



ENSURING THE EXPERTISE TO GROW SOUTH AFRICA

Policy on Evaluation of the Competencies of Approved Professional Persons (APPs): The Professional Persons on Dams

POL-ECOSA-APP-001

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DEFINITIONS

approved professional person means a person registered in terms of the Engineering Profession Act, 46 of 2000, and approved by the Minister of Water and Sanitation after consultation with the Engineering Council of South Africa (established by section 2 of that Act);

dam includes any existing or proposed structure capable of containing, storing or impounding water (including temporary impoundment or storage), whether that water contains any substance or not;

dam with a safety risk means any dam –

- (a) that can contain, store or dam more than 50 000 cubic metres of water, whether that water contains any substance or not, and which has a wall of a vertical height of more than five metres, measured as the vertical difference between the lowest downstream ground elevation on the outside of the dam wall and the non-overspill crest level or the general top level of the dam wall;
- (b) belonging to a category of dams declared under section 118(2) to be dams with a safety risk; or
- (c) declared under section 118(3)(a) to be a dam with a safety risk;

owner of a dam or **owner of a dam with a safety risk** includes the person in control of that dam;

regulations mean Regulations regarding the Safety of Dams in terms of section 123(1) of the National Water Act, 36 of 1998, Government Gazette, 24 February 2012 No. 35062; and

task includes a task relating to designing, constructing, altering, repairing, impounding water in, operating, evaluating the safety of, maintaining, monitoring or abandoning a dam with a safety risk.

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ABBREVIATIONS AND ACRONYMS

APP	Approved Professional Persons
CPD	Continuous Professional Development
CRC	Central Registrations Committee
ECSA	Engineering Council of South Africa
EPA	Engineering Profession Act, 46 of 2000
NWA	National Water Act, 36 of 1998

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1. INTRODUCTION

The Engineering Council of South Africa (ECSA) is a statutory body established in terms of the Engineering Profession Act (EPA), 46 of 2000. ECSA's primary role is to regulate the engineering profession in terms of the EPA. ECSA's core functions are the accreditation of engineering programmes, registration of persons as professionals in specified registration categories and regulation of the practice of registered persons. ECSA is the only body in South Africa authorised to register engineering professionals who meet the necessary professional registration criteria.

This policy is reviewed in terms of the ECSA Policy Framework for the development of Policies and Standards to give effect to Section 117 of the National Water Act, 36 of 1998, the associated regulations and the Engineering Professions Act, 46 of 2000.

2. POLICY STATEMENT

2.1 Committee's brief

Chapter 12 Section 117(a) of the National Water Act, 36 of 1998 (NWA) provides that the Minister of Water and Sanitation shall after consultation with ECSA, appoint Approved Professional Persons for engineering tasks relating to dams. Sub-regulation 45(3) states that ECSA may establish a committee to evaluate an application contemplated in sub-regulation 45(1) and to make a recommendation on its behalf to the Minister. In this respect, ECSA has appointed members of the Dams Committee to conduct such an evaluation and that the latter is populated by practising engineering professionals in tasks relating to dams.

The Committee's brief is to evaluate the qualifications and experience of Professional Persons who have applied for approval to the Minister of Water and Sanitation to perform certain engineering tasks in respect of dams, having regard to the requirements for the successful completion of each and every particular task, and to advise the Minister of its recommendation. The Dams Committee will perform its functions in accordance with the ECSA approved Terms of Reference.

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3. APPLICABLE LEGISLATIVE FRAMEWORK

- Engineering Profession Act, 46 of 2000;
- National Water Act, 36 of 1998;
- Regulations Regarding the Safety of Dams in Terms of Section 123(1) of the National Water Act, 36 of 1998.

4. POLICY PROVISIONS

4.1 Approved Professional Persons (APPs) include Engineers, Technologists and Technicians.

The NWA describes an APP as a Professional Person who has been approved by the Minister after consultation with ECSA.

In the evaluation of applications for approval as an APP, the ECSA Dams Committee shall perform work under supervision, control or guidance by Central Registration Committee (CRC) which has jurisdiction over all prospective registered practitioners and within the field of their experience and qualifications. The APP is precisely that person with the responsibility to ensure that all relevant engineering aspects of a task relating to a dam are undertaken in a manner appropriate to the specific dam site.

For this reason, it is necessary that the applicant has a wide experience of and exposure to those aspects that are important to the relevant task. It is a further requirement that an applicant has a sound engineering judgment in line with ECSA's 11 competency outcomes and level of performance for demonstrating competence for each professional category and the ability to take responsible decisions. At a time when technological development is rapid, it is a requirement that an APP keeps abreast of new developments.

The APP is a person with a broad spectrum of experience of dams but not necessarily a person who is an expert in all aspects of dam engineering. Since it is required that approval must be obtained for each individual dam engineering task, it is possible by repetition in each case to weigh an applicant's experience against the particular task requirements.

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Therefore, a professional person with limited experience could initially obtain approval for a task with limited requirements, while at that stage, he or she would not obtain approval for a riskier task.

The importance of the supporting role of other experienced engineering professionals and experts from other disciplines is recognised by the ECSA Dams Committee and it is expected of the APP to involve such persons should a need arise in relation to the task at hand. It must, however, be emphasised that the assistance of such experts and/or engineering professionals cannot be taken into account by the ECSA Dams Committee when considering an application by a person to be appointed by the Minister of Water and Sanitation to be an APP.

