THE DEVELOPMENT AND ASSESSMENT OF AN INTEGRATED SKILLS DEVELOPMENT MODEL FOR EMERGING CONSTRUCTION CONTRACTORS

By

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DECLARATION

I, Spencer Lazarus, declare that:

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- The thesis is the result of my own independent work and own experience as the Programme Manager and Project Leader for the emerging contractor development and support programme at the Eastern Cape Development Corporation (ECDC) with the support of Mr Sihle Dlungwana of the Council for Scientific and Industrial Research (CSIR), Mr Cannon Noyana of Noyana's Management Consultancy (Pty) Ltd and Professor Dries Hauptfleisch of Ecospan Projects cc.

- All sources used or referred have been documented and recognised.

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Opinions expressed and conclusions arrived at, are those of the researcher and are not necessarily attributed to the Eastern Cape Development Corporation.

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ABSTRACT

Many strategies for emerging construction contractor development that are based on instruments such as targeted procurement have generally failed to empower emerging contractors because they are implemented without well-defined skills transfer frameworks. Emerging contractors continue to be regarded by construction clients and suppliers as a high commercial risk area and this presents further barriers to meaningful property development. Related to this is the lack of clear policy targets against which to measure the effectiveness of contractor support programmes.

Furthermore, the majority of current support initiatives lack an integrated programme strategy. Interventions tend to be characterised by inadequate preparations, poor needs assessments and an inadequate understanding of the development needs of emerging contractors. This is evident by discontinuances, unstructured training approaches, ad-hoc mentorship, inadequate monitoring and evaluation that promote unsustainable skills transfer.

The Eastern Cape Development Corporation (ECDC) has put in place a training and mentoring programme that would result in the development of emerging contractors into sustainable business enterprises. The impact of the programme may be measured to determine the overall effectives of the programme in delivering developed and sustainable contractors to the construction industry.

The above mentioned factors identified lead to the following problem that is addressed by the research:

The problem statement addressed by the study is how to develop a holistic approach towards integrated skills development for emerging construction contractors, by developing a model that can be managed with quantitative and measurable outcomes.

Key words: Total Quality Management, Project Management, Integrated, Emerging Contractor, Mentorship, Training, Empowerment.

UITTREKSEL

Verskeie strategieë ter ontwikkeling van opkomende kontrakteurs, gebaseer op maatstawwe soos byvoorbeeld doelgerigte verkryging, het oor die algemeen nie daarin geslaag om opkomende kontrakteurs behoorlik toe te rus nie, aangesien sodanige maatreëls geïmplementeer is sonder goed gedefinieërde vaardigheidsoordrag raamwerke. Opkomende kontrakteurs word steeds deur kliënte en verskaffers in die konstruksiebedryf beskou as ‘n area van hoë kommersiële risiko en dit op sigself verhinder betekenisvolle eiendomsontwikkeling. Gepaardgaande hiermee is die gebrek aan duidelike beleidsdoelwitte waarteen doeltreffendheid van kontrakteurs- ondersteuningsprogramme gemeet kan word.

Daarbenewens toon die meerderheid van ondersteuningsinisiatiewe ‘n gebrek aan geïntegreerde programstrategie. Sodanige inisiatiewe toon verder kenmerkende tekens van ondoeltreffende voorbereiding, ontoereikende behoeftebepalings en gebrek aan begrip vir die ontwikkelingsbehoeftes van opkomende kontrakteurs. Dit blyk duidelik uit die aantal afleggings, ongestruktureerde opleidingsbenadering, ad-hoc mentorskap, asook ontoereikende monitering en evaluering wat tot gebrekkige vaardigheidsbemagtiging aanleiding gee.

Die Oos-Kaapse Ontwikkelingskorporasie (OKOK) het ‘n opleidings- en moniteringsprogram daargestel wat sal sorg dat die ontwikkeling van opkomende kontrakteurs tot lewensvatbare besigheidsondernemings sal lei. Die inslag van sodanige programme is meetbaar om die algehele doeltreffendheid van die programme te bepal ten opsigte van die lewering van ontwikkelde en lewensvatbare kontrakteurs in die konstruksiebedryf. Bogenoemde geïdentifiseerde faktore gee aanleiding tot die volgende probleem wat aangespreek word deur die navorsing:

Die probleemstelling wat aangespreek word deur die studie, is hoe om ‘n holistiese benadering te ontwikkeling m.b.t. geïntegreerde vaardigheidsontwikkeling vir opkomende konstruksiekontrakteurs, wat sal lei tot ‘n model wat bestuur kan word deur middel van kwantitatief meetbare uitsette.

