

**FINAL DRAFT**  
**ADVANCED CERTIFICATE: ENVIRONMENTAL ASSESSMENT PRACTICE**  
**NQF LEVEL 7**

**Field 10:** Mathematical, Physical, Computer and Life Sciences  
**Sub-field:** Environmental Sciences  
**Level:** 7  
**Credit:** 120

**Issue date:**

**Review date:**

**Rationale of the qualification**

The South African Constitution recognizes the right of all South Africans to an environment that is not harmful to their health or well-being, as well as the State's responsibility to respect, protect, promote and fulfil environmental and socio-economic rights. The National Environmental Management Act (Act 107 of 1998) requires that environmental management serve physical, psychological, developmental, cultural and social interests equitably. It therefore requires that development must be socially, environmentally and economically sustainable.

South Africa is currently concluding a National Sustainable Development Strategy and debating the sustainable future it wishes to achieve. One of the legal mechanisms available to enable sustainable development-based decision-making is the environmental authorisation requirement. The requirement for environmental impact assessment and subsequent authorisation for listed activities was established in law in 1997 and given effect in 2006 by regulations promulgated in terms of the National Environmental Management Act, Act 107 of 1998. The implementation of these regulations and amendments has identified a range of legal, institutional capacity and professional challenges in the system. One of the key challenges is to improve the quality and ethics of environmental assessment practice.

In order to address issues of quality and ethics in the arena of environmental assessment, the Minister of Environmental Affairs and Tourism may appoint registration authorities. One of the requirements considered as necessary for registration to be effective, and to add value, is a broadly accepted national registered qualification for environmental assessment in terms of South Africa's National Qualifications Framework. An accepted equitable basis for the assessment of professional competencies for environmental assessment practice would be established. In so doing, an additional intention of government is to (a) address the historical inequities in access to

opportunities in education and training and professional work in South Africa; (b) improve the quality of environmental assessment practice. The qualification therefore needs to be achievable and accessible to South African citizens to assist in creating a pool of Environmental Assessment Practitioners (EAPs) that is both better prepared and more representative.

The range of professionals - scientists, planners, engineers, lawyers and landscape architects - who undertake environmental assessments, or have the intention of gaining certification with a registration authority would need to have academic qualifications that comply with the SAQA registration and accreditation requirements. This qualification represents a component of the learning pathway that allows individuals from a variety of disciplines to access the profession and to obtain credit for further learning. It will also promote environmental assessment as a profession.

### **Purpose of the qualification**

This qualification addresses environmental assessment in a broad context. It encompasses the practice of Environmental Impact Assessment, Strategic Environmental Assessment and Sustainability Assessment, their aims, purpose and evolution. The qualification aims to:

- Harness into common practice the variety of skills and knowledge from various disciplines engaging in environmental assessment related activities.
- Allow for standardisation of the academic requirements that a potential EAP requires. The intention is to set this qualification at a level that ensures that EAPs have adequate knowledge and the skills necessary to undertake/review environmental assessment.
- Provide a formal qualification for those individuals who conduct and/ or review environmental assessments, in public or private practice
- Improve the quality of environmental assessment to enable better environmental decision-making

Qualifying learners will be able to

- Demonstrate a conceptual understanding of sustainable development and the environment
- Demonstrate the ability to think holistically, systemically, systematically, spatially and in an integrative manner and to discern what is relevant to decision-making
- Identify and apply environmental assessment procedures and methods
- Monitor and review environmental assessment procedures and methods
- Conduct applied research in a specific context
- Conduct and report on stakeholder and public participation processes
- Write environmental assessment reports

The qualification provides a basis for further learning in environmental planning, environmental management, environmental law or any related specialist fields

## **Access to the Qualification**

Open

## **Learning assumed to be in place**

At least a relevant 3-year Bachelors degree in the natural, physical or social sciences, including degrees in planning, law, landscape architecture and engineering from a South African university (or recognized equivalent, including a qualification from a country outside South Africa).

