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**UNITED REPUBLIC OF TANZANIA  
ENGINEERS REGISTRATION BOARD**



**THE STRUCTURED CONTINUING PROFESSIONAL DEVELOPMENT  
PROGRAMME FOR ENGINEERS**

**CPD**

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**PROGRAMME IMPLEMENTATION DOCUMENT  
(PID)**

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**Dar es Salaam**

**September 2005**

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## PREAMBLE

The Engineers Registration Board (ERB) is a statutory body established by the Engineers Registration Act No. 15 of 1997. The Board has the responsibility of regulating the engineering activities and conduct of engineers and engineering consulting firms.

The core functions of the Board include, inter alia, ***“promoting and providing opportunities and facilities for study of and for professional training in engineering”***. Thus professional development of engineers is among the major pre-occupations of the Board. To this end the Board has embarked on two closely interrelated programmes namely;

1. The Structure Engineers Apprenticeship Programme (SEAP) for fresh graduate engineers; and
2. Continuing Professional Development (CPD) for all practicing engineers.

Continuing Professional Development or CPD is defined as ***“the systematic maintenance, improvement and broadening of knowledge and skills and the development of personal qualities necessary for the execution of professional and technical duties throughout one’s working life”***. For practicing engineers, CPD is necessary in order to address professional obsolescence. The programme is intended to enable engineers to keep abreast with changes in science and technology and thus be up to date with the current practices and therefore remain competitive. In the developed world participation in CPD is viewed as a professional obligation.

Taking cognisance of the importance of CPD to practicing engineers themselves and the development of the country, the Board has made CPD mandatory. This programme Implementation Document (PID) will therefore serve as a useful tool in the management of the programme. The PID will also serve as a guide to the engineers on the type of CPD activities to be pursued. The PID should therefore be a household document for all practicing engineers in the country.

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## **NOMENCLATURE**

CAD	-	Computer Aided Design
CAM	-	Computer Aided Manufacture
CPD	-	Continuing Professional Development
ERB	-	Engineers Registration Board
PDA	-	Professional Development Affairs
PDU	-	Professional Development Unit
PID	-	Programme Implementation Document
ReTA	-	Registration and Technical Affairs
SEAP	-	Structured Engineers Apprenticeship Programme
SWOT	-	Strengths, Weakness, Opportunities and Threats

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## EXECUTIVE SUMMARY

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The Engineers Registration Board (ERB) regards Continuing Professional Development (CPD) of engineers as a professional duty and has given it a high priority in its Strategic Development Plans. In 2003 the Board commissioned a detailed CPD study whose recommendations led to the establishment of a Structured CPD Programme for practicing engineers in Tanzania, which was launched in March 2004 during the second Annual Engineers Day. The purpose of the Board's CPD Programme is twofold: to reinforce the need for life-long learning and to provide a framework within which practicing engineers in Tanzania can systematically maintain and enhance their professional competence. The Programme becomes operational effective 1<sup>st</sup> January 2005.

This Document provides guidelines for implementing the Board's CPD Programme. It first highlights the importance of CPD and objectives of the Programme before proceeding to describe the organizational framework and management structure in which the Programme will operate as well as the policies and procedures that will guide execution of CPD activities. The Document also highlights the financial implications of the Programme.

Several stakeholders have key roles to play in implementing the Board's CPD Programme. Most of these stakeholders are external to the Board. They include the individual engineers themselves, education and training institutions, employers/industry, professional associations and regulatory and promotional boards in the industrial sector. It is critically important that these stakeholders inter-relate in a manner that creates a conducive environment in which CPD activities can prosper – an environment that fosters the desire to learn, creates challenging work opportunities for practicing engineers and provides appropriate facilities for their advancement.

Management of the Programme is vested with the ERB Secretariat and is fully integrated within the existing organization structure of the Board. The Board will need to recruit only two additional Programme Officers to assist the Secretariat in running the Programme.

The Programme requires that every practicing engineer must achieve a minimum of thirty (30) Professional Development Units (PDUs) per year. This is equivalent to five days of continuing professional development involving not less than six hours of structured learning activity per year. The 30 PDUs shall comprise a minimum of 20 PDUs in structured learning activities and the remainder can be obtained from either structured or non-structured learning activities.

The Document highlights various continuing engineering education activities that contribute to CPD of engineers, ranging from structured formal courses to unstructured activities such as private reading, distance learning, preparation to give a presentation or to deliver a lecture and research for articles in the press or publication. It also highlights the wide spectrum of subject areas or topics in which the individual engineer can undertake CPD activities. These range from hardcore technical courses geared towards imparting state-of-the-art knowledge in various engineering disciplines to the acquisition of relevant knowledge in associated professional areas such as marketing, law, accounting and financial planning.

The Programme requires every practicing engineer to plan and assess his or her own participation in CPD activities on a self-regulatory basis and to submit a record of this participation to the Board annually, in a prescribed format, not later than three (3) months following the end of the calendar year under review. The Board will review the engineer's participation in CPD activities once every three years. This review will assess how the individual engineer has complied with the submission of annual returns and whether he or she has attained the prescribed minimum PDUs.

If an engineer fails to meet the prescribed PDU requirements for three consecutive years, the Board may lapse his or her registration. The same will apply to an engineer who, for whatever reason, has not submitted his or her CPD returns for a period of three consecutive years.

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The costs incurred in implementing the Board's CPD programme fall under three main cost components: Programme establishment costs, recurrent administration costs and costs incurred by organizers of CPD activities in preparing and conducting CPD programmes. Funds to finance the establishment and recurrent costs of the Programme are minimal, in view of the fact that the Programme is fully integrated within the existing management structure of the ERB Secretariat. These funds, amounting to TShs 27,450,000 during 2005, will be provided from the regular operational budget of the Board, whose main source is government subvention. Otherwise all CPD activities will be self-financing, in the sense that the cost of organizing and conducting these activities will be fully recovered by charging participation fees.

The Document stresses, in conclusion, the importance of strategic marketing in order to ensure that the Programme reaches targeted beneficiaries, who are spread throughout the country, and that there is effective involvement of key stakeholders.

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## 1.0 INTRODUCTION

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### 1.1 Background and Purpose

The Engineers Registration Board (ERB) has accorded a high priority to Continuing Professional Development (CPD) of engineers in its strategic plan<sup>1</sup>. The Board views the establishment of a structured CPD programme for practicing engineers as a key strategy for enhancing professional competence and competitiveness of both local engineers and local engineering firms.

In 2003 the Board conducted a comprehensive study<sup>2</sup> whose main objectives were twofold:

- (i) To determine the CPD requirements of practicing engineers in Tanzania, and
- (ii) To design and develop a structured CPD programme that would enable practicing engineers to meet these requirements.

The study recommended a structured programme of CPD that was approved by the Board in February 2004. Its purpose is to reinforce the need for life-long learning, and to provide a framework within which practicing engineers can systematically maintain and enhance their professional competence.

The purpose of this document is to provide guidelines for implementing the structured CPD programme approved by the Board. It describes the organization framework and management organization within which the Board's CPD Programme will take place as well as policies and procedures to guide the implementation of CPD activities.

### 1.2 Commencement Date

The Board's CPD Programme will commence operations with effect from 1 January 2005.

### 1.3 Definition of Terms

*Continuing Professional Development* or "CPD" is defined as the systematic maintenance, improvement and broadening of knowledge and skills, and the development of personal qualities necessary for the execution of professional and technical duties throughout one's working life.

*Professional Development Unit* or "PDU" is the unit of measure for effort invested in continuing professional development. One PDU is equivalent to one contact hour of attendance or involvement in a structured CPD activity.