Sleutelwoorde: Totale Kwalitatiets Bestuur, Projekbestuur, Geïntegreerd, Opkomende Kontrakteur, Mentorskap, Opleiding, Bemagtiging.

TABLE OF CONTENTS

TABLE OF CONTENTS

PAGE

PART 2 LITERATURE REVIEW

CHAPTER 2: PROJECT MANAGEMENT

CHAPTER 3: BLACK ECONOMIC EMPOWERMENT (BEE)

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS

PAGE

PART 5 CONCLUSION

CHAPTER 8: NEW MODEL DESIGN, RECOMMENDATIONS AND CONCLUDING COMMENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ANNEXURE

LIST OF ABBREVIATIONS

ABE	Affirmative Business Enterprise
BIFSA	Building Industries Federation of South Africa
BCI	Black Construction Industry
BEE	Black Economic Empowerment
CETA	Construction Education and Training Authority
CIDB	Construction Industry Development Board
CSIR	Council for Scientific and Industrial Research
DBSA	Development Bank of Southern Africa
DTI	Department of Trade and Industry
EC	Emerging Contractor
ECDC	Eastern Cape Development Corporation
ECDM	Emerging Contractor Development Model
ECDP	Emerging Contractor Development Programme
EDS	Enterprise Development Services
EPWP	Expanded Public Works Programme
HDI	Historically Disadvantaged Individual
IECDM	Integrated Emerging Contractor Development Model
MBSA	Master Builders South Africa
MDP	Management Development Programme
NQF	National Qualifications Framework
PDI	Previously Disadvantaged Individual
PMBOK	Project Management Body of Knowledge
PPPFA	Public Preferential Procurement Framework Act
RPL	Recognition of Prior Learning
SAFCEC	South African Federation of Civil Engineering Contractors
SAQA	South African Quality Assurance body
SETA	Sector Education Training Authority
SMME	Small Medium and Micro Enterprise
TQM	Total Quality Management

PART 1 INTRODUCTION AND PROJECT OVERVIEW

CHAPTER 1: INTRODUCTION

1.1 Introduction and problem statement

The Eastern Cape Development Corporation (ECDC) aims to put in place a sustainable programme that creates capacity and capability of emerging contractors in order to deliver provincial infrastructure. The programme should therefore ensure that contractors' businesses grow into sustainable enterprises.

The potential for small and medium construction businesses to contribute significantly to employment creation and economic growth is well recognised. However, emerging contractors remain weak and operate in a manner that is unsustainable, as current opportunities lack structured development of contractor capabilities.

The many strategies for emerging contractor development which are based on instruments like targeted procurement, such as the National Department of Public Works' incubator programme, run by the Emerging Contractor Development Program (ECDP) Unit, have generally failed to empower emerging contractors because these are implemented without well-defined skills transfer frameworks.

Emerging contractors continues to be regarded by construction clients and suppliers as a high commercial risk area, which presents further barriers to meaningful property development. Related to this is the lack of clear policy targets against which to measure the effectiveness of contractor support programmes.

Furthermore, the majority of current support initiatives lack an integrated programme strategy. Interventions tend to be characterised by inadequate preparations, poor need assessments and inadequate understanding of the development needs of emerging contractors. This is evident by discontinuances, unstructured training approaches, ad hoc mentorship, inadequate monitoring and evaluations that promote unsustainable skills transfer.

The ECDC has put in place an effective training and mentoring programme using the Emerging Contractor Development Model (ECDM), which was developed by the Council for Scientific and Industrial Research and described in Dlungwana, Noyana and Oloo (2004). The ECDM, being a best practice tool, aimed at assisting implementing agents to facilitate the implementation of an emerging contractor development programme. The ECDM helps focus on the quality and effectiveness of development programmes by ensuring more effective and comprehensive development of contractors' capability and capacity. Central to the ECDM is the implementation of a business plan with clear contractor development outcomes.