All competencies reflected in the learning assumed to be in place could be achieved through the recognition of prior learning

## **Exit Level Outcomes**

Qualifying learners are able to:

**Exit Level Outcome 1:** Demonstrate a conceptual understanding of sustainable development and the environment

(Range: Conceptual understanding includes but is not limited to performance, quality, function, structure, thresholds)

## **Associated Assessment Criteria**

- 1.1 An understanding of environmental assessment is demonstrated by a knowledge of its purpose, aim, history and role in promoting sustainable development  
(Range: environmental assessment refers to Environmental Impact Assessment, Strategic Environmental Assessment and Sustainability Assessment)
- 1.2 A conceptual understanding of sustainable development is exploited with regard to ethical implications for individuals, society and professionals
- 1.3 Biotic and abiotic systems and processes are analysed according to structure, function, performance and interdependencies
- 1.4 Social, economic, cultural and built environment systems and processes are analysed with regard to structure, function, performance and interdependencies
- 1.5 The interdependencies of human well-being and the integrity of the natural environment are established through utilising trans-disciplinary frameworks and knowledge
- 1.6 Technology and technological solutions to environmental problems are explored and utilised to contribute to sustainable development
- 1.7 Environmental and planning legislation and policies are interpreted in order to reflect relevance to environmental assessment practice  
(Range: Environmental and planning legislation and policies include but not limited to

international environmental protocols and conventions, national environmental and planning legislation, subordinate legislation, guidelines)

**Exit Level Outcome 2:** Demonstrate the ability to think holistically, systemically, systematically, spatially and in an integrative manner and to discern what is relevant to decision-making

**Associated Assessment Criteria**

- 2.1 Inter-relationships and linkages between the component parts of the environment are distinguished and analysed in terms of their complexities, dynamics, spatial relationships, influences on and relevance to environmental decision-making and sustainable development  
(Range: component parts include but are not limited to natural and social components)
- 2.2 Limits of acceptable change and/or thresholds beyond which systems may fail are determined in order to avoid irreversible damage to the environment
- 2.3 Environmental resilience is evaluated in order to assess the ability of the environment to restore itself
- 2.4 Relevant specialist studies are integrated and synthesised to inform decision making
- 2.5 Information is interpreted to reflect systemic causation of impacts  
(Range: impacts include but are not limited to direct, indirect, secondary and cumulative)  
(Range: information includes but is not limited to component parts, inter-relationships, limits of acceptable change, thresholds and resilience)
- 2.6 Other relevant processes are analysed to reflect their inter-relationships with and relevance to environmental assessment  
(Range: other relevant processes include but are not limited to planning, re-zoning, institutional, legal, regulatory)

**Exit Level Outcome 3:** Identify and apply environmental assessment procedures and methods

**Associated Assessment Criteria**

- 3.1 A knowledge of environmental assessment procedures and methods is demonstrated in order to determine which method to apply in a specific context  
(Range: environmental assessment procedures and methods may include Social Impact Assessment, Risk Assessment, Life Cycle Analysis, Health Impact Assessment, Species Impact Assessment, Technology Assessment, Economic Assessment, Strategic Environmental Assessment, Sustainability Assessment, Heritage Impact Assessment)
- 3.2 Fundamental environmental assessment procedures and methods are integrated and applied according to specific context requirements

(Range: Fundamental environmental assessment procedures and methods (including Cumulative Analysis) refer to Environmental Impact Assessment, Strategic Environmental Assessment and Sustainability Assessment)

(Range: integrative manner includes but is not limited to holistic, systemic, systematic, and spatial)

(Range: specific context requirements include but are not limited to social, economic, built, biophysical, cultural components; scale at which the assessment is to be undertaken; relevance in terms of international, national, provincial, or local significance)

3.3 The results of specialist environmental assessment procedures and methods are interrogated and synthesised in order to determine the effects of a development proposal

(Range: specialist environmental assessment procedures and methods may include but are not limited to Social Impact Assessment, Risk Assessment, Life Cycle Analysis, Health Impact Assessment, Species Impact Assessment, Technology Assessment, Economic Assessment, Heritage Impact Assessment)

3.4 Legal requirements relevant to environmental assessment are interpreted and applied in terms of their relevance to the specific proposal

(Range: Legal requirements include but are not limited to Acts, sub-ordinate legislation, policies, guidelines and international legal instruments and protocols)

3.5 Scoping is conducted in order to identify potential environmental impacts

(Range: scoping includes but is not limited to comprehensive identification, rationale for inclusion or dismissal of impacts, required level of assessment, environmental scanning, site inspection, societal values, community concerns)

3.6 Judgements are made on the desirability of development proposals based on an evaluation of their sustainability, impacts, mitigation options and the likely benefits.

3.7 A judgement is made on specialist inputs required in order to provide a comprehensive assessment

(Range: judgement includes but is not limited to if and when, nature, terms of reference including scale, scope, significance of proposal, key questions, project management, mitigation measures)

(Range: inputs may include studies, advice, intervention, mitigation)

3.8 The significance of potential impacts is assessed based on a detailed qualitative and/or quantitative evaluation of all the anticipated environmental impacts of the proposal and all alternatives.