4.2 Task requirements

In the NWA and the regulations pertaining to dam safety, a variety of tasks relating to dams are identified for which approval is required. These tasks include:

- design of new dams or alterations to existing dams;
- exercise of quality control during the construction of dams or large maintenance works; and
- undertaking of dam safety inspections and dam safety studies.

Further details in this connection appear on the Dam Safety Office's application form.

The evaluation of the task requirements takes into account the complexity of the task in relation to aspects such as:

- wall height;
- type of wall;
- nature of the foundation material;
- size and location of catchment area;
- type of spillway and magnitude of design flood;
- type of river outlet;
- hazard potential of the dam;
- age of the structure; and

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- any known or expected problems (such as alkali aggregate reaction or soil with dispersive characteristics).

The task requirements for the inspection of an existing dam may in fact be higher than the requirements for the design of a new dam and this fact is taken into account in assessing the applicant's appropriate design experience. An applicant's experience with risk analyses is also considered when assessing the appropriateness of his or her design and evaluation experience.

For the purpose of evaluation, expertise requirements are classified as either desirable or essential. For example, for the inspection of a large earth fill dam it is an indispensable requirement that the applicant has appropriate design experience of earth fill dams. For the inspection of a medium size dam, it would be a desirable requirement that the applicant has experience of systems for monitoring the behaviour of dams. However, the specific circumstances applicable to each dam are considered on their own merits.

4.3 Minimum requirements for approval

As indicated above, the requirements for each specific task are considered on merit, and the applicant's qualifications and experience are measured against those requirements. In the evaluation of applications, the ECSA Dams Committee concentrates on four aspects, namely: experience and exposure in respect of the various aspects of importance to the task; the degree to which the applicant has already accepted responsibility for tasks relating to dams; whether he or she has kept abreast of new developments in the field and the total period of involvement in dam engineering. For each of these aspects, the ECSA Dams Committee has developed practical guidelines for evaluating applications.

The following paragraphs give an indication of the norms applied by the ECSA Dams Committee:

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(a) Experience and exposure in relation to the various aspects relating to dam engineering tasks

Appropriate experience as indicated under (d) below, and exposure in relation to all aspects that are regarded as essential for the task are required. Experience is also required in relation to those aspects that are regarded as desirable, but in certain instances, shortcomings in this area may be bridged by way of a provisional/conditional approval which requires the involvement of an expert in the relevant field.

(b) Position of responsibility

It is a requirement that an applicant must have led or been part of the team or has previously occupied a position of direct responsibility for decision-making concerning those engineering aspects that have been identified as essential.

(c) Keeping abreast of new developments

The applicant must provide proof that he or she has continued to keep abreast of new developments in dam engineering through, for example, participation in projects, courses and symposia or any other ECSA validated CPD activities or courses delivered through an ECSA verified/accredited CPD provider.

(d) Minimum duration of involvement with dams

Duration of involvement in dams	Dam size	Maximum wall height in metres
Three to five years	Small dams	Lower than 12 metres
Six to seven years	Medium dams	12 metres to 30 metres
Eight years and more	Large dams	30 metres and higher

APP Application requirements are outlined in Regulation 45 of the Regulations Regarding the Safety of Dams in Terms of Section 123(1) of the National Water Act, 1998, Government Gazette, 24 February 2012 No. 35062.

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The ECSA Code of Conduct applies, as would any ECSA-approved Code of Practice. This includes the requirement that persons must work within the limits of their competence.

4.4 Basis for recognition of experience

The following are particular aspects of importance in relation to the recognition of experience:

- (a) Credit up to a maximum of 15% of the total period of experience required can be allowed for appropriate postgraduate studies or courses, provided that the total credit, inclusive of that in paragraph 4(b) below, does not exceed one year. For this credit to be considered, the applicant must submit an exposition of the contents and durations of the courses. The credit per course will also be limited to between 1 and 3 months depending on appropriateness and duration.
- (b) Experience in a direction closely related to dam engineering may also be brought into account to a maximum of 6 months.
- (c) Many years of experience with small dams may be taken into account when the applicant wishes to undertake a task in relation to a medium size dam but has limited experience in relation to dams of that size.
- (d) The quality of the experience acquired is often the critical element. Experience acquired in one-man projects carries less weight than experience obtained with projects where there is a variety of experts involved. In addition, excessive durations indicated for a dam of a particular size are not necessarily fully recognised. Experience obtained from feasibility studies carries less weight than actual design and construction experience.
- (e) Experience with structural analyses and the evaluation of the safety of dams as part of dam safety inspections and dam safety investigations may also be taken into account as experience for the relevant types of structures.
- (f) When considering an application for approval, the applicant's quality of execution of previous dam tasks shall be taken into account by the Committee.

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(g) The ECSA Dams Committee, shall interview all applicants for:

- new applications
- new tasks.

4.5 General suggestions

The Committee's evaluation depends upon the information the applicant supplies in his or her application form and which the referees must add. It is therefore in the interest of each applicant to complete the application as fully as possible to supply all relevant information. The applicant should weigh up own expertise and experience against the requirements of the task and, if the use of experts is necessary, the applicant should indicate in his or her application which experts he/she will call upon to assist in the execution of the task.

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