The integrated development model, implemented by the ECDC, embraces the concepts of the ECDM with the additional elements of project management and Total Quality Management (TQM) and this has led to an Integrated Emerging Contractor Development Model (IECDM).

The impact of the programme can be measured to determine the overall effectiveness of the programme in delivering developed and sustainable contractors to the construction industry.

The aforementioned factors, as now identified, lead to the problem statement as set out below, which will be addressed by this research.

The problem statement addressed by this study is how to develop a holistic approach towards integrated skills development for emerging construction contractors, by designing a model that can be managed with quantitative and measurable outcomes.

1.2 Sub-problems

One of the challenges faced by many government decision-makers today relates to the need for a construction development programme that comprehensively addresses the challenges faced in the delivery of infrastructure projects and Black Economic Empowerment (BEE). Investment in such programmes should be justified and measured by increased contractor capacity to execute projects and grow their businesses.

When investigating the effectiveness of the development model, several key questions arise. These are dealt with as sub-problems to the main problem. The areas set out below warrant detailed research in order to solve the main problem.

Sub problem 1: What is needed to structure an integrated emerging contractor development model (IECDM) that will satisfy the developmental needs of emerging contractors?

Sub problem 2: What quality and assurance mechanisms need to be created to enhance the elements of the development model in order to, inter alia, satisfy the objectives of the model?

Sub problem 3: What analysis and evaluation of the qualitative and quantitative results, needed to assist with the design of the development model,?

Sub problem 4: Are project management processes a prerequisite for the successful management of the IECDM?

1.3 Hypotheses

Hypothesis 1: Previous research has not adequately identified an integrated model for the development of emerging contractors.

Hypothesis 2: Effective quality management and assurance mechanisms have not been applied to the development of emerging construction contractors.

Hypothesis 3: The data compiled through structured quality assurance and management contribute to the formulation of a validated IECDM.

Hypothesis 4: Generally recognised project management knowledge and practices are required to successfully implement an IECDM.

1.4 Demarcation of research

1.4.1 Geographical demarcation

The study was limited to organisations in the Eastern Cape Province. The development centres assessed were Port Elizabeth, East London, Mthatha, Kokstad and Queenstown.

1.4.2 Size of organisation

The study was limited to 54 emerging contractors who were participating in the development model, selected by an assessment process conducted in conjunction with the Council for Scientific and Industrial Research (CSIR) and geographically located throughout the Eastern Cape Province, and who have the capacity to deal with projects between R250 000 to R2.5 million.

1.4.3 Management level

The study was conducted in collaboration with the ECDC's Enterprise Development Services (EDS) unit, with the researcher as the Programme Manager and lead Project Manager, with the management team consisting of Ecospan Projects cc, the CSIR and Noyana's Management Consultancy cc.

1.4.4 Subject of assessment

The subject of assessment is the introduction of an Integrated Emerging Contractor Development Model (IECDM) by the ECDC for developing emerging contractors in the Eastern Cape Province. The approach adopted is generic in nature and may have wider application.

1.4.5 Basis for the model

The basis for the model was to develop an effective development programme in which best practices methods for the emerging construction sector in the Eastern Cape could be established. Studying related literature and analysing the results emanating from the application of the integrated development model, lead to the development of the IECDM.

1.5 Key assumptions

The primary objective of an emerging contractor development programme as described by Dlungwana, Noyana and Oloo (2004) is to contribute to the empowerment of previously disadvantaged communities by providing opportunities to existing contractors, as well as entrepreneurs entering the construction industry, to become successful, independent contractors.

The programme seeks to enable emerging contractors, through the development of their entrepreneurial, business, contract and management skills in a real project environment, and to access opportunities created by the Public Preferential Procurement Framework Act (PPPFA).

The research evaluated the successes of the programme and lead to the development of/or the improvement of the existing model that may assist contractors and authorities to ensure successful outcomes.