(Range: impacts include but are not limited to direct, indirect, secondary, cross-media, cumulative)

(Note: significance is determined in terms of criteria which include but are not limited to magnitude, extent, spatial distribution, social equity, intensity, duration, nature, probability, status, risks, irreplaceability, irreversibility, limits of acceptable change, efficiency of resource

use, loss of natural capital, livelihood sufficiency, inter-and intra-generational equity, precautionary principle, trade-offs)

(Range: alternatives include but are not limited to feasibility, location, activity, technology, no-go option, design, operational)

**EXIT LEVEL OUTCOME 4:** Review and monitor environmental assessment procedures and methods

**(Range:** review and monitor includes but not limited to assessment of appropriateness of procedures and methods used, determining monitoring procedures and requirements, assessment of project risk)

4.1 Measures are determined in order to manage impact

(Range: Measures include but are not limited to prevention, mitigation, rehabilitation and restoration, compensation)

4.2 Assessment of project risk is conducted in order to make recommendations for environmental decision-making

(Note: Assessment of project risk includes but is not limited to identifying, quantifying and evaluating all sources, pathways and outcomes; types of risk include physical, ecological, social and economic)

4.3 Monitoring procedures and requirements are identified and specified to ensure adherence to the requirements

(Range: Monitoring measures include but are not limited to procedures, protocols, and environmental audits)

(Range: requirements include but are not limited to environmental assessments, environmental authorisations, environmental management plans)

4.4 Assessments are reviewed for quality assurance and decision-making purposes

(Range: quality assurance purposes include but are not limited to determining information gaps, matters for further investigation and/or consultation, amendments, supplementary information, ethical considerations, procedure)

**Exit Level Outcome 5:** Conduct applied research in a specific context.

### **Associated Assessment Criteria**

5.1 The assessment problem is conceptualised in order to specify topics for investigation.

5.2 Key questions are formulated to guide the investigation and data gathering.

5.3 Methods and techniques are identified and selected to gather, analyse and interpret data in order to determine relevance to a specific application (Range: Methods and techniques may include but are not limited to field and laboratory testing, sampling, statistical analysis,

geographical information systems (GIS), mapping, observation, questionnaires, interviews, modelling).

- 5.4 The adequacy of environmental assessment reports is examined to determine whether they meet the terms of reference and provide the information necessary for decision-making.
- 5.5 Research results are documented and communicated in simple, clear and appropriate style and language.

**Exit Level Outcome 6:** Prepare and write environmental reports and conduct stakeholder and public participation processes.

### **Associated Assessment Criteria**

- 6.1 Specific communication requirements are identified and utilised in order to engage with stakeholders and related professionals  
(Range: communication requirements include dissemination of information, elicitation of inputs from stakeholders, feedback processes, mediation, formats, media, mediums)  
(Note: language used is simple, clear and appropriate to audience needs)
- 6.2 Reports are written through the synthesis of information from various sources  
(Range: information sources include but are not limited to literature review, specialist studies stakeholder in-put and legal requirements)  
(Range: synthesise includes but is not limited to review, integration and evaluation)
- 6.3 Environmental assessment reports and Environmental Management Plans are prepared and produced in accordance with legal requirements, guidelines and ethical norms
- 6.4 Stakeholder engagement and public participation are conducted objectively and transparently, with due regard to acceptable consultation procedures within specific contexts.  
(Range: Stakeholder engagement and public participation include but are not limited to appropriateness, relevance, effectiveness, methods of dissemination of information, methods of consultation, public participation processes, mediation, identification of key groups, knowing how widely to consult depending on scale of project, advertisements and use of media)

### **International comparability**

The task team consulted and taken into account:

- The Commonwealth Universities Online Database for qualifications in environmental assessment (frequently offered as components of qualifications in environmental management, 40 Masters programmes listed).
- The European Union project on the Promotion of European Education on Environmental Assessment for third country audience (PENTA).

- The International Association for Impact Assessment (IAIA) Training Course Database, as well as the IAIA Principles of Environmental Impact Assessment Best Practice
- Training Programmes offered by the World Bank Institute
- Prospectuses of Institutions affiliated to the American Association of Universities.

