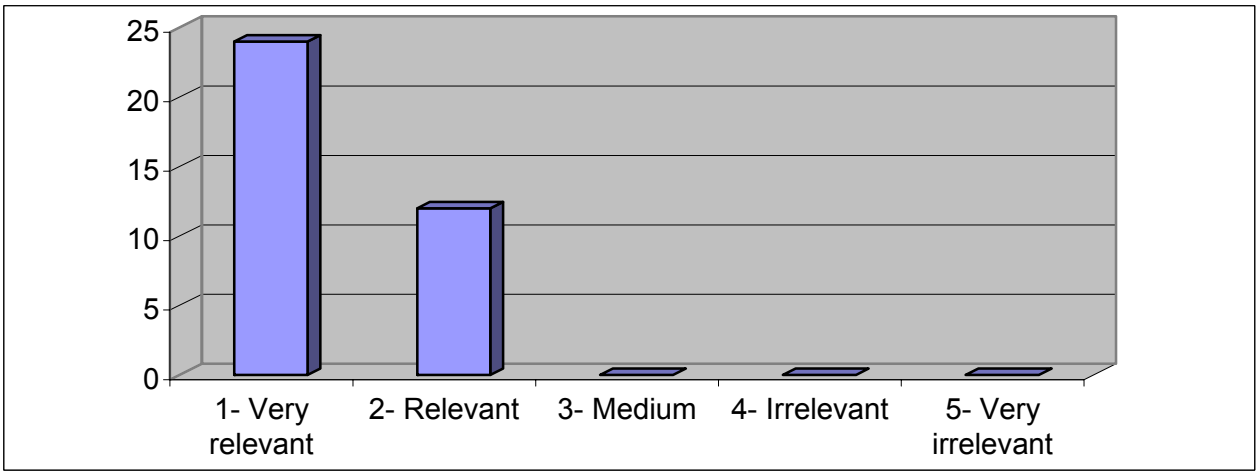
Example: Histograms

Question 1: The course folder contained all the relevant information.



Comments:
The folder is quite comprehensive and has some really good references for further reading.
Some presentations did not have all the required paperwork in the file but it was minor though.
All necessary documentation was provided, well done!

Question 2: How relevant did you find the overall course content?



Comments:
The focus was squarely on biological monitoring but matters were placed into context.
The wide range of information will definitely help me in my future projects.
As a student I feel that all components of this course were relevant to my study.
Beyond my expectations, very practical and educative. However too much information in short while. Perhaps it would be an idea to extend the length of the course.

Question 12: Do you have any comments specific to any of the sessions? (For instance, in terms of content, difficulty, presentation, etc.)

Lecture 1 (presenter's name): Comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments.

Lecture 2 (presenter's name): Comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments.

Lecture 3 (presenter's name): Comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments.

Lecture 4 (presenter's name): Comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments, comments.

Example: General comments

Slide projections are fine, but presenters are just reading them, which makes it less stimulating. They need to lecture not read.
New insights and valuable lessons learned from the experienced experts.

Example: Tabular format

	1- Very relevant	2- Relevant	3- Medium	4- Irrelevant	5- Very irrelevant
How relevant did you find the case studies	**18**	15	3	0	0
How relevant did you find the overall course content	**24**	12	0	0	0
	1- Very good	2- Good	3- Okay	4- Poor	5- Very poor
How did you find the venue and the catering	5	**14**	**14**	3	0
How did you find the overall organisation of the course	**22**	9	5	0	0
	1- Too difficult	2- Difficult	3- Just right	4- Easy	5- Too easy
How do you rate the difficulty pf the course material	0	4	**31**	1	0
Were the presentations diffcult to follow	0	2	**25**	9	0
	1- Strongly agree	2- Agree	3- Indifferent	4- Disagree	5- Strongly disagree
All the relevant aspects of and disciplines related to EIA were given due consideration	8	**19**	6	3	0
Presentation of the course material was done in a stimulating way	12	**22**	2	0	0
The course folder contained all the relevant information	13	**23**	0	0	0
The course material was presented in an accessible way	13	**21**	1	1	0
	1- Many more	2- More	3- Just right	4- Less	5- Much less
Would you have preferred more or less case studies	1	15	**19**	1	0