1.6 Importance of the research

The research is important because of its strategic intent and its synergy with government mandate as documented in the South African Department of Public Works Code of Practice, which is to implement interventions that:

- Provide support to qualifying contractors performing at prime and sub-contract levels across the full spectrum of the construction industry while ensuring that balanced development takes place in all sub-sectors;

- Facilitate access to information, advice, mentoring, finance and credit and support integrated skills formation based on clear verifiable outcomes;

- Enable emerging contractors to mature through the execution of public sector construction contracts so that there are no identifying disparities between these contractors and non-emerging contractors operating in the same markets;

- Facilitate essential continuous and appropriately packaged workflow, accompanied by appropriate support, depending on the contractor development profile, is essential;

- Encourage and reinforce private sector initiatives, avoid reliance on the public sector, which cannot substitute or replace existing finance, training and buying and marketing infrastructure, all of which should enable the contractor to develop a sound financial and credit record;

- Balance the objectives of the promotion of the emerging sector with community employment and training objectives;

- Enable emerging contractors to successfully compete for and secure profitable public and private sector contracts and to execute such contracts efficiently and competently; and

- Reinforce other development initiatives (commitment to working together and sharing information) (South Africa. Department of Public Works, 2001:1).

The overall importance of the research is that an integrated model was investigated for the first time and that the results lead to an improved development model.

1.7 Definition of selected concepts

In order to design a model for the development of emerging contractors, an understanding of what an emerging contractor is and why the government is promoting skills development and Black Economic Empowerment (BEE) is necessary.

Key stakeholders such as the Construction Education and Training Authority (CETA) and the Construction Industry Development Board (CIDB) should be defined. The mentor may be shown to be a key component of the integrated model and maybe defined in terms of the role that he/she plays in the emerging contractor development process.

Any project requires planning, phasing and implementation. The project has to be coordinated and monitored; it is proposed that project management plays a significant role in the development of the integrated development model. The concepts that follow were identified as the key components that require assessment for a project of this nature.

1.7.1 Project management

Project management, as defined by Duncan (1996:6), is “the application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholders’ needs and expectations”. Modern project management generally encompasses the integration of nine knowledge areas. These include the four core or constraint functions of scope, quality, time and cost, and the five integrative and interactive functions of risk, human resources, contract/procurement, information/communications management and integration management. Zack (2004) further adds occupational health and safety, finance, environment and claims management as knowledge areas relating to construction projects.

Each function requires a separate skill set, so that, on a larger project or in the larger project management organisation, responsibilities tend to be grouped accordingly for its proper conduct. Consequently, the investigative format of a project management appraisal more readily should follow these functional descriptions.

Knipe, van der Waldt, van Niekerk, Burger and Nel (2002:2) add that in order for understanding of the various aspects of projects and project management, understanding of the context or environment of project management is also required.

Knipe et al., (2002:5) continue to add the purpose of project management is to foresee or predict as many of the dangers and problems in a project as possible, and to plan, organise and control activities so that the project is completed successfully. Portny (2001:12) defines project management as the process of guiding the project from its beginning through its performance to closure. Burke (2001:1) regards project management as a means of providing a structured approach to managing projects.

1.7.2 Emerging contractor

For the purposes of this study, a clear understanding of an emerging contractor (EC) is needed in order to assess effectively the size and calibre of the business enterprise being identified for development. The definition of a small-scale contractor varies according to who is defining it. A widely used definition of an EC, developed by the National Department of Public Works and described by Dlungwana et al., (2004:15) is:

> An EC is a sole trader, partnership or legal entity that adheres to statutory labour practices, is registered with the South African Revenue Service and is a continuing and independent enterprise for profit, providing a commercially useful function. Also;

- at least two-thirds owned by one or more Previously Disadvantaged Individual (PDI) or, in the case of a company, at least-two thirds of the shares are owned by one or more PDI's, previously disadvantaged individuals referring to indian, coloured and black people including white females; and

- under the control (management and daily business operations) of one or more of the PDI's who effectively own(s) it.

1.7.3 Mentor

Mentoring plays a key role in the development of the EC in the model and, therefore, a mentor needs to be defined in terms of his/her role and requirements. According to the South African Department of Public Works Code of Practice (2001:1), a mentor is a trusted and respected advisor. It further defines that construction mentors, based on their knowledge, gained through practical experience and prior learnt skills in the construction industry, is able to:

- Guide and advise emerging contractors in the areas in which they need to improve their competencies

- Develop the managerial skills of the key staff members in the business in the functional areas of administration and information technology, public relations, procurement, finance, human resources, marketing and technical skills

- Set up business systems in emerging companies

1.7.4 Construction Education and Training Authority

According the Construction Education and Training Authority (CETA) (2004: online), it was established in April 2000 by way of the South African Skills Development Act. Its primary objective is to strategically influence the course of training and skills development by ensuring that all training reflects current sectoral

needs and requirements of the construction sector. Various skills development projects and learnerships aim to develop resources comprising of skilled and a motivated construction workforce, whose skills are recognised and valued in terms of the National Qualifications Framework (NQF).