*Structured CPD Activity* refers to a course or activity that has a specific objective and measurable outcome and has been accredited as such by the Board.

*Unstructured CPD Activity* refers to a CPD activity that involves self-directed learning, reading, discussion, participation or that is otherwise not accredited by the Board.

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<sup>1</sup> Engineers Registration Board, Strategic Development Plan (2000-2003)

<sup>2</sup> Engineers Registration Board. Design and Development of a Structured Continuing Professional Development Programme for Engineers. Final Report (January 2004)

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## 1.4 Importance and Benefits of CPD

The body of knowledge in most fields of human endeavour is not fixed. It is constantly changing and growing. In the fields of science and technology, in particular, the change and growth are very rapid.

As a result of this increasing accumulation of knowledge it is impossible to provide a comprehensive initial engineering education of reasonable length at the first degree level in a university or college. Further education of engineers after they have graduated from the university or college and while they are employed in a professional or practical capacity is essential. Engineers require this continuing education throughout their working life bearing in mind all the potential challenges they are likely to encounter in the professional, intellectual, social, economic and political arenas.

This is why professional engineering institutions worldwide recognize continuing professional development of engineers as a professional duty. In particular, the ERB Code of Ethics for Engineers Rule No 2(g) states that

***“An engineer shall continue his professional development throughout his career and shall assist and provide opportunities for the professional advancement of an engineer or engineers under his supervision.”***

Practicing engineers should therefore manage their CPD in such a way that it does not only benefit them alone but it is also credible to other interested parties and brings credit to the profession as a whole. They should ensure that they share their knowledge and expertise with others in their work places.

CPD is not only beneficial to the individual engineer, but to the employer and society as a whole. It is about increasing ones capacity for learning so as to be more capable and confident when faced with change. It enables the individual engineer to:

- (i) Maintain and enhance knowledge and skills, and thereby acquire confidence and improve work performance;
- (ii) Broaden experience and hence enhance career prospects;
- (iii) Become adaptable to changing work demands of the engineering profession; and
- (iv) Gain new knowledge that will enable him or her live a fuller life as a more useful member of an integrated society.

Many employers worldwide view the CPD of their employees as a matter of survival. Through CPD, employers are assured of having a better skilled, more efficient, adaptable and motivated workforce. Most employers know that if their technical employees do not keep abreast of the frontiers of technical knowledge their organizations will not remain competitive in the global market.

## 1.5 Objectives of the Board's CPD Programme

The Board's CPD Programme has four main objectives, namely:

- (i) To reinforce the need for life-long learning among engineers through CPD;
- (ii) To provide a framework through which practicing engineers can systematically maintain and enhance their professional competence;
- (iii) To assist practicing engineers to increase capacity for learning so as to be more capable, confident and adaptable when faced with change; and
- (iv) To encourage practicing engineers to broaden knowledge, skills and experience in order to improve work performance and enhance career prospects.

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## **2.0 ORGANIZATIONAL FRAMEWORK, MANAGEMENT AND STAFFING**

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This section describes the organizational framework within which the Board's CPD Programme will take place, as well as the management organization and manpower needed to operate the Programme on a day-to-day basis. It also defines the roles of key stakeholders of the Programme.

### **2.1 Organizational Framework**

The organizational framework within which the Board's CPD Programme will take place is shown in Figure 1. It is characterized by several inter-related stakeholders and implementation actors that are external to the Board. The key stakeholders include the individual engineers themselves, education and training institutions, employers/industry, professional associations and statutory regulatory and promotional boards in the industrial sector.

The Board recognizes that each of these stakeholders has a unique role to play in promoting the CPD of engineers. Hence, it is critically important that they inter-relate in a manner that creates a conducive environment in which CPD activities can prosper – an environment that fosters the desire to learn, creates challenging work opportunities for practicing engineers and provides appropriate facilities for their advancement.

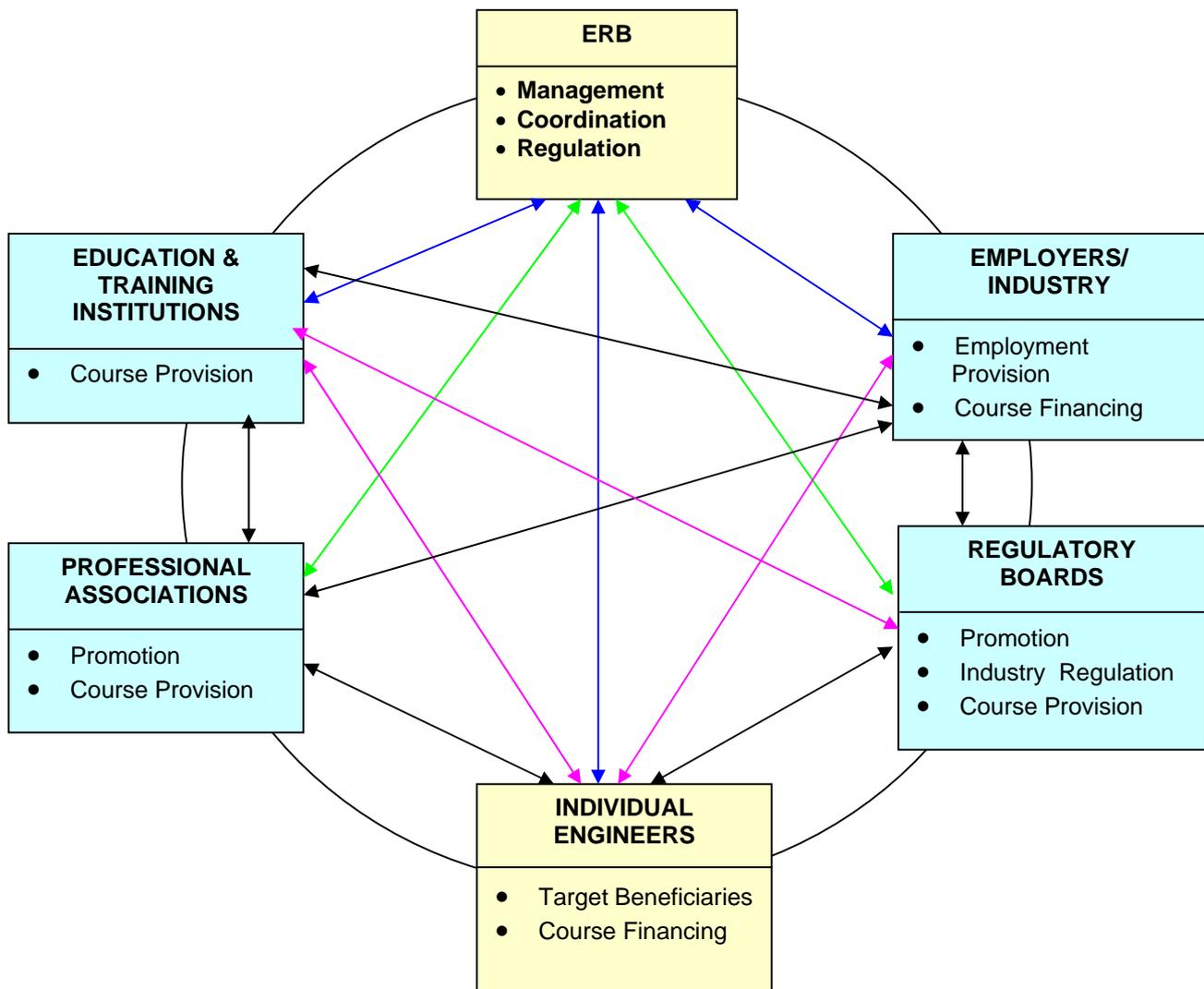
#### **Individual Engineers**

CPD programmes cannot prosper without full commitment and desire of individual engineers to learn. However, commitment and desire alone, though paramount, are not sufficient to ensure the success of CPD programmes. The personal situation of the engineer (family burdens, geographical location, disposable income, etc) and work situation (reward structure, employers support, etc) must also be conducive.