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APPENDIX 1

INTEGRATED ENVIRONMENTAL WATER MANAGEMENT COURSE

Masters course in Integrated Environmental Water Management

A coursework Master of Science (MSc) degree in Integrated Environmental Water Management (IEWM) is currently being developed by the FET-Water (Framework Programme for Education and Training in the Water sector) initiative. It is envisaged that a number of universities around the country (including University of Cape Town and possibly Rhodes University, University of Zululand and Nelson Mandela Metropolitan University) will provide input and/or co-supervision into the Masters course.

Purpose of the course

The aim of the Masters-level course is to enable participants to achieve a holistic understanding of the processes, functions and components of inland and estuarine aquatic ecosystems for management purposes. Candidates who complete this course should be able to understand and integrate the various aspects of sustainable water resources management, including but not limited to those relating to Environmental Water Requirement (EWR) studies.

Aspects to be covered will include:

- Planning and managing water resource management projects/programmes.
- Compiling, analysing and disseminating information relating to water resource management.
- Gaining a broad understanding of the concepts and data requirements of all the major disciplines generally involved in water resource management projects/programmes.
- Integrating the typical outputs from the various disciplines generally involved in water resource management projects/programmes.
- Designing frameworks for monitoring and auditing the effects of water resource management projects/programmes in terms of (a) the biophysical aspects of aquatic ecosystems and (b) the socio-economic implications for water resource management.

Anticipated outcomes

On completion of this course, students should be able to:

- explain the need to protect water resources;
- understand the concepts behind and reasons for environmental water requirements as a key component of sustainable water resource development;
- give an overview of the legal and regulatory framework for water resource use and protection, particularly in South Africa;
- translate scientific data and information into appropriate formats for water resource management purposes;
- be sensitive to current environmental and development issues, and be able to place them in an historical and cultural context;
- employ critical and logical thinking, with a capacity to be sceptical of received wisdom and opinion;
- demonstrate an understanding of the application of relevant tools and skills in the environmental fields;
- coordinate cross-disciplinary data exchange relating to water resource management;
- debate and compare various theoretical and pragmatic perspectives that inform current thinking on environmental and development issues; and
- function collaboratively in cross-disciplinary situations.

Structure and organisation

The course is designed to run for one year. It consists of a series of modules (see accompanying Figure) and a research thesis. Modules 1 to 7 of the coursework are core components, while Modules 8 to 10 are specifically for a specialisation in Environmental Water Requirements (EWR) and may be replaced by alternative modules for different specialisations.

Some participating universities may be prepared to allow students to register only for the coursework modules and to obtain a Postgraduate Diploma, rather than an M.Sc. degree, for which the completion of a thesis is a requirement.

The logistics of exactly of how and where the modules will be run have not been finalised yet. Fieldwork and the use of case studies will be integral to the presentation of most of the modules.

Time frame

The coursework modules, together with the mini-thesis, may be completed during the course of one academic year. An additional academic year is allowed for part-time candidates. It may be possible for students to accumulate credits for some of the modules before registration for either the Masters degree or Postgraduate diploma.

Duration of modules

Each of the ten full modules will be two weeks long, consisting generally of ten days of lectures (or other “contact sessions”) and assignments, with two days (over a weekend) of self-study. For the modules that consist of a series of sub-modules (i.e. Modules 1, 2 and 9), the duration of each sub-module varies.

Assessment

Assessment will be both continuous and summative. For each module (and sub-modules), assessment will be by means of written and oral assignments to be completed while the module is being undertaken. In addition, there will be a written examination at the end of each module.

The mini-thesis that is completed as part of the Masters course will be assessed according to the standard university criteria for an MSc thesis, using external examiners.