1.7.5 Construction Industry Development Board

According to the South African Construction Industry Development Board (CIDB) (2006:online), the board is a Schedule 3(a) public entity, established to provide leadership to stakeholders and to stimulate sustainable growth, reform and improvement of the construction sector for effective delivery and the industry's enhanced role in the country's economy. In terms of the Public Finance Management Act (PFMA) (South Africa. Department of Finance, 2004:online), it is an accounting authority that is responsible to the Minister of Public Works as the executive authority. The board submits its annual business plan and report to the Minister.

1.7.6 Black Economic Empowerment

The Broad-Based Black Economic Empowerment Act of 2003 (South Africa, 2006:online) defines “black people” as a generic term that includes “Africans, Coloureds and Indians”. According to the Act, “broad-based black economic empowerment” – with an emphasis on ‘broad-based’ - refers to the economic empowerment of all black people, including women, workers, youth and people with disabilities as well as people living in rural areas. According to the Business Guide Book (South Africa, 2002:online), economic empowerment is an integral part of South Africa's transformation process, encouraging the redistribution of wealth and opportunities to previously disadvantaged communities and individuals, including blacks, women and people with disabilities.

The integrated model seeks to address the promotion of BEE in the construction industry, with special emphasis on the Eastern Cape. All contractors selected for the model must be BEE-compliant.

1.8 Research methodology

Leedy (1980) describes various approaches to the methodology of a thesis. These approaches were studied in order to identify the correct methodology to be used in order to support the problem statement and the sub-problems to the research being addressed.

- According to Leedy (1980:119), the historical method of research is the means by which the researcher deals with the latent meaning of history. The object of the historical method, therefore, is to provide a means through which the researcher may deal with problems that arise from events that happened in times past and to interpret what might otherwise be considered merely as the happenstance of blind fortune. The holistic implementation of the IECDM is the first integrated development model and, therefore, comparison to other models will add value in terms of developing emerging contractors. According to Leedy and Ormrod (2001:70), the literature review describes theoretical perspectives and previous research findings related to the problem at hand. Its function is to “look again” at what others have done in areas that are similar, though not necessarily identical, to one’s own area of investigation. A researcher should know the literature relating to the topic very well.

- Statistics, as described by Leedy (1980:175), is a language expressing those concepts and relationships, which cannot be communicated in any other way. The qualitative information that will be gathered by the implementation of the model, as well as the various data capturing report systems to be implemented, will provide a descriptive view of the actual development process followed by the ECs and indicate gains in knowledge acquired against set parameters. The

NQF level 2 Construction Contractor Certificate, under the guidance of the training provider and the mentor, will form the basis of the model.

- The experimental method will be applied to account for the influence of a factor or, as in the case of complex designs, of multiple factors conditioning a given situation, as stated by Leedy (1980:211). The implementation of the model is experimental in nature of its application; it can therefore be considered an experimental model in seeking to attain a best practice model for emerging contractor development.

- Leedy (1980:97) describes the descriptive survey method as what can, at times, be referred to as a normative survey and is employed to process the data that is available to the researcher through observation.

The methodology for the study will, therefore, comprise of:

- A literature survey analysing historical information that has led to the development and implementation of the model;

- A statistical survey analysing quantitative information obtained from the model by the implementation of assessment tools and questionnaires;

- Reporting on data gathered through observation as the model is implemented, evaluated and completed; and

- Comparing data generated against a second control group utilising the same assessment tools developed.

1.8.1 Literature survey

A literature survey was conducted to determine the basis of the development of a model, in order to aid the development of ECs. This survey indicates the criteria that

need to be met in order to satisfy the objectives of the model and to gain insight into requirements for the successful implementation of the model.

The literature survey focused on BEE in the construction industry, related project management concepts and the status of the construction industry in relation to the emerging market and skills development.