#### **Employers**

Engineering activity in Tanzania is organized through various industrial enterprises and other organizations owned by the public and private sectors, with the former being the dominant employer. The Board recognizes that employers have a high responsibility to influence the personal and work situation of the individual engineers. Most employers know that they are major beneficiaries of CPD. Assured that employees who have undergone CPD are better skilled, more efficient, adaptable and motivated, they are willing to support CPD of their employees by

- Organizing in-house training programmes;
- Committing financial resources to sponsor employees to attend short courses, seminars, workshops and other professional discourses relevant to their work; and
- Introducing reward systems that value CPD



**FIGURE 1: INTERACTION MAP OF CPD PROGRAMME IMPLEMENTATION ACTORS**

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## **Education and Training Institutions**

Higher education and training institutions in the engineering and management fields (such as the University of Dar es Salaam, Dar es Salaam Institute of Technology, Institute of Finance Management and the Eastern and Southern African Management Institute) organize and conduct CPD programmes, separately from their normal undergraduate and postgraduate programmes, to respond to specific needs of industry and also to generate revenue. The Board recognizes that these institutions are poised to play a major role in organizing continuing engineering education courses for engineers through the Board's CPD Programme. They can use their expertise and excellent facilities to organize a wide range of CPD activities for practicing engineers. Notable among such activities are:

- (i) Hardcore short technical courses to impart state-of-the-art knowledge in various engineering disciplines;
- (ii) Short courses in the fields of management, marketing, business development, accounting, human resources, law, etc that are relevant to the professional development of engineers;
- (iii) Block courses for industry; and
- (iv) Professional discourses in the form of lectures, seminars, symposia, workshops, study visits, organized exhibitions, etc.

## **Professional Associations**

Voluntarily constituted learned professional associations, such as the Institution of Engineers Tanzania and the Association of Consulting Engineers Tanzania, are concerned with uplifting professionalism and the economic well being of their members. The Board recognizes that these institutions have traditionally taken a leading role in promoting CPD programmes for their members and in setting standards of attainment in such programmes. One of their many functions is to provide avenues for the exchange of ideas, knowledge and experience among their members. They have, in this respect, been active in organizing seminars, workshops, short courses, study visits, organized exhibitions, professional lectures and other professional discourses.

## **Statutory Regulatory and Promotional Boards**

The Board recognizes the roles played by the National Construction Council (NCC) and Contractors Registration Board (CRB) in promoting CPD programmes for engineers. These organizations are mandated through Acts of Parliament to promote efficiency and professionalism in the construction industry. In this context, they play critical roles in prescribing standards of attainment, coordinating the efforts of various stakeholders and setting up CPD policies and guidelines. Both NCC and CRB have been active providers of CPD programme for engineers. Their activities have focused on short courses, seminars and workshops for contractors covering such specialist topics as project management, contract administration, procurement procedures, construction safety, construction claims, arbitration and labour based methods.

The Board will devise several strategies to bring on board key stakeholders of the Programme and to ensure their effective involvement in Programme implementation. At the operational level, these strategies will include:

- (i) Using existing institutions, notably higher education and training institutions, private consulting firms and individual consultants to organize and run CPD activities. This will maximize the use of existing resources instead of creating an entirely new organizational set up for organizing CPD activities.
- (ii) Providing representation of key stakeholders in the Professional Development Affairs (PDA) Committee of the Board. This will ensure that stakeholders are involved in policy making issues of the Programme.
- (iii) Organizing regular technical forums with the stakeholders and other implementation actors to discuss pertinent operational issues of the Programme.

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## **2.2 Management Organization**

Good management is essential in order to ensure successful implementation of the Board's CPD Programme. This, however, does not necessarily imply setting up heavy and complex management structures that are costly and bureaucratic. On the contrary, the Board will strive for a simple, lean and competent organization that is both efficient and cost-effective, as depicted in Figures 2 and 3.

The main feature of this organization is that it is fully integrated within the existing organization structure of the ERB. It is lean and simple and enables the existing ERB Secretariat to manage the Programme with an additional staff of only two people.

According to this management structure, the CPD Programme will operate through two main organs: the Professional Development Affairs Committee reporting to the Board, at the policy level, and the ERB Secretariat under the Registrar, through the Assistant Registrar for Professional Development Affairs, for operational matters.

### **Professional Development Affairs Committee**

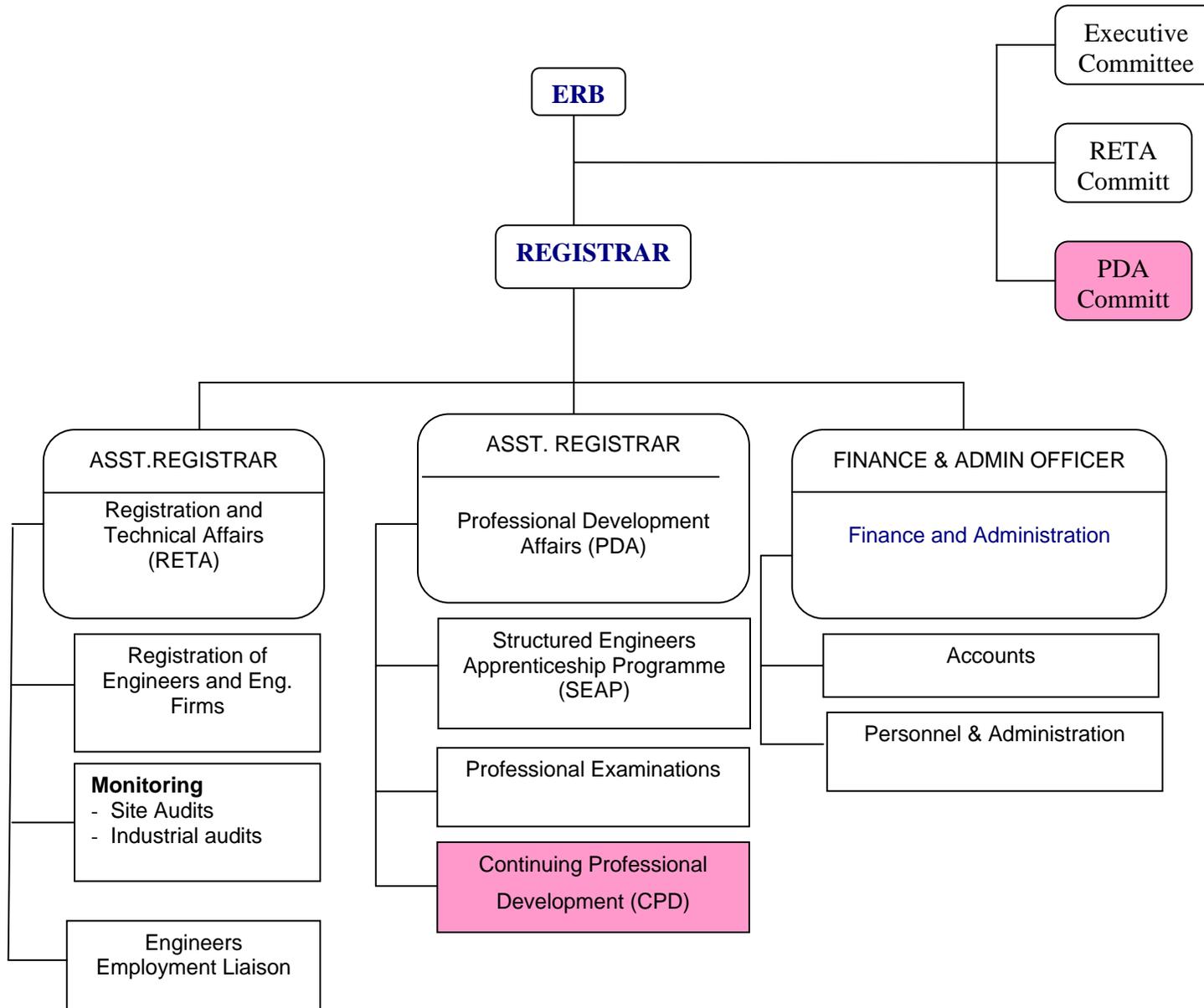
The PDA Committee is an existing organ of the Board whose responsibilities include, among other functions, to "organize continuing professional development programmes for engineers of all categories" (see Appendix 1). It will be responsible to the Board for all matters relating to the Board's CPD Programme. The main functions of the Committee will be:

- (i) To propose, for Board approval, policies and procedures to guide the implementation of the Board's CPD programme;
- (ii) To review and recommend to the Board for approval, applications for the accreditation of CPD activities; and
- (iii) To monitor the performance of CPD activities

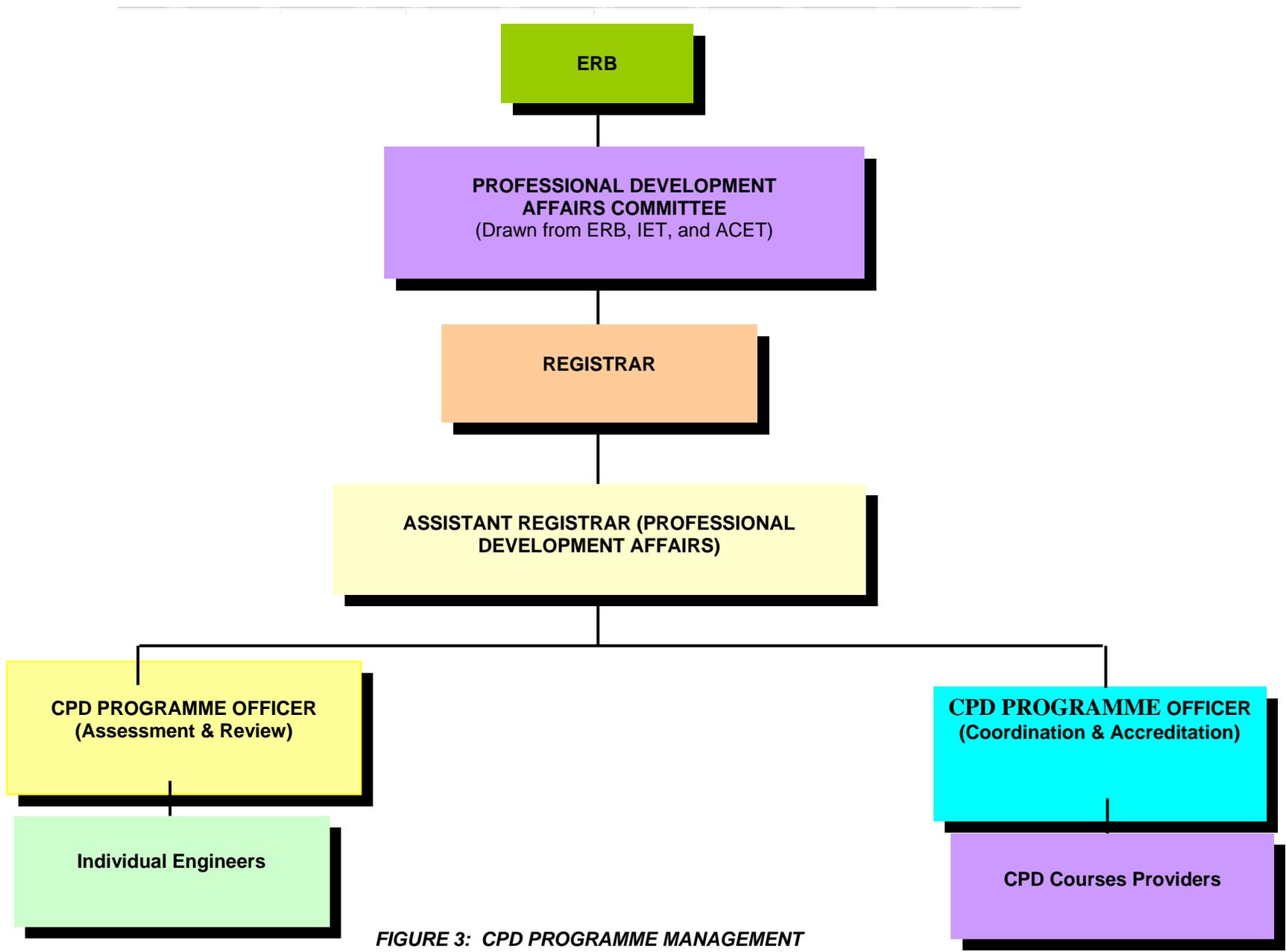
The PDA Committee will draw a wide membership that is fully representative of the key stakeholders of the Programme.

### **ERB Secretariat**

The ERB Secretariat will be responsible for managing and carrying out the day-to-day activities of the Board's CPD Programme. These activities shall include coordination, accreditation and promotion of CPD courses, as well as CPD Programme review and assessment. These functions will be carried out by the Assistant Registrar for Professional Development Affairs, whose current portfolio includes CPD. He will report directly to the Board's Registrar and will be assisted by two CPD Programme Officers.



**FIGURE 2: ERB ORGANIZATION CHART**



**FIGURE 3: CPD PROGRAMME MANAGEMENT ORGANIZATION STRUCTURE**

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## **2.3 Staff**

The Board will appoint two additional staff to support the ERB Secretariat in implementing the Board's CPD Programme. These two staff shall be designated as CPD Programme Officers. One of them will be responsible for coordination, accreditation and promotion of CPD activities while the second will be charged with the responsibility of monitoring and assessing performance of CPD activities by the individual engineers. Job descriptions of the two CPD Programme Officers are given in Appendix 2.

## **3.0 OPERATIONAL POLICIES AND PROCEDURES**

This section sets out the operational policies and procedures of the Board's CPD Programme in terms of activities to be undertaken by various categories of engineers, the subject areas to be covered and the minimum requirements to be met. It also provides guidelines for planning and implementing CPD activities as well as procedures for assessing the engineer's individual performance.

### **3.1 Minimum CPD Requirements to be met by Individual Engineers**

The minimum requirements prescribed by the Board, to be met by individual professional practicing engineers, are set out below:

- (i) Every practicing engineer must achieve a minimum of thirty (30) PDUs per year. This is equivalent to five days of continuing professional development involving not less than six hours of structured activity per day.
- (ii) The 30 PDUs shall comprise a minimum of 20 PDUs in structured activities and the remainder can be obtained from either structured or non-structured activities.
- (iii) If an engineer exceeds the annual requirement of 30 PDUs in the year under review, a maximum of 30 PDUs obtained from structured activities may be carried forward into the following year
- (iv) An engineer who has not obtained sufficient PDUs in the year under review will be allowed to carry over the shortfall into the following year, provided that he or she has accumulated a minimum of 70 PDUs in the past three consecutive years

The above requirements are mandatory for all engineers practicing as professional, consulting or technician engineers. They are not mandatory for graduate engineers and graduate technician engineers who, in their early stages of engineering career, are undergoing professional training under the guidance of experienced professional engineers.