The total mark for the Masters course will be made up of the total mark obtained for the course-work component (50%) and the mark obtained for the mini-thesis (50%).

Module 1: Introduction to Biomonitoring

1a: EWRs - Balancing Use and Protection

Purpose: provide a broad overview of the philosophy and content of the Masters course, and contextualise environmental water requirements (EWRs) within the framework of integrated water resource management. Aims to provide students with a basic understanding of the overall functioning and integrated nature of inland and estuarine aquatic ecosystems.

1b: Legal & Regulatory Framework

Purpose: provide an overview of the relevant global and national policies and legislation pertaining to the statutory obligation for water resource protection and management to ensure sustainable utilisation of water resources. There will be a particular focus on the legal and policy frameworks of relevance to South Africa.

1c: Public Participation

Purpose; provide an overview of the role of and the statutory obligation for public participation in water resource protection and management, particularly within the South

Module 2

2a: Project Management

Purpose: provide the necessary skills, knowledge and attitude to plan, initiate and coordinate multidisciplinary projects/studies.

2b: Resource Economics

Purpose: provide an understanding of how and where resource economics fits into integrated water resource management.

Module 3: Surface and Groundwater Hydrology

Purpose: introduction to the methods and procedures for quantifying the relevant hydrological parameters associated with rivers, lakes, wetlands, estuaries and groundwater.

Module 4: Hydraulics / Hydrodynamics

Purpose: introduce the concepts and methods of quantifying the hydraulic and hydrodynamic features associated with rivers, lakes, wetlands, estuaries and groundwater.

Module 5: Geomorphology

Purpose: provide a working knowledge of fundamental geomorphological processes associated with inland and estuarine aquatic ecosystems.

Module 6: Water Quality

Purpose: provide an understanding of the physical attributes and chemical constituents of natural and polluted waters, and how these features determine water quality for aquatic ecosystems and human uses.

Module 7: Aquatic Ecology

Purpose: provide an understanding of the structure of biological communities, and their responses to the biophysical processes of aquatic ecosystems.

Module 8: System Operations / Management Options for Water Supply

Purpose: provide an overview of the range of management options used to provide water to towns, farms and industry. This will enable students to contextualise EWRs within the realm of water resource management, and to develop an appreciation for the tradeoffs involved in environmental flow determinations.

Module 9: Technical Integration

9a: EWR Methodologies

Purpose: provide the skills and tools required to coordinate EWR determinations for each aquatic ecosystem type separately, *viz*. river, lake, wetland, estuary or groundwater.

9b: Combining EWRs

Purpose: provide the skills and tools required to integrate EWRs for different aquatic ecosystems (*viz*. river, lake, wetland, estuary or groundwater) into a system EWR network.

Module 10: Resource Directed Measures (RDM)

Purpose: provide an overview of the procedures used to carry out an assessment of the RDMs required for a water resource under the SA National Water Act of 1998. This includes the classification procedures for different water resources in terms of their reference conditions and present status, habitat integrity, ecological importance and sensitivity, and social and economic importance. Candidates will also review methods for setting ecological and management objectives for different water resources, and will learn how to coordinate the process for assessing the ecological Reserve for different types of water resource.

APPENDIX 2

ACCREDITATION

APPENDIX 2 A

ESETA Short Course Provider Recognition and Registration document.
Document Number: AFOR0002
Last Review Date: August 2004
Page 1-6

Application for Short Course Provider Recognition and Registration

ESETA recognizes that the provision of short courses is a viable and common method for:

- Gaining meaningful learning for optimal workplace functioning;
- Accessing learning in a manageable manner - time, cost, energy;
- "Just-in-time learning"and "just-enough learning";
- Meaningful career and learning pathways;
- Improved workplace practice;
- Improved employability and mobility of learners.

Providers offering programmes for which there will never be unit standards (short courses), may submit application to the ESETA ETQA, for the registration of these programmes.

The benefits of registration and recognition are that:

- The programmes may be marketed as such;
- They can be included as provision on "workplace skills plans" for the repayment of skills levies.

