



SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for


Environmental Sciences, Environmental Management and Waste Management

Registered by Organising Field 10, Physical, Computer and Life Sciences, publishes the following qualification and unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the qualification and unit standards. The qualification and unit standards can be accessed via the SAQA web-site at www.saga.org.za. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, **Hatfield Forum West, 1067 Arcadia Street, Hatfield, Pretoria.**

Comment on the qualification and unit standards should reach SAQA at the address **below** and no *later than* 76 March 2006. All correspondence should be marked **Standards Setting – SGB for Environmental Sciences, Environmental Management and Waste Management** and addressed to

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S BHIKHA
DIRECTOR STANDARDS SETTING AND DEVELOPMENT



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

Further Education and Training Certificate: Environmental Practice

SAQA QUAL ID	QUALIFICATION TITLE		
50309	Further Education and Training Certificate: Environmental Practice		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Environmental Sc/Mgt & Waste Mgt	10		
QUAL TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD	
Further Ed and Training Cert	Physical, Mathematical, Computer and Life Sciences	Environmental Sciences	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
Undefined	140	Level 4	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This qualification is the fourth in a series for practitioners in the field of environmental science, environmental management and waste management. This series of qualifications will equip practitioners with the skills, knowledge and values to contribute towards the wise and effective use and management of our natural resources and ecological systems.

The specific purpose of this qualification represents the skills, knowledge and understanding required by competent practitioners to:

- > Apply environmental principles and practices to operations, audits, inspections and assessments, data management and communications, within the regulatory framework.
- > Engage with appropriate stakeholders to implement environmental interventions.
- > Plan and supervise operations and make the best use of resources within their area of responsibility.

With this understanding, learners will be able to engage productively and responsibly in work- or community-related activities in the field of environmental science, environmental management and waste management. This qualification will also serve as a basis for further learning, and will equip learners with the knowledge, skills and values to participate meaningfully in society and contribute towards developing sustainable communities.

This qualification is applicable to a range of contexts within the field of environmental science, environmental management and waste management, such as local government, public and private waste management enterprises, cultural or natural heritage sites, community projects, recycling and recovery of resources, control and eradication of invasive and alien species, rural development and site preparation or rehabilitation. It is also suitable for employees with environmental functions in a range of industries such as mining, chemicals or manufacturing. The following are typical contexts in which this qualification can be assessed:

- > Waste management related activities, e.g:
 - > Materials recovery and buy-back centres.
 - > Waste reception.
 - > Landfill operations.
- > Water course cleaning, care and maintenance.
- > Care of public places, open areas, cultural and natural heritage sites.
- > Maintenance of parks and sports fields.

- > Community projects and job creation schemes relating to environmental practice.
- > General industrial and extraction, ie activities with an environmental care or improvement focus.

Rationale:

South Africa has a need to manage and protect its natural resources and ecological systems, while simultaneously using its resources in a sustainable manner to promote social, physical and economic development.

There is also a need for people as individuals, and as members of social or workplace communities, to become aware of their responsibilities towards the environment and to be empowered to make informed choices regarding their own activities and the impact that these activities have on the environment. There is also a need for people to develop practices which will ensure that their activities, individually and collectively, result in the sustainable use of resources and minimise negative impact on the environment.

Recent developments in environmental legislation have resulted in an increased demand for practitioners with the necessary skills, knowledge and values to fulfil these legislative requirements.

Such practitioners- as learners, as employees and as members of social communities - need to be equipped to engage with the complexities and challenges which arise from this need to ensure that use and development is socially, ecologically and economically sustainable.

This qualification will enable providers, assessors and learners to plan, implement and measure the outcomes of suitable learning programmes, or to recognize prior learning. It will recognise the skills, knowledge and values of learners who engage actively in activities relevant to the field of environmental science, environmental management and waste management. The qualification is suitable for learners who:

- > Have attended courses and then apply the knowledge and skills gained to activities in the workplace.
- > Are already employees and have acquired the skills and knowledge without attending formal courses.
- > Participate in skills programmes and the appropriate work experience.
- > Are part of a learnership programme which integrates structured learning and work experience.
- > Acquire their learning through any combination of the above.

RECOGNIZE PREVIOUS LEARNING?

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LEARNING ASSUMED TO BE IN PLACE

It is assumed that learners accessing this qualification are competent in:

- > Communication at NQF Level 3
- > Mathematical Literacy at NQF Level 3

Recognition of prior learning:

This qualification may be obtained through the process of RPL. The learner should be thoroughly briefed prior to the assessment and support should be provided to assist the learner in the process of developing a portfolio. While this is primarily a context-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the Exit Level Outcomes or Unit Standards.