For this latter group of engineers, professional training takes precedence over CPD. Its purpose is to enable graduates to develop competence and commitment and, in particular, to qualify for registration with the Board as professional engineers or technician engineers. It is offered in the form of Structured Engineers Apprenticeship Programme (SEAP) or other non-structured pupillage, mentoring or internship programmes.

### **3.2 Criteria for Selecting CPD Activities**

Since every engineer operates under unique circumstances the choice and focus of CPD activities are best left to the individual engineers themselves to decide. The Board's definition of CPD, in this context therefore, is widely drawn so as to avoid being too prescriptive as to the nature and type of activities to be undertaken. This allows the individual engineers the flexibility to select relevant CPD activities from amongst a broad range of possible activities. The guiding principle is that the relevant CPD activities must be those related to the scope of practice of the individual engineer and, in particular, the activities that will enable him or her to:-

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- (i) maintain, improve or expand technical skills and knowledge;
  - (ii) keep abreast of changing procedures and standards;
  - (iii) understand and apply advances in technology;
  - (iv) better serve the engineering profession, community and environment; and
  - (v) broaden into related fields, such as those covering management, financial and legal aspects.

### **3.3 Recommended CPD Activities**

The Board recognizes a wide range of continuing engineering education activities as contributing to the professional development of practicing engineers. These activities are summarized in Appendix 3. They include:

- (i) Formal postgraduate courses leading to a higher degree, postgraduate diploma or certificate;
- (ii) Participation in short courses, lectures, conferences, seminars, workshops, symposia, study visits and other related professional activities;
- (iii) Contribution to knowledge through publications, patents, etc.;
- (iv) Participation in boards, committees and professional societies; and
- (v) Self study

In this context, the Board would like to emphasize the fact that CPD is not just about attending formal courses, but also includes a variety of structured and unstructured activities such as private reading, distance learning, preparations to give a presentation or to deliver a lecture and research for articles in the press or publication. The Board would also like to emphasize that the list of activities given in Appendix 3, though extensive, is neither exhaustive nor exclusive. It is intended to act as a general guide for the engineer when selecting CPD activities.

For purposes of assessment the Board classifies the above activities into two categories: *structured* and *unstructured* CPD activities. It has also assigned different weightings to these activities in terms of PDUs that reflect their relative importance in the development of practicing engineers (see Appendix 4). The weightings given in Appendix 4 are subject to regular review to reflect changes in emphasis with time.

### **3.4 Key Subject Areas**

The spectrum of subject areas or topics in which the individual engineer can undertake CPD activities is also equally wide. The major topics and key subject areas recommended by the Board are listed in Appendix 5, categorized under the following six headings. The list is also neither exhaustive nor exclusive.

- (i) *Advanced knowledge in relevant engineering disciplines*: to impart advanced hard core technical knowledge in the respective engineering disciplines;
- (ii) *Technical skills*: to impart modern technical skills the engineer needs in order to improve work performance. Emphasis should be on computing skills (including CAD/CAM), project management and quality control and management;
- (iii) *Communication skills*: to develop communications skills that are key to the engineers work performance, with emphasis on report and proposal writing, presentation and negotiation skills and information management;

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- (iv) *Management*: to develop management skills needed by the engineer, with emphasis on such topics as self management, strategic management, leadership, organizing and managing resources;
  - (v) *Marketing and business development*: to impart business skills, with emphasis on entrepreneurship, financial planning, marketing and public relations; and
  - (vi) *Relevant knowledge in associated professional areas*: to develop an understanding of other professional disciplines, such as law, dispute resolution, accounting and procurement that are associated with the work of the engineer.

Although the Board recognizes that the major subject area is the disciplinary area of the individual engineer, in which he or she has to enhance competence and keep abreast of advances in knowledge and technology through updating and advanced courses, it also wishes to underline the fact that CPD activities undertaken in this area alone would not be sufficient to develop the required competence and proficiency. An important part of CPD is also concerned with the development of more general interpersonal and management skills that the engineer requires at various stages of his professional career.

### **3.5 Accreditation of CPD Activities**

Given the necessity of CPD and its high demand among practicing engineers, it is necessary for the Board to formalize the various CPD activities organized by different institutions and individuals, through accreditation. The main purpose of accreditation is to satisfy the Board that the organizers of CPD programmes have sufficient capacity to impart knowledge to the participants and that such programmes are relevant to the professional development needs of practicing engineers.

Courses offered as part of regular university degree programmes will generally be accredited. Other courses will be assessed for their relevance to the CPD demands of practicing engineers and the capacity of organizers to meet these demands.

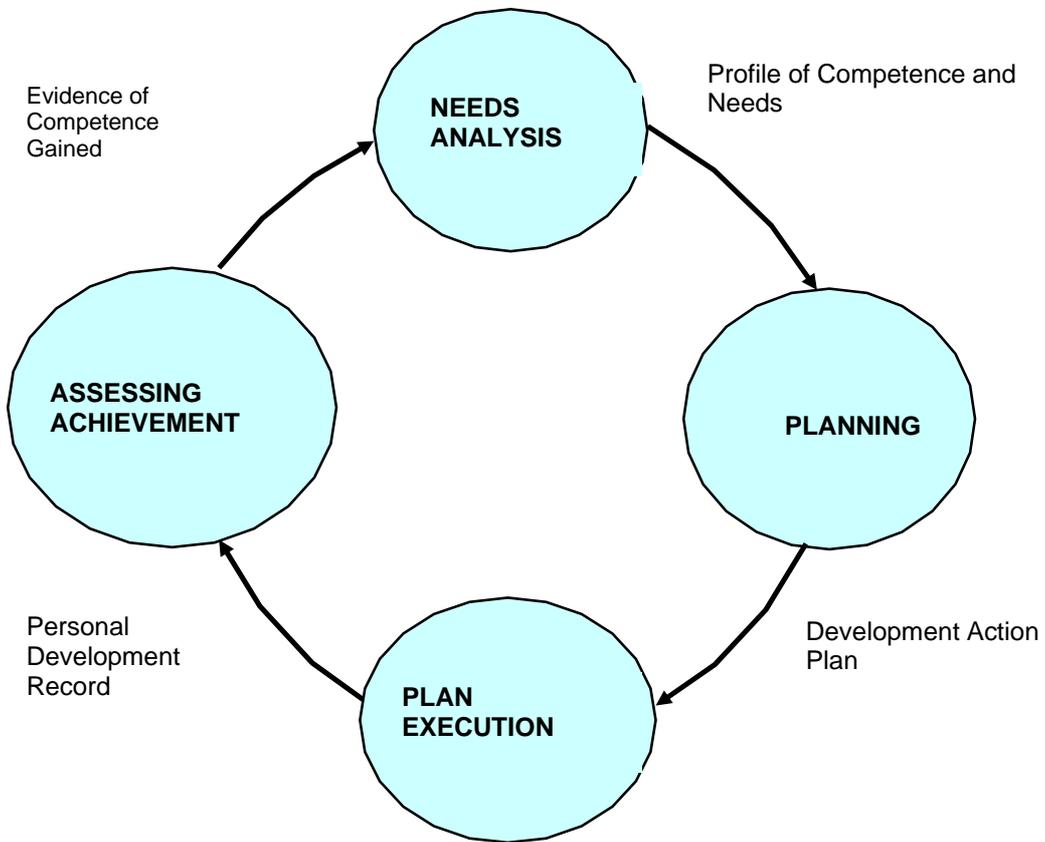
To initiate the assessment the course organizer has to apply to the Board for the activity to be accredited. The applicant must provide, for this purpose, sufficient information as prescribed in the application form given in Appendix 6. An accreditation fee shall be charged by the Board for each application submitted. The fee shall be payable by the course organizer on submission of the application form for course accreditation

The course organizer will be informed of the outcome of the application for accreditation within a period of four weeks. All CPD activities that have been accredited by the Board will be published or posted on ERB's website.