The qualification closely matches national qualifications that are offered by many universities in the European Union, particularly the United Kingdom, as well as in Australia—both of which are world leaders in the formalization of Environmental Impact Assessment qualifications. Similar qualifications were also found for the Malaysia Institute of Technology, University of the West Indies (Jamaica) and the Jawaharal Nehru Technological University in India. In SADC countries somewhat similar qualifications were found to exist in universities in Botswana, Mauritius, Uganda and Zambia. Similarities were found at lower level or under-graduate qualifications, with entry-level content being covered. There were also similarities in terms of content covered in short courses, but which are not comparable to full qualifications at post-graduate level. In the United States of America Environmental Impact Assessment is most often offered as a modular component of Master's degrees in Science or Engineering. The only International Accord relating to training in the field is the European project to Promote European Education on Environmental Assessment. This initiative stems from the Bologna declaration of 1999 to promote European Education worldwide by establishing a European Higher Education Area by 2010.

Particular attention has been devoted to the institutions mentioned above because Environmental Impact Assessment (EIA) was formally adopted through legislation in the United States of America, Western Europe and Australia in the early 1970's. These countries have the longest track record of EIA implementation and of formal training of practitioners. The World Bank also adopted EIA as a requirement for development projects that it funds, and this led to their standards and procedures being regarded as good practice and being implemented in developing countries. The International Association for Impact Assessment is the world's leading network of Impact Assessment practitioners and it has been involved in the production of Impact Assessment training manuals for the United Nations Environmental Programme and for the United Nations University.

<b>Two tables of comparability follow: Institution</b>	<b>Country</b>	<b>Qual/ Course</b>	<b>Hours of student effort</b>	<b>Admission requirement</b>	<b>Comparability between qualifications</b>
Oxford Brookes University	United Kingdom	PG Cert PG Dip MRes	875 1500 1750	Relevant 1 <sup>st</sup> degree	Very close
University of Manchester	United Kingdom	MA	1200 (Taught) + 750 (Thesis)	Relevant 1 <sup>st</sup> degree	Very close
Murdoch University	Australia	PGCert PGDip MSc	600 1200 1800	Relevant 1 <sup>st</sup> degree	Very close
Griffith University	Australia	PGCert MEnv MEnv + Thesis	600 1200 1800	Relevant 1 <sup>st</sup> degree	Very close
Johns Hopkins University	USA	GCert MEnv		Relevant 1 <sup>st</sup> degree	Close
Tufts University	USA	GCert MSc		Relevant 1 <sup>st</sup> degree	Close
Universiti Teknologi Malaysia	Malaysia	MSc		Relevant 1 <sup>st</sup> degree	Close
University of West Indies	Jamaica	GDip MSc	660 1200 (Taught)	Relevant 1 <sup>st</sup> degree	Fair
University of Botswana	Botswana	MSc MPhil		Relevant 1 <sup>st</sup> degree	Fair
Nkumba University	Uganda	PGDip		Relevant 1 <sup>st</sup> degree	Fair

NOTE: close compatibility with post-graduate diplomas requiring approximately 1200 hours of student effort or the coursework component of masters degrees

Examples of postgraduate programmes in environmental assessment in the UK

<b>Institution</b>	<b>Programme</b>	<b>Main areas of specialism</b>	<b>Duration</b>
<b>University of Manchester</b>	MA Environmental Impact Assessment and Management	EIA, SEA, Auditing, Spatial Planning	1 Year full time
<b>University of East Anglia</b>	MSc in Environmental Assessment and Management	Environmental Assessment, SEA, Risk Management, Climate Change Science	1 Year full time
<b>Oxford Brookes University</b>	MSc in Environmental Assessment and Management	Environmental Assessment, Ecosystem Degradation and Management + options including GIS and Modelling.	1 Year full time
<b>University of Aberystwyth</b>	MSc Managing the Environment with Environmental Impact Assessment pathway	EIA Theory and Practice, Environmental Sustainability	1 Year full time
<b>University of Liverpool</b>	MA Environmental Management and Planning	Environmental management, spatial planning, environmental assessment	1 Year full time

This qualification accords with international qualifications in Environmental Impact Assessment in terms of level (post 1st degree), access from a range of undergraduate degrees and hours of student effort required to attain the qualification (Aprox 1200). Its content also accords in its need for a conceptual understanding of sustainable development and the environment, and the ability to think holistically and in an integrative manner. It also requires the ability to effectively use environmental assessment procedures and methods and to enable qualifiers to undertake applied research and to communicate effectively at a professional level.

### **Integrated Assessment**

- The term `Integrated Assessment` implies that theoretical and practical components should be assessed together.