Access to the qualification:

Access to this qualification is open.

However it is preferable that learners first complete the National Certificate: Environmental Practice: NQF Level 3 before accessing this qualification.

In order to develop the required skills and to be assessed for this qualification, the learner will need to be actively involved in appropriate activities in a suitable workplace.

QUALIFICATION RULES

All the Unit Standards in the Fundamental and Core components are compulsory. Learners must choose Unit Standards to the value of at least 12 credits from the Elective component to complete the qualification with a total of 140 credits.

Field of learning: Credits

> Fundamental: 56

> Core: 72

> Elective: 12

EXIT LEVEL OUTCOMES

1. Demonstrate an awareness of the applicable and appropriate environmental regulatory framework and the compliance requirements relevant to own area of responsibility.

> Range: Awareness includes application where relevant.

Appropriate regulatory framework includes international conventions and policies, laws, regulations, codes of practice and guidelines at national provincial, local and organisational level.

Compliance relates to the application of appropriate environmental management principles, techniques, protocols and tools to address problems and reduce environmental impacts.

2. Manage the collection, recording, maintenance and communication of data and information related to the environment.

> Range: Data and information includes information related to audits, reports, inspections and assessments; data and information is relevant to the learner's area of responsibility.

3. Supervise operations and activities at a site or facility.

> Range: Sites and facilities include cultural and natural heritage sites; parks and sports fields; waste disposal sites; materials treatment and processing plants; transport operation of environmentally sensitive materials and waste, sites with an environmental care or improvement focus, etc.

Supervise operations and activities: Supervisory activities will be guided by appropriate environmental management principles, techniques, protocols and tools; supervisory activities are applicable to the learner's area of responsibility.

4. Develop and lead a team.

ASSOCIATED ASSESSMENT CRITERIA

1.

> The applicable aspects of the regulatory framework are described with an emphasis on compliance/non-compliance.

> Compliance with applicable aspects of the regulatory framework is ensured in own area of responsibility.

> Range: Compliance refers to the learner's own activities as well as to those of the team.

2.

> Collection, recording and maintenance of environmental performance data is supervised and monitored according to organisational and regulatory requirements.

> Relevant data is used to determine compliance to applicable standards.

> Range: Applicable standards include liquid, solid and gaseous emission standards: statutory and/or voluntary standards: environmental performance standards etc.

> Relevant information related to the environment is communicated appropriately.

> Range: Communicated appropriately includes reporting; sharing information during audits, inspections and assessments; public participation; stakeholder involvement; capacity development of stakeholder groups.

3.

> Work activities and operations in own area of responsibility are planned, prioritised, delegated and coordinated with other organisational units.

> Range: Includes the allocation and use of resources, development of action plans, conferring with management and organisational units, development of job cards, etc.

> Work activities and operations are monitored; problems, deviations and non-conformances are responded to and operational objectives are met using organisational procedures.

> Range: Includes but is not limited to contribution to business strategy and business plan; co-ordinating activities with other organisational units; identifying, implementing and communicating appropriate solutions to customer problems.

> Opportunities for environmental management improvements to site, operation or activity are planned, implemented, and evaluated.

> Range: Environmental management improvements include but are not limited to, cleaner production, waste minimisation, modifications to plant and equipment, minor extensions to improve the capacity of sites or level of service, remediation of abandoned sites, upgrading of existing sites, clearing of invasive plants and coastal cleaning operations.

> Relevant organisational assets and resources are maintained and their best use practised in accordance with environmental principles and organisational standards.

> Range: Assets include machinery, plant and equipment, sites, infrastructure and facilities.

Resources include staff, departmental finances, materials (including cleaning materials, lubricants, coolants), plant and equipment, appropriate stakeholders.

Best use includes but is not limited to developing and enhancing working relationships, prioritising use of time, delegating activities to capitalise on individual strengths, organising and allocating work, reducing wastage and spillage and minimising waste.

4.

> Staff are trained, supported and motivated and conflicts are minimised.

> Range: Trained includes coaching, on-the-job training, contributing to assessment. Motivated includes creating a climate allowing self-motivated behaviour.

Conflicts are minimised includes managing inter-personal conflict, disciplining staff, resolving grievances.

> New members are selected and inducted.

> Relevant operational, environmental management, occupational health and safety and quality standards are promoted throughout the learner's area of responsibility.

> Individual and team performance is managed to meet individual performance levels and organizational objectives.