1.8.2 Empirical study

The studying and monitoring of 54 emerging contractors selected to participate in the pilot programme focused on:

- Analysing the statistical data gathered by the implementation of the development programmes;
- Monitoring the progress of the emerging contractors on a monthly basis over a selected time period;
- Identifying trends in emerging contractor development;
- Analysing the key elements necessary to develop the model;
- Conducting comparisons of data generated by a similar study on 20 emerging contractors who received mentorship only by a nationally accredited construction mentor. The introduction of this second group provides an opportunity to compare the outcomes of a mentorship based only programme to that of an integrated development model. The intention is to compare the integrated developmental model for emerging contractors with the ad hoc-based development as for the second group.

The 54 contractors selected to participate in the integrated development model formed part of the pilot study and participated in a learnership programme, combined with the services of a nationally accredited construction mentor.

Total quality management (TQM) was instituted for the pilot group, whereby quality assurance mechanisms designed for the programme assisted the project team in analysing the programme on a monthly basis in order to develop a Strength, Weakness, Opportunity and Threats (SWOT) analysis.

The study also comprised the setting up of:

- Learning centres in designated areas in the Eastern Cape province;
- A help desk based in East London;
- A project team including industry professionals to manage the process;
- Communication mechanisms to gather data from all participants in order to study and evaluate the growth of the ECs; and
- Post model completion questionnaires to obtain project stakeholders input of the integrated development model.

1.9 Thesis structure

Part 1 Introduction and project overview

CHAPTER 1: Introduction

Part 2 Literature review

CHAPTER 2: Project management

CHAPTER 3: Black Economic Empowerment (BEE)

CHAPTER 4: Emerging contractors and skills development

Part 3 Emerging Contractor Development Model (ECDM)

CHAPTER 5: Design and implementation of the ECDM

CHAPTER 6: Total quality management

Part 4 Empirical study

CHAPTER 7: Presentation and interpretation of findings

Part 5 Conclusion

CHAPTER 8: New model design, recommendations and concluding comments

REFERENCE LIST

ANNEXURE

PART 2 LITERATURE REVIEW

CHAPTER 2: PROJECT MANAGEMENT

2.1 Introduction

A best practice development model for emerging contractors requires effective project management from a project team that is skilled in the design, coordination and implementation of a project of this nature. Project team members need to understand their roles and responsibilities as project managers, as well as the risks and permutations of any one project. Wideman (1990:5) states that as projects become larger and more complex, the effective management of it becomes proportionally more significant.

Wideman (1990:5) continues to state that for projects, the consequences of decisions on, essentially, how well the project is to be managed, with commitment to communication and coordination, will generally outweigh the consequences of how well a specific technical role is performed. The tighter the schedule, the more this need is magnified.

Orr (2004) and Westland (2006) add that project management has become the most valuable skill required in any organisation.

This chapter focuses on the requirements of the project team and key project management concepts related to a project of this nature. The objectives of the appointed project team by the project client, the ECDC, are to:

- Ensure that the project, when initially conceived and authorised, supports the organisation's approved higher-level strategic objectives and contains acceptable risks regarding the project's objectives; and

- Plan, control and lead the project simultaneously with all other projects, effectively and efficiently, so that each will achieve its approved objectives.

Portny (2001:12) defines project management as the process of guiding the project from its beginning through its performance to closure. Burke (2001:1) regards project management as a means of providing a structured approach to managing projects. Wideman (1990:18) defines project management as the art of directing and coordinating human and material resources throughout the life of a project by using modern management techniques to achieve predetermined objectives of scope, cost, time, quality and participant satisfaction. Wideman (2000:5) further sates that the measure of project success, in terms of both process and product, must be defined at the beginning of the project as a basis for project management decision making and post-project evaluation.

Kiser and Winder (2000:online) states that the project management plan, when implemented correctly, gives the project team upfront senior management support, clear strategic direction and the right tools to manage the project to its desired conclusion. Verzuh (2003:5) indicates that the basic understanding of project management is to understand the project. Knipe, van der Waldt, van Niekerk, Burger and Nel (2002:2) add that in order for understanding of the various aspects of projects and project management, understanding of the context or environment of project management is also required.

Gido and Clements (2002:4) state that a project is an endeavour to accomplish a specific objective through a unique set of interrelated tasks and the effective utilisation of resources. Comninos and Frigenti (2002:9) define project management as a process by which a project achieves its stated objectives.