- An integrated approach to assessment is incorporated into the qualification to ensure that assessment practices are open, transparent, fair, valid, and reliable and that no learner is disadvantaged by a particular assessment procedure.
- Learning, teaching and assessment are inextricably interwoven. Whenever possible, the assessment of knowledge, skills, attitudes and values specified in the qualification must be integrated.
- A variety of methods must be used in assessment and tools and activities must be appropriate to the context in which the learner is working or will work. Where it is not possible to assess the learner in the workplace or on-the-job, simulations, case studies, role-plays and other similar techniques should be used to provide a context appropriate to the assessment.
- During integrated assessments, the assessor should make use of a range of formative and summative assessment tools and methods; and assess combinations of theoretical, practical, applied, foundational and reflective competencies.
- Assessors must assess and give credit for evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.
- Assessment should ensure that all specific outcomes, embedded knowledge and critical cross-field outcomes are evaluated in an integrated manner.

### **Recognition of prior learning**

The structure of this non-unit standards-based qualification makes the Recognition of Prior Learning possible through challenging the associate Exit Level Outcomes. This qualification may therefore be achieved in part through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience. The learner should be thoroughly briefed on the mechanism to be used and support and guidance should be provided. Care should be taken that the mechanism used provides the learner with an opportunity to demonstrate competence and is not so onerous as to prevent learners from taking up the RPL option towards gaining a qualification.

If the learner is able to demonstrate competence in the knowledge, skills, values and attitudes implicit in this qualification the appropriate credits should be assigned to the learner. Recognition of Prior Learning will be done by means of Integrated Assessment as mentioned above.

This Recognition of Prior Learning may allow:

- Accelerated access to further learning at this or higher levels on the NQF
- Gaining of credits towards the Exit Level Outcomes
- Obtaining of this Qualification in part or whole

## **Articulation possibilities**

This qualification may articulate horizontally with honours degrees in natural, physical or social sciences and the final year of professional degree programmes in planning, law, landscape architecture and engineering

This qualification may articulate vertically with masters' programmes in disciplines related to the specialisation (e.g. environmental planning, environmental management, environmental law or related specialist fields)

## **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with an appropriate 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 ETQA or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

Moderation of assessment will be overseen by the relevant ETQA 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 also encompass achievement of the competence described both in individual Unit Standards as well as in the exit level outcomes described in the Qualification.

## **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Assessment competencies and subject matter experience of the assessor can be established by recognition of prior learning.
- Well-developed interpersonal skills, subject matter and assessment experience.
- To be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and Conduct assessment of Learning outcomes NQF level 5.
- Well-developed subject matter expertise in environmental assessment.
- A relevant tertiary qualification and 3 years experience in the relevant field
- To be registered with the relevant Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

## Critical Cross-Field Outcomes

**This qualification promotes, in particular, the following critical cross-field outcomes:**

1. Identifying and solving problems in which responses show that integrative thinking and critical analysis has been made when:
  - Gathering and assessing information for environmental assessment purposes
  - Determining measures to mitigate and manage impacts
  - Reviewing reports and identifying gaps
  - Assessing cumulative impact and investigating alternatives
2. Working effectively with others as a member of a inter-disciplinary team when:
  - Integrating and synthesising information from various sources for informed decision making
  - Working as a member of, or leading, a project team
  - Appreciating the purpose and role of environmental assessment in the decision-making process
3. Organising and managing oneself and one's activities responsibly and effectively when:
  - Applying assessment techniques
  - Managing/working with inter-disciplinary project team
  - Meeting deadlines
  - Preparing and working within budgets
4. Communicating effectively with stakeholders and authorities using:
  - Written and verbal communication techniques to support environmental assessment activities
  - Analysis, interpretation and dissemination of information through documents, presentations and workshops
  - Stakeholder engagement
5. Collecting, analysing, organising and critically evaluating information from various sources when:
  - Analysing impact and preparing environmental assessment reports
6. Using science and technology effectively and showing responsibility towards the environment and health of others when:
  - Selecting environmental assessment procedures and methods
  - Predicting and assessing impacts and identifying measures to mitigate and manage impact
7. Demonstrating an understanding of the world as a set of related systems by recognising the complex and dynamic nature of these systems as well as the inter-relationships and linkages that exist between systems when:
  - Applying theoretical knowledge to environmental assessment procedures and methods
  - Assessing and synthesising information from various sources
  - Analysing impact and determining significance
  - Considering and interpreting effects of development at a hierarchy of different scales

8. Being culturally and aesthetically sensitive to the social and cultural systems of others when:

- Engaging with stakeholders
- Analysing and assessing social and cultural systems
- Assessing the impact of a development on the natural and built environment
- Respecting and using indigenous or traditional knowledge

NOTE:

This qualification has been developed utilising the current SAQA level descriptors and qualification types. The implications in the new Higher Education Framework for the level and qualification type were also considered. It is anticipated that the qualification will need adjustment should the new HE Framework be implemented.