Integrated Assessment:

In order to achieve the aims of integrated assessment, it is recommended that the assessor assesses as many of the components of the learning as possible to ensure an integrated approach to assessment. It is recommended that learning components (i.e. fundamental and core) are combined into assignments and projects which are then included in the portfolio of evidence. This will form the basis for the bulk of the assessment. The assessor can then focus on specific areas for further probing and verification.

The assessment process should:

> Cover the explicit activities required for the qualification as well as the understanding of the concepts and principles which underpin the activities.

> Establish how the Critical Cross-Field Outcomes have been advanced by the learning process.

The integrated assessment must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

> Looking at records and reports in the portfolio and reviewing previous assessments.

> Asking questions and initiating short discussions to test understanding.

> Observing the learner at work (in the primary activity as well as in other interactions).

The learner may choose in which languages/he wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a context-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the Exit Level Outcomes.

Assessors should also evaluate evidence that the learner has been performing consistently to standard over a period of time.

INTERNATIONAL COMPARABILITY

The fact that this is a generic qualification serving the diverse needs of the broad field of environmental science, environmental management and waste management puts it in a class of its own. However, the following can provide some guidance and a basis for comparison:

- > Qualifications for other environmentally-related fields.
- > Qualifications for supervisors in other operational or technical areas.

The Scottish Vocational Qualifications and National Vocational Qualifications (England, Wales and Northern Ireland) (S/NQVs) for the Waste Management Industry provide examples of comparable qualifications. An example is the qualification in Waste Management Supervision (Level 3), developed by the Waste Management Industry Training and Advisory Board and approved by the Department of Education and Employment, Qualifications and Curriculum Authority and Scottish Qualifications Authority.

Ref: www.wamitab.org.uk

The FETC: Environmental Practice is broadly comparable with the British (S/NQV) qualification, particularly with regard to the supervisory aspect. Both encourage the development of generic skills (e.g. planning and implementing improvement interventions, problem solving, communicating, working with information) and their application within a particular context. Both require the acquisition of knowledge relevant to the broad field and its application in practice in a specific context.

In both cases, qualifications are standards-based, learning is workplace-based, assessment is observation- and portfolio-based, with competence being demonstrated through performance, documentation and questioning, and skills and knowledge are acquired, practiced and assessed within contexts relevant to the learner. However, the South African approach, and thus the FETC: Environmental Practice, places a greater requirement on the learner to demonstrate successful integration of the knowledge and skills acquired.

Internationally, qualifications in the areas of environmental science and environmental management fall into the sphere of higher education, with the exception of a few examples at supervisory and first-tier management level (although in some cases, notably the USA, the term supervisor is also used for higher level occupations requiring a tertiary education). Sufficient evidence was collected to demonstrate that a profile of skills and knowledge for supervisory occupations within the environmental field contains many common elements, and that these are addressed by the FETC: Environmental Practice.

The FETC: Environmental Practices is thus comparable with other supervisory qualifications internationally in level and scope, as it includes technical, organisational and supervisory elements and also supports the development of individual skills necessary to ensure occupational competency. It also covers the environmental development aspects that are contained in the international qualifications.

ARTICULATION OPTIONS

This qualification articulates to qualifications in environmental science, environmental management and waste management at NQF Level 5.

This qualification has been designed and structured so that qualifying learners can move from one context to another. Employers or institutions should be able to evaluate the outcomes of this qualification against the needs of their context and structure top-up learning appropriately.

MODERATION OPTIONS

> Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Assessment and moderation of assessment will be overseen by the relevant Education, Training, Quality, Assurance (ETQA) Body, or by an ETQA that has a Memorandum of Understanding with the relevant ETQA, according to the ETQA's policies and guidelines for assessment and moderation.

> Moderation must include both internal and external moderation of assessments at exit points of the Qualification, unless ETQA policies specify otherwise. Moderation should encompass achievement of the

- competence described both in individual Unit Standards.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Criteria for registration of assessors:

The following criteria should be applied by the relevant ETQA:

- > Appropriate qualification in a relevant field of environmental science, environmental management and waste management at NQF Level 5 or above.
- > 2 years experience in a relevant context,
- > Registration as an assessor with the relevant ETQA.