After the activity has been successfully accredited by the CPD Committee, the course organizer is required to submit, within 2 weeks after completion of the event, a copy of the attendance records to the ERB for information. This record is intended to be used only for verification when a random audit is conducted.

### **3.6 Planning and Execution of CPD Activities**

Although it is left to the individual engineer to choose the approach that best suits him or her own aspirations and needs, the choice of CPD activities should not be randomly done. The Board conceptualizes CPD as a process of continuously updating and enhancing one's knowledge and competence that has four basic stages – needs analysis, planning, execution and assessment. Each of these stages has specific outcomes (See Figure 4).



**FIGURE 4: THE CPD CYCLE**

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## Development Action Plan

*Needs identification*, the first stage in the process, is best carried out by SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of the engineer's past experience and performance. Its objectives are to identify competences, skills, knowledge and understanding that the engineer already possesses and what he or she needs, taking into account his or her current and future job requirements and professional needs.

This is followed by the *planning stage*, where the engineer has to prioritize the identified needs, identify appropriate development activities and the resources needed and to set target dates and milestones to be achieved. He should then commit his plan on paper as the *Development Action Plan* for the year under review. This plan should be prepared using a simple tabular format, as shown in Appendix 7, which clearly describes:

- (i) The desired development goals;
- (ii) Possible activities to be undertaken to achieve those goals;
- (iii) How to measure the outcome of the activities undertaken; and
- (iv) Milestones and deadlines to be met.

## Personal Development Record

*Executing* the plan involves carrying out both structured and non-structured CPD activities that were identified as most appropriate during the year under review. While undertaking these activities, the engineer must maintain a *Personal Development Record*, in which all the CPD activities during the year under review are recorded. This record should be prepared in a simple tabular format, as shown in Appendix 8, which contains the following information:

- (i) Title and type of each CPD activity undertaken;
- (ii) Activity organizer;
- (iii) Dates and time spent;
- (iv) Brief description, summarizing the objectives and contents of the activity;
- (v) Key learning results;
- (vi) Key benefits; and
- (vii) CPD claimed (PDUs)

The engineer should also continuously *assess his achievement*, particularly on those activities he or she has learnt most in terms of new and improved levels of competence and attainment of the set targets and milestones. Engineers who are in locations where structured CPD activities appear to be difficult to access should take advantage of the wide range of unstructured activities that will assist them in their development.

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### **3.7 Evaluation and Review of CPD Activities**

#### **Self-Assessment**

The Board expects every practicing engineer to plan and assess his or her own participation in CPD activities on a self-regulatory basis and to maintain a Development Action Plan in the format described in Section 3.6.3 above.

#### **Submission of Personal Development Records**

The Board also requires every engineer to submit his or her Personal Development Record annually to the Board, not later than three months following the end of the calendar year under review. This annual record must be prepared in a manner that clearly demonstrates how the engineer has fulfilled the prescribed requirements of the Board's CPD Programme.

#### **Documentary Evidence**

The engineer does not have to submit documentary evidence together with the Personal Development Record. However, he is advised to retain the documentary evidence for at least two years from the date of submitting the returns. The Board will conduct random checks during annual audits, and those selected will be required to submit documentary evidence of their CPD participation during the year under review. The documentary evidence may take any one of the following forms:

- (i) Diary records or logbook showing the activities claimed;
- (ii) Course enrolment records;
- (iii) Receipts of course fees;
- (iv) Certificate of attendance;
- (v) Attendance list from course organizer;
- (vi) Employer's report or certification; or
- (vii) Statutory declaration

#### **Review by the Board**

The Board will review the engineer's participation in CPD activities once every three years. This review will assess compliance with submission of annual returns and attainment of the prescribed minimum PDUs of the Board's CPD Programme.

#### **De-registration**

If an engineer fails to meet the prescribed PDU requirements for three consecutive years, the ERB may lapse his or her registration. The same will apply to an engineer who, for whatever reason, has not submitted his or her CPD returns for a period of three consecutive years.

#### **Reinstatement of Deregistered Engineers**

An engineer whose registration has lapsed is required to obtain 60 PDUs within one year, before he or she can be reinstated. The 60 PDUs must comprise at least 40 PDUs obtained from structured activities.

#### **Exemption and Appeals**

An engineer may be exempt, subject to review and approval of the Board, from CPD requirements if he or she experiences physical disabilities, prolonged illness or other extenuating circumstances.

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## 4.0 FINANCIAL ASPECTS

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### 4.1 Programme Costs

Expenses will be incurred in establishing and running the Board's CPD Programme. These expenses fall under three main cost components:

- (i) *Establishment costs*, incurred in setting up the Programme. These costs will be incurred in the form of capital expenditure to purchase office furniture and equipment (such as computers) and recruitment costs of hiring additional staff. These costs are part of the first year budget of setting up the Programme, as set out in section 6 of this Document. They will be minimal in view of the fact that the Programme's management organization and operations are fully integrated within the existing organization structure of the ERB.
- (ii) *Recurrent administration costs*, incurred by the ERB Secretariat to finance staff salaries, office rent, consumables and other recurrent operational expenditure relating to the promotion, coordination and monitoring of CPD activities.
- (iii) *Costs of conducting CPD activities*, incurred by CPD course providers and other organizers of CPD activities for preparing and delivering their programmes.

### 4.2 Sources of Funds

Funds to finance the establishment and recurrent costs of the Programme will be provided by the regular operational budget of the Board. The main source of funds for this budget is government subvention.

The Board expects that all CPD activities will be fully self-financing. In other words, the costs of organizing and conducting CPD courses and other related activities will be fully recovered from the participants who attend these activities by charging them fees.

The Board recognizes, however, that the fees charged by some CPD course providers are relatively high, and may not always be affordable by many prospective participants. It is therefore critical for organizers of CPD courses to charge realistic fees based on proper needs analysis and market feasibility studies. The aim should be to reduce participation fees to the minimum in order to make the courses affordable to as many practicing engineers as possible. The unit cost per participant can be cut down by ensuring that there is a sufficiently large number of participants to share the costs of course development and delivery, or by repeating the courses several times in order to retrieve course development costs over a longer period of time, or by a combination of both measures.

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## 5.0 PROGRAMME PROMOTION STRATEGIES

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Strategic marketing of the Board's CPD Programme is essential in order to ensure that it reaches the targeted participants, who are spread throughout the country, and that there is effective involvement of the key stakeholders.

The Board will use a combination of strategies to promote the Programme and to market its CPD activities. These strategies include the following:

**(i) Publications**

The Board will publish and disseminate information about the Programme through a number of documents. These documents include:

- The Programme's brochure entitled "*The Board's CPD Programme in Brief*",
- CPD Guidelines for Individual Engineers;
- Guidelines for Organizers of CPD Activities; and
- A newsletter, published twice or three time a year.