2.2 Requirements of effective project managers and the project team

Lazarus (2005a:87) proposed that to effectively implement an emerging contractor development model, there must be a project champion who will drive and promote the programme. Murch (2001:13) states that project managers are a very special breed of people. They are in great demand and will be increasingly so as the need for effective technologists continues to soar.

Wideman and Verma (1994:627-633) state that it is clear that leadership is important to the success of a project, seeing that leadership is essentially about motivating people. It is also clear that what may be characterised as “managership” is equally important, as this is about getting things done.

Campbell, Baker and Baker (2003:16) state that good technology project managers are trained, not born. They develop skills through experience and education. They become better project managers each time that they successfully deliver a project. They learn new techniques and apply it to their projects. They learn lessons - sometimes the hard way - in order to be better managers in the future. Campbell et al., (2003:16) refer to the project manager as the person who is ultimately responsible for the project’s success.

Archibald (2000:6) refers to the project manager’s role as being more operational in nature compared to that of the project sponsor; which is more strategic. The project manager plans and directs the execution of the project to meet the time, cost and performance objectives as established by the project sponsor. Archibald (2000:7) states that the project manager integrates the efforts of all persons and organisations contributing to the project, primarily working through the various functional project leaders.

Wideman and Verma (1994:627-633) add that to get a project started off right, the project manager must display leadership. However, the style of leadership does need to change as the project progresses through its life cycle. Project leadership and project “managership” are both essential to project management success, and which is appropriate when is clearly tied to the project life cycle. A suitable collective term for describing the conduct of a project throughout its life cycle appears to be “project stewardship”.

Murch (2001:15) states that project managers must be able to motivate and sustain people. Project team members will look to the project manager to solve problems and help with removing obstacles. Project managers must be able to address and solve problems in the team as well as those that occur outside the team. Project managers need a wide range of skills, over and above the technical skills, to lead and deliver on time projects successfully. A good project manager needs to understand the business aspects of running a project.

According to Knipe et al., (2002:34-35) the project management team must identify the stakeholders, determine their needs and expectations and then manage influence those expectations to ensure a successful project.

Wideman (1991:7) adds that in addition, on a larger project, he will require other more specialized services such as financial accounting, payroll, systems development, personnel, legal, public relations and property acquisition. Because they do not normally affect project control decisions, these activities are usually carried out by independent departments or companies, not under the project manager's direct supervision. Nevertheless, if the project manager is to get the quality of information and service that he needs, he must maintain good communications with all such parties.

Wideman (1991:7) continues to state that the project manager will also be required to report to the Executive on a regular basis. For this he must ender a succinct digest of the available information on progress, forecast, resource requirements, and actions required.

Wideman (1991:12) states that the Project Manager's personal objectives must be to:

- Attain the willing commitment of people to assigned tasks;

- Achieve the coordination and collaboration of different work groups, responsibility centers, and entire organisations, including those of the owner;

- Achieve cooperation by placing a high premium on reliability and timeliness of information, and by discouraging unnecessary or irrelevant information;

- Steer the project to completion in an orderly and progressive manner;

- Ensure that trade-offs between scope, quality, time and cost are satisfactory and acceptable, and are seen to be so; and

- Encourage the development of personal and professional skills amongst the project participants.

2.3 Project management knowledge areas

Projects encompass project management knowledge areas. It is, therefore, important to define the knowledge areas in order to identify the role of each knowledge area in implementing and managing the project. Wideman (1991:12) identified scope, quality, time and cost management as the core group of project management control functions.

Zack (2004) adds that for construction project management additional knowledge areas of occupational health and safety, finance, environment and claims management should be considered.

It represents, therefore, a set of core parameters that are used to control the project. In implementing the IECDM model, the project manager has identified, in addition to Wideman's core parameters, the need for effective project risk and communication management as necessary components for the model.

Key project management knowledge, considered to be essential IECDM, are defined and analysed in the following paragraphs:

2.3.1 Project time management

The Project Management Body of Knowledge (PMBOK) by the Project Management Institute (PMI) (2000:65) refers to project time management as comprising five elements, ie activity definition, sequencing, duration estimating, schedule development and schedule control, with project time management being defined as the process of