MOTES

N/A

	UNIT STANDARD ID AND TITLE	LEVEL	CREDITS	STATUS
core	13224 Monitor the application of safety, health and environmental protection procedures	Level 4	4	Registered
core	13235 Maintain the quality assurance system	Level 4	5	Registered
core	13941 Apply the budget function in a business unit	Level 4	5	Registered
Core	14427 Select and supervise the use and maintenance of plant, equipment and tools	Level 4	10	Registered
core	114589 Manage time productively	Level 4	4	Registered
Core	116380 Supervise workers at levels 2 and 3	Level 4	6	Registered
core	118028 Supervise customer service standards	Level 4	8	Registered
core	123368 Process environmental data and organisational information	Level 4	10	Draft - Prep for P Comment
core	123369 Implement environmental improvements to a site, facility, operation or process	Level 4	16	Draft - Prep for P Comment
core	123372 Use appropriate tools and information systems to manage own information and communication	Level 4	4	Draft - Prep for P Comment
Elective	12455 Perform the role of a safety, health and environmental protection representative	Level 3	4	Registered
Elective	13915 Demonstrate knowledge and understanding of HIV/AIDS in a workplace, and its effects on a business sub-sector, own organisation and a specific workplace	Level 3	4	Registered
Elective	13661 Participate actively in a local environmental action project	Level 4	8	Reregistered
Elective	14035 Promote environmental health to community members	Level 4	5	Reregistered
Elective	14043 Plan and conduct community meetings	Level 4	4	Reregistered
Elective	114215 Mentor a colleague to develop their knowledge, skill values and attitude in a selected career path	Level 4	3	Registered
Elective	119 Implement the quality standards for plastics manufacturing processes	Level 4	6	Registered
Fundamental	8968 Analyse the influence and context needs in oral communication	Level 3	5	Registered
Fundamental	8969 Interpret and use information from texts	Level 3	5	Reregistered
Fundamental	8970 Write texts for a range of communication contexts	Level 3	5	Registered
Fundamental	8973 Use language and communication in occupational learning programmes	Level 3	5	Registered
Fundamental	7468 Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	Level 4	6	Reregistered
Fundamental	8974 Engage in sustained oral communication	Level 4	5	Registered
Fundamental	8979 Use language and communication in occupational learning programmes	Level 4	5	Reregistered
Fundamental	15 Apply knowledge of statistics and probability to critically investigate and find solutions in life related contexts	Level 4	6	Registered
Fundamental	016 Identify and describe the relationship between variables in different contexts	Level 4	4	Registered
Fundamental	12153 Use the writing process to compose texts required in the business environment	Level 4	5	Reregistered

Fundamental	12155 Apply comprehension skills to engage written texts in a business environment	Level 4	5	Reregistered
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UNIT STANDARD:

1

SAQA US ID	UNIT STANDARD TITLE		
123368	Process environmental data and organisational information		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Environmental Sc/Mgt & Waste Mgt	10		
UNIT STANDARD N P E	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Physical, Mathematical, Computer and Life Sciences	Environmental Sciences	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	10	Level 4	Regular

SPECIFIC OUTCOME 1

Determine data required for a particular operation or site.

SPECIFIC OUTCOME 2

Plan and prepare for the collection of relevant data.

SPECIFIC OUTCOME 3

Ensure that data is collected as required.

SPECIFIC OUTCOME 4

Conduct inspections and assessments, record and report results and make recommendations.

SPECIFIC OUTCOME 5

Ensure that data and information is processed, maintained and stored according to worksite protocols.

SPECIFIC OUTCOME 6

Communicate and report environmental and organisational data and information.



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UNIT STANDARD:

2

SAQA US ID		UNIT STANDARD TITLE	
123369		Implement environmental improvements to a site, facility, operation or process	
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Environmental Sc/Mgt & Waste Mgt		10	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Physical, Mathematical, Computer and Life Sciences	Environmental Sciences
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	16	Level 4	Regular

SPECIFIC OUTCOME 2

Determine solutions to environmental and technical problems and issues in the workplace.

SPECIFIC OUTCOME 3

Develop and implement an action plan to introduce a technical and/or environmental improvement.

SPECIFIC OUTCOME 4

Evaluate the impact of the improvement.

SPECIFIC OUTCOME 5

Demonstrate understanding of environmental management principles and practices and their application within own area of responsibility.



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UNIT STANDARD:

3

SAQA US ID	UNIT STANDARD TITLE		
123372	Use appropriate tools and information systems to manage own information and communication		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Environmental Sc/Mgt & Waste Mgt	10		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Physical, Mathematical, Computer and Life Sciences	Environmental Sciences	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	4	Level 4	Regular

SPECIFIC OUTCOME 1

Collect, process and manipulate own work-related data and information.

SPECIFIC OUTCOME 2

Develop presentations and reports from documents and deliver presentations.

SPECIFIC OUTCOME 3

Manage own information, documentation and knowledgebase.