**(ii) Press and Public Media**

The Board's professional activities and triumphs can sometimes be news to the national press and public media, if presented professionally. The Board will strive to take advantage of such events and, as necessary, make regular press releases to publicize its CPD activities. The intention is to promote the Programme's brand image to both prospective participants and the general public.

**(iii) Sensitization Seminars and Workshops**

The Board will convene regular forums, in the form of seminars, workshops and other relevant professional discourses, to sensitize targeted participants and other stakeholders of the Programme. The main purpose of these sensitization forums is to explain the Programme's concept and operations in detail so as to facilitate involvement of stakeholders and other implementation actors in the Programme.

**(iv) Advertising**

From time to time, the Board will advertise the Programme's activities in the press and public media. All pertinent information concerning the Board's CPD Programme will also be posted on the ERB's website.

**(v) Writing Articles**

Some of the Programme's professional lectures, notably those delivered by visiting experts, can be published as learned professional articles by the Board. Being associated with such learned articles can help build the Programme's reputation and image tremendously.

**(vi) Making Public Presentations**

The Board will make public presentation of the Programme and its activities whenever there is an opportunity to do so, notably in forums in which practicing engineers are active such as those organized by the Institution of Engineers Tanzania and other professional associations.

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## **6.0 WORK PLAN AND BUDGET FOR THE FIRST YEAR OF OPERATION**

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The Board's CPD Programme will commence operations in January 2005. Its main activities during this year and the estimated amount of funds needed to implement them are set out in this section.

### **6.1 Implementation Plan**

During the first year of the Programme's operation, several start-up activities will be performed aimed at making the Programme fully operational within the shortest possible time. The main activities are shown diagrammatically in the bar chart shown in Figure 5, and are also briefly described below. The bar chart shows the time schedule of each activity.

#### **(i) Inauguration of Programme Activities**

The Board's CPD Programme was officially launched in March 2004 during the second Annual Engineers Day. However, formal CPD activities could not start immediately due to the fact that several preparatory activities had to be undertaken first, including the preparation of this PID, to guide programme implementation.

Following approval of this PID the first major activity to be undertaken will be to inaugurate the commencement of Programme activities. This will be done in February 2005, on the occasion of the third Annual Engineers Day. The intention is to take advantage of this momentous occasion to give maximum publicity to the Programme.

#### **(ii) Establishment of the Programme Office**

The Programme will be accommodated within the existing office premises of the ERB Secretariat. The Board will provide one fully furnished well equipped office for this purpose that is large enough to accommodate two Programme Officers who will be recruited to assist the ERB Secretariat in running the Programme.

#### **(iii) Convening the Professional Development Affairs Committee**

Following formal inauguration of Programme activities, the Professional Development Affairs Committee of the Board will need to meet more regularly during the year in order to transact business relating to the CPD Programme.

Activity	Time Frame												Estimated Budget TZS
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
<b>Inauguration of Programme Activities</b>													400,000
1.1 Preparations	■												
1.2 Inauguration Seminar		▼											
<b>PDA Committee meetings</b>													5,400,000
2.1 Convene meetings of PDA Committee		▼		▼		▼		▼		▼		▼	
<b>Establishment and Operationalization of Programme Office</b>													3,000,000
3.1 Secure office accommodation	■												
3.2 Obtain office furniture, equipment, working tools and materials	■	■	■	■	■	■	■	■	■	■	■	■	
<b>Recruitment of Staff</b>													15,400,000
4.1 Invite and process applications for Programme Officers	■	■											
4.2 Deployment of Programme Officers			■	■	■	■	■	■	■	■	■	■	
<b>Programme Promotion</b>													3,250,000
5.1 Publication and dissemination of brochure and general publicity materials	■	■	■	■	■	■	■	■	■	■	■	■	
5.2 Organize and convene seminars for potential organizers of CPD activities			■	▼			■	▼			■	▼	
5.3 Organize and convene seminars for engineers in the regions				■	▼			■	▼		■	▼	
5.4 Conduct media publicity	■	■	■	■	■	■	■	■	■	■	■	■	
<b>Coordination and Accreditation of CPD Activities</b>													Provided for in 4.2 & 5.2
6.1 Constructive engagement of prospective organizers of CPD courses and	■	■	■	■	■	■	■	■	■	■	■	■	
6.2 Processing of application forms for accreditation of CPD activities				■	■	■	■	■	■	■	■	■	
<b>Monitoring of CPD Performance</b>													Provided for in 4.2 & 5.2
7.1 Constructive engagement of individual engineers	■	■	■	■	■	■	■	■	■	■	■	■	
7.2 Handling of enquiries from individual engineers			■	■	■	■	■	■	■	■	■	■	

**FIGURE 5: PROGRAMME IMPLEMENTATION PLAN AND BUDGET FOR 2005**

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#### **(iv) Recruitment of Staff**

Concurrent with the establishment of the Programme Office the Board will recruit two CPD Programme Officers to strengthen the ERB Secretariat.

#### **(v) Programme Promotion**

To ensure successful implementation, the Board will vigorously promote the Programme to all stakeholders. This is a crucial activity aimed at bringing on board early the key stakeholders. An intensive programme of sensitization and promotion is planned that involves seminars, workshops and dissemination of information through publications and the public media.

#### **(vi) Coordination and Accreditation of CPD Activities**

Due to the infancy of the Programme, assessment of the individual engineers' CPD performance will not be carried out during the Programme's first year of operation. However, the ERB Secretariat will ensure that the targeted participants are given all the information they need to enable them plan, implement and assess their own CPD activities regularly, on a self-regulatory basis.

### **6.2 Estimated Budget**

The estimated budget for implementing the Board's CPD Programme during its first year of operation is TShs 27,450,000. A detailed breakdown of this budget is given in Appendix 9. 55.4% (i.e. TShs 15,200,000) of this expenditure budget is the estimated cost of staff remuneration.

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## **APPENDIX 1: TERMS OF REFERENCE OF THE PROFESSIONAL DEVELOPMENT AFFAIRS COMMITTEE**

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The Professional Development Affairs (PDA) Committee is one of the three committees of the ERB, established in accordance with the provisions of the Engineers Registration Act No 15 of 1997. The other committees of the Board are the Executive Committee and Registration and Technical Affairs Committee.

The PDA Committee is chaired by a member of the Board and its Terms of Reference are:

- (a) To certify academic awards;
- (b) To administer ERB examinations;
- (c) To establish, operationalise and later coordinate the engineers apprenticeship programme (internship) for graduates;
- (d) To organize continuing professional development programmes for engineers of all categories;
- (e) To organize seminars, workshops and conferences;
- (f) To coordinate competence building programmes for engineering consulting firms;
- (g) To oversee ERB publications; and
- (h) To advise the Board on matters relating to professional development affairs of the Board.

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## APPENDIX 2: JOB DESCRIPTIONS OF CPD PROGRAMME OFFICERS

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<b>Job Title:</b>	CPD Program Officer (CPD-PO)
<b>(i) Appointed by:</b>	The Board
<b>(ii) Nature of Appointment:</b>	Permanent
<b>(iii) Reports to:</b>	AR-PDA

**(iv) Job Summary**

The CPD-PO will be responsible for all matters of professional development of practicing engineers covering the following aspects:

**(v) Minimum Entry Qualification**

Holder of a degree in engineering or equivalent and must be a registered Professional Engineer or Technician Engineer.

**(vi) Duties and Responsibilities**

The CPD-PO will be responsible for:

- 1 Receiving, recording and processing all CPD data
- 2 Maintaining records of CPD Programme;
- 3 Identifying, organizing and coordinating CPD courses and reading materials.
- 4 Identifying and maintaining database of institutions capable of providing professional training for engineers;
- 5 Coordination and preparation of the CPD Programme for engineers;
- 6 Maintaining and Providing statistics for CPD programme;
- 7 Keep, maintain and update CPD database, and
- 8 Any other duties that may be assigned by AR-PDA.