Defining short courses:

- A learning programme presented by a recognized provider;
- Non-credentialed courses;
- Quality assurance of provisioning is desirable if not essential.

Organisation Name:
_____
_____

Address: _____
_____
_____
_____

Telephone number:
_____
_____
_____

Fax number:
_____
_____
_____

E-Mail: _____

Date of Application:
_____

Name of person making application:
_____

Designation :
_____

COURSE TITLE	PURPOSE OF COURSE	DURATION OF COURSE	COURSE OUTCOMES	APPROX. NQF LEVEL	TARGET POPULATION	METHOD OF DELIVERY	WILL TRAINING OF THE COURSE BE RELECTED ON WSP's

Add / Insert a copy of this page should you have more courses.

List the Courses you intend providing training or assessment for:

For Training only:	For Assessment only:	For Both:

Full Course Titles	Approximate NQF Level

List the Training / Assessment Personnel:

Name	Position / Title	For what courses

List the companies within the field or industry in which you have trained:

Company	Field or Industry	Type of training

4. **Outline the Industry Client (prospects) you will provide training for, and specify contact persons:**

Client Prospects	Contact Person	Contact number

Give a motivation for seeking recognition:

_____
_____
_____
_____
_____
_____

Please include Curriculum Vitae (CV's) for each of the training / assessment personnel with this application and questionnaire.

DECLARATION ATTESTING TO CONTENTS OF APPLICATION AND MEETING THE ESETA ETQA / SAQA REQUIREMENTS

The Applicant declares that all information contained in this application is true and accurate in every respect.

_____ _____
Signature Date

Signed at _____ on _____

_____
Witness 1 Date

_____
Witness 2 Date

APPENDIX 2 B

ESETA Provider Accreditation Procedure document.
Document Number: APRO001
Last Review Date: August 2004
Page 1-9

ENERGY SECTOR EDUCATION AND TRAINING AUTHORITY

PROVIDER ACCREDITATION PROCEDURE

1. PROCESS OF ACCREDITATION

Applicants must obtain an application form from the respective provincial office of the ETQA and submit in the area in which they intend to provide training.

Documentation proving the institutions compliance with the criteria must be submitted with the application.

The relevant provincial manager will evaluate the application and make a recommendation to the ETQA once all the requirements are met and all information is checked and confirmed .

The ETQA Manager will acknowledge the receipt of such submission to the applicant electronically or by post.

The ETQA Manager will arrange for an audit of the training facilities and programme of the applicant.

Once the ETQA Manager and the relevant provincial manager have concurred that the applicant meet all the set criteria, an accreditation number will be issued to the applicant.

The ETQA Manager will put forward those applications received at the scheduled ETQA Committee meetings for ratification.

The ETQA reserves the right to contract any outside specialists in the assessment of the application. The cost of these external specialists or organisations will be for the account of the applicant (once agreed with the applicant)

The ETQA Manager will notify the applicant in writing of the outcome of the ETQA decision.

If the application is successful, a certificate will be issued to the applicant. The certificate will indicate:

- Provider ID and code. *
- Specific training venue.

- Practitioner code. *
- Qualification code/learning Program/Course name and code.*
- Unit standard / outcome code. *
- Provider ETQA ID *
- Assessor ETQA ID*
- Serial number and expiry date of the Accreditation certificate.

* During the transitional period prior to Outcomes Based Education and Training (OBET) some of the above-mentioned information will not be reflected on the certificate. This information will, however, be needed in the future when all learners are registered. on the National Learners Record Database (NLRD) of SAQA.

If the application is not successful, the ETOA Manager will notify the applicant accordingly. Reasons for rejecting the application will be given.

An applicant will have the opportunity to appeal.

Applications for annual renewal must be submitted to the regional managers that will process the application and submit it to the ETOA Manager once completed. New certificates will be issued accordingly.

2. CONDITIONS OF ACCREDITATION

A commitment from training providers to adhere to the conditions of accreditation as prescribed by the ETQA is included in the application for accreditation. By signing the application for accreditation it is accepted that the conditions of accreditation as stipulated below are also noted and will be adhered to by management with executive powers as well as all other members of the provider institution.

Failure to adhere to these conditions will result in penalization of the training provider and may lead to the cancellation of the accreditation of the training provider.

Records of training must be kept. These results must be retained on file for three years.

A training schedule of each instructor (practitioner) must be available at the training site.

Personal records of each practitioner must be kept, including a CV, development progress, accreditation certificates etc. This must be updated regularly.

A grievance procedure for grievances from practitioners, learners and unsatisfied clients must be in place, and a copy of such documentation must be available at the training site.
In the case of "On-Site" training of a duration of twenty (20) working days or longer, an agreement between the training provider and the contractor / client must be drawn up indicating the responsibilities of each party in terms of workmen's compensation, the provision of tools, equipment and personal protective equipment. The practitioner must keep a copy of this agreement on the training site.

Random monitoring of training will be conducted regularly to determine the standard of training delivered by each practitioner. Should the ETQA representative (provincial manager or training advisor) consider it necessary to repeat monitoring due to deviation from set standards by the institution, the cost of any follow up monitor visits will be for the account of the training provider as mutually agreed.

Training providers take full responsibility for the practitioners in its employ and will ensure that they will adhere to the conditions of accreditation of the ESETA as contained in this document.

Training providers must inform the relevant provincial office of any new practitioner appointment or resignation within a calendar month thereof .

Training results and training reports must be forwarded to the applicable ETQA regional office on a monthly basis.

A proforma of the certificate that training providers will issue to learners must be submitted to the ETQA for ratification prior to issuing these certificates. Training providers will be allowed to issue certificates, duly giving recognition to their accreditation status with the ETQA, in the following instances:

On completion of a course / part of a learning program or a learning program provided that the learner has not reached an exit point in the prescribed career path.

The ETQA will issue all certificates for part qualifications (at the prescribed exit points) or full qualifications.

A copy of the training providers' certificate will be kept on record at the ETQA and if any changes should occur, the ETQA must be informed within a calendar month.

If the training provider purchases training material from the ETQA, it has:

- The right to use this material for training learners.
- Copies of such material may only be made for legitimate learners of the training provider and only while the training provider are accredited with the ETQA.
- It may not be issued, sold or lent to any other person or organisation.
- If there is an infringement of this condition, accreditation may be cancelled and prosecution can take place.

The ETQA reserves the right to inspect training sites at any time without prior notification to the training provider. Information of the location of the training sites must be given to a ETQA representative on request. The training provider may also be required to complete self-evaluation reports from time to time. These reports must be forwarded to the ETQA within two weeks of date of issue.

A full audit of the activities of the training provider will be conducted annually under the leadership of the relevant provincial manager. A panel of experts may be selected for this purpose and the training provider must provide full co-operation to conduct this audit efficiently.

If the training provider or any practitioner in its employ does not comply with any rule, regulation, or condition of accreditation as laid down by the ETQA, the ETQA may suspend the accreditation of such party/parties immediately. Suspension of accreditation will be communicated to the training providers as well as their current clients. The training provider will have the opportunity to appeal.

ANNEXURE A

Self Evaluation Questionnaire For Potential Providers

1. Has your organisation previously provided training in the field indicated in the application?
2. Does the primary focus of training coincide with the primary focus of the ESETA-ETQA?
3. Does your organisation have a proven record in your specific field of training?
4. Will your organisation's current financial status enable it to provide ongoing service to your clients?
5. Does your organisation have a quality management system inclusive of policies, procedures and review mechanisms?
6. Do you have policies and practices for staff selection, appraisal and development?
7. Are your trainers and assessors fully competent and accredited to present and assess the training needing accreditation?
8. Do you have policies and practice for learner entry, guidance and support systems?
9. Has the training been designed to meet the requirements for the trainee target population, and the registered unit standards or qualification?
10. Do you have the capacity to train non ESETA – ETQA learners in terms of the provisions of the National Skills Fund?
11. Are you able to cater for the training needs of the disabled, such as the visually or aurally impaired?
12. Have you applied to, or been accredited by any other ETQA?
13. Are your IT systems capable of providing all the relevant information to the ETQA
14. Does your organisation have a "formal results" measuring system?
15. Does your organisation have a policy of post-course follow-up?
16. Does your organisation have a code of ethics?

- If you have answered "No" to questions 1,2,3 and 4, an application for accreditation will probably not be considered.
- If you have answered "No" to any 4 or more of the remaining questions (5 to 16), you should implement a strategy to achieve "Yes" answers to these before applying.
- If you have answered "No" to 3 or less of the remaining questions (5 to 16) you may apply for accreditation, but expect the possibility of only being granted provisional acceptance.
- If you have answered "Yes" to all questions, you can apply with a reasonable expectancy of receiving accreditation.

N.B. When submitting your application, please include a copy of the completed questionnaire.

ANNEXURE B

Application for Accreditation

Complete in full and send together with Questionnaire (Annexure A) to:-

ESETA
Xxxxx
Xxxxxx

e-mail: xxxxxx

Organisation Name: _____

_____

Address: _____

_____

_____

Telephone Number: _____

Fax Number: _____

E-Mail Address: _____

Date of Application: _____

Name of person making application: _____

Designation: _____

List the Courses/Qualification Titles/Units Standards you intend providing training for:

Courses	Qualification Titles	Unit Standards

List the Training Personnel requiring accreditation:

Name	Position / Title	For what courses/qualifications/unit standards

List the companies within the field or industry in which you have trained:

Company	Field or Industry	Type of Training

Outline the target population you will be providing the training to:

Outline the Industry Client (prospects) you will provide training for, and specify contact persons:

Client Prospects	Contact Person	Contact Number

Give a motivation for seeking accreditation:

NOTE:

Please include the following documents with this application and questionnaire:-

Curricular Vitae (CV's) for each of the training personnel requiring accreditation.

APPENDIX 3

COURSE EVALUATIONS

APPENDIX 3 A

PLEASE NOTE THAT THIS DOCUMENT IS JUST AN EXAMPLE OF WHAT WILL BE PRODUCED ONCE THE COURSE HAS BEEN FINALISED

General Biological Monitoring Short Course: Assessment

Short course presented by DWAF and (service provider) (insert relevant date)

SHORT COURSE EVALUATION FORM

We hope that you enjoyed this short course and found the course content and presentations stimulating. In order to improve the organisation and presentation of the course, we would appreciate your comments and suggestions. Please circle the number that is most appropriate in your view and write any comments you might have in the space provided.

1. The course folder contained all the relevant information.

1	2	3	4	5
Strongly agree	Agree	Indifferent	Disagree	Strongly disagree

Any comments: _____

_____

_____

2. How relevant did you find the overall course content?

1	2	3	4	5
Very relevant	Relevant	Medium	Irrelevant	Very irrelevant

Any comments: _____

_____

3. The course material was presented in an accessible way.

1	2	3	4	5
Strongly agree	Agree	Indifferent	Disagree	Strongly disagree

Any comments: _____

_____

_____

4. Presentation of the course material was done in a stimulating way.

1	2	3	4	5
Strongly agree	Agree	Indifferent	Disagree	Strongly disagree

Any comments: _____

_____

_____

5. How do you rate the difficulty of the course material?

1	2	3	4	5
Too easy	Easy	Just right	Difficult	Too difficult

Any comments: _____

_____

_____

6. Were the presentations difficult to follow?

1	2	3	4	5
Too difficult	Difficult	Just right	Easy	Too easy

Any comments: _____

_____

_____

7. How relevant did you find the case studies?

1	2	3	4	5
Very relevant	Relevant	Indifferent	Irrelevant	Very irrelevant

Any comments: _____

_____

_____

8. Would you have preferred more or less case studies?

1	2	3	4	5
Many more	More	Just right	Less	Much less

Any comments: _____

_____

_____

9. All the relevant aspects of and disciplines related to biological monitoring were given due consideration.

1	2	3	4	5
Strongly agree	Agree	Indifferent	Disagree	Strongly disagree

Any comments: _____

_____

_____

10. How did you find the overall organisation of the course?

1	2	3	4	5
Very good	Good	Okay	Poor	Very poor

Any comments: _____

_____

_____

11. How did you find the venue and the catering?

1	2	3	4	5
Very good	Good	Okay	Poor	Very poor

Any comments: _____

_____

_____

12. Do you have any comments specific to any of the sessions? (For instance, in terms of content, difficulty, presentation, etc.) Please write your comments overleaf.

Lecture 1. (name of lecture / presenter)

Lecture 2. (name of lecture / presenter)

Lecture 3. (name of lecture / presenter)

Lecture 4. (name of lecture / presenter)

Lecture 5. (name of lecture / presenter)

Lecture 6. (name of lecture / presenter)

Lecture 7. (name of lecture / presenter)

Lecture 8. (name of lecture / presenter)

Lecture 9. (name of lecture / presenter)

Lecture 10. (name of lecture / presenter)

13. Do you have any other comments, suggestions or questions? Did the course adequately fulfil your expectations? Would you recommend the course to others?

_____

_____

_____

_____

_____

_____

_____

_____

Thank you!

APPENDIX 3 B

PLEASE NOTE THAT THIS DOCUMENT IS JUST AN EXAMPLE OF WHAT WILL BE PRODUCED ONCE THE COURSE HAS BEEN FINALISED

THUKELA WATER PROJECT
DECISION SUPPORT PHASE: RESERVE DETERMINATION MODEL

CAPACITY BUILDING AND TRAINING – *CONFIDENTIAL* ASSESSMENT

Please complete the accompanying questionnaire and return to the following address by **(insert relevant date)**.

Questionnaires will be evaluated by an independent assessor (Ms Lisl Griffioen), and results presented to Dr Scherman for inclusion in the Training Report. Anonymity is therefore assured, if required by the candidate.

Ms L Griffioen
Coastal & Environmental Services
PO Box 934
GRAHAMSTOWN
6140

Tel: 046 – 622 2364
Fax: 046 – 622 6564

Thank you for agreeing to complete the questionnaire.

Dr Patsy Scherman

Please score the following questions from 1 – 5, using the following scale:

1 – Strongly Agree
2 – Agree
3 – Indifferent / Neither Agree nor Disagree
4 – Disagree
5 – Strongly Disagree

Add comments where necessary.

Note that some questions (e.g. questions 3 and 4) are only relevant to the specific components of the study you were involved in.

QUESTION	SCORE	COMMENTS
1. How would you score your understanding of Reserve *concepts*.		
2. How would you score your understanding of the Reserve *process*.		
3. How would you score your understanding of concepts related to your specific discipline.		
4. How would you score your ability to use tools related to your specific discipline, e.g. modelling.		
5. How would you score your understanding of the requirements of other specialists within the Reserve process.		
5. Would you feel confident relating your understanding to colleagues in a *written* form.		
6. Would you feel confident relating your understanding to colleagues as a *verbal* presentation.		
7. Was enough time realistically allocated to training.	No score needed.	
8. Did your mentor keep you informed of developments within the project, even when dedicated training time was not available.		
9. Were you informed of the goals of training.	No score needed.	
10. Do you feel you have gained knowledge.		
11. Do you feel you have gained skills.		
12. Would you feel confident acting in a Reserve team as a specialist.		
13. Do you feel additional training is required, and do you think this will be provided.		
14. What was your favoured training	No score	

QUESTION	SCORE	COMMENTS
method, e.g. mentor-trainee meetings, specialist workshops, field surveys.	needed.	
15. Do you feel the necessary emphasis was placed on training by your mentor.		
GENERAL COMMENTS		