**(vii) Salary Scale:** PGSS 14

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## APPENDIX 3: RECOMMENDED CPD ACTIVITIES

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### 1. Participation in Relevant Formal Postgraduate Courses

- i. Postgraduate degree
- ii. Postgraduate diploma
- iii. Postgraduate certificate

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### 2. Lectures, Short Courses, Conferences and related professional activities

- i. Professional lectures
- ii. Short courses
- iii. Conferences
- iv. Workshops
- v. Symposia
- vi. Seminars
- vii. In-house training courses
- viii. Organized site visits
- ix. *Organized exhibitions*

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### 3. Contribution to knowledge

- i. Conducting lectures, seminars, training courses, etc
- ii. Publications
- iii. Papers and technical presentations in seminars, conferences, workshops, etc.
- iv. In-house presentations
- v. Registering an engineering or scientific patent

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### 4. Participation in Boards, Committees and Societies

- i. Membership of professional societies
- ii. Board membership
- iii. Membership of technical committees
- iv. Participation in activities of professional institutions

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### 5. Self Study

- i. Reading relevant technical/management literature
  - ii. Distance and open-learning courses
  - iii. Exposure to new solution at work
  - iv. Watching training videos, and TV programmes
  - v. Listening to training tapes and viewing CD roms
- 

**Note:** *The above list of activities, though extensive, is not exhaustive*

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#### APPENDIX 4: RECOMMENDED WEIGHTING OF CPD ACTIVITIES

Activity	PDUs
<b>A Structured Activities</b>	
A.1 Relevant postgraduate degree, diploma or certificate courses	1 PDU per contact hour
A.2 Lectures, short courses, conferences, symposia, workshops and seminars on technical, management or professional development matters relevant to engineers	1 PDU per contact hour
A.3 In-house courses on technical, management and professional development matters relevant to engineers	1 PDU per contact hour
A.4 Conducting accredited courses, lectures, seminars, conferences, symposia and workshops	3 PDUs per lecture hour
A.5 Writing or editing technical articles or papers published in reputable journals, conference proceedings or books	6 PDUs per article
A.6 Registering an engineering patent	20 PDUs per patent
<b>B Non-structured Activities</b>	
B.1 Membership of professional societies, boards, and technical committees	5 PDUs per committee
B.2 Reading relevant technical/management literature	1 PDU for every 3 hours
B.3 Viewing training videos, CD ROMs and TV programmes, listening to training tapes, or taking distance and open learning courses	1 PDU for every 3 hours
B.4 Attending informal in-house training and presentations	1 PDU for 2 hours
B.5 Conducting informal in-house training and presentations	1 PDU for 2 hours
B.6 Attending organized technical site visits and exhibitions	1 PDU for 2 hours
B.7 Attending professional and technical courses which are not accredited	1 PDU for 2 hours

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## APPENDIX 5: RECOMMENDED KEY CPD SUBJECT AREAS

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### 1. Technical courses to keep abreast of knowledge and advances in technology

- i. Advanced technical courses in various professional disciplines
- ii. Updating/refresher courses

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### 2. Communication Skills

- i. Report and letter writing
- ii. Proposal writing
- iii. Interview skills
- iv. Presentation skills
- v. Managing meetings
- vi. Information management

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### 3. Technical skills

- i. Computing/computer networking
- ii. CAD/CAM
- iii. Project management
- iv. Contract management
- v. Quality control and management
- vi. Health, safety and environmental management
- vii. Maintenance management

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### 4. Management

- i. Self management
- ii. Strategic management
- iii. Human resources management
- iv. Team leadership

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### 5. Marketing and Business Development

- i. Financial planning
- ii. Entrepreneurship
- iii. Marketing
- iv. Public relations

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### 6. Associated Professional Areas

- i. Law
  - ii. Dispute resolution
  - iii. Accounting
  - iv. Procurement
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## APPENDIX 6: APPLICATION FORM FOR CPD COURSE ACCREDITATION

1. Name of Course Provider \_\_\_\_\_

2. Address \_\_\_\_\_

3. Tel/Fax/E-mail \_\_\_\_\_

4. Title of Course/CPD Activity \_\_\_\_\_

5. Venue and Dates \_\_\_\_\_ Duration \_\_\_\_\_

6. Targeted Participants \_\_\_\_\_

7. Brief Description \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. Contents

9. Key Learning Results

10. Lecturer/Facilitator \_\_\_\_\_  
(Please attach CV)

11. Costs per Participant \_\_\_\_\_

12. Targeted Number of Participants \_\_\_\_\_ - \_\_\_\_\_

13. Name and Signature of Applicant \_\_\_\_\_

14. Date of Application \_\_\_\_\_

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**APPENDIX 7: CPD DEVELOPMENT ACTION PLAN FOR THE YEAR \_\_\_\_\_**

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**Name** \_\_\_\_\_ **Address**

**ERB Registration Number** \_\_\_\_\_ **Tel/Fax/E-mail**

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	<b>Priority 1</b>	<b>Priority 2</b>	<b>Priority 3</b>	<b>Priority 4</b>
Development Goals				
Possible Activities				
How will you measure successful outcome				
Milestones and Deadlines to be met				

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**APPENDIX 8: CPD PERSONAL DEVELOPMENT RECORD FOR THE YEAR \_\_\_\_\_**

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**Name** \_\_\_\_\_ **Address** \_\_\_\_\_

**ERB Registration Number** \_\_\_\_\_ **Tel/Fax/E-mail** \_\_\_\_\_

	Activity 1	Activity 2	Activity 3	Activity 4
Title and Type of Activities				
Activities Organizer				
Dates and time spent				
Description				
Key Learning Results				
Key Benefits				
CPD Claimed (PDUS)				

**APPENDIX 9: BREAKDOWN OF THE BUDGET FOR THE FIRST YEAR OF  
PROGRAMME OPERATIONS**

<b>Activity</b>		<b>Budgeted Cost (TShs)</b>
1	<b>Inauguration of Programme Activities</b>	
	1.1 Preparations (printing of brochures and other promotional documents)	400,000
	1.2 Inauguration Seminar (expenses to be included in budget for the Annual Engineers Day)	Nil
2	<b>Convening of PDA Committee</b>	
	2.1 Regular Committee meetings (6Nos)	5,400,000
3	<b>Establishment and Operationalization of Programme Office</b>	Nil
	3.1 Rental expenses (included in rental expenses for ERB Secretariat)	800,000
	3.2 Office furniture	1,600,000
	3.3 Desk Computers (2No)	600,000
	3.4 Consumable materials (@ TShs 50,000 per month)	
4	<b>Recruitment of Staff</b>	
	4.1 Invite and process applications	200,000
	4.2 Staff salaries (Two Programme Officers on post at PGS 15-17 level)	15,200,000
5	<b>Programme Promotion</b>	
	5.1 Publication of brochures and general publicity materials	600,000
	5.2 Seminars for CPD course organizers (3No)	1,200,000
	5.3 Seminars and workshops (3No)for engineers in the regions	1,200,000
	5.4 Media publicity	250,000
6	<b>Coordination and Accreditation of CPD Activities (included in items 4.2 &amp; 5.2)</b>	Nil
7	<b>Monitoring of CPD Performance</b> (included in items 4.2 & 5.3)	Nil
<b>Total Budget</b>		<b>TShs 27,450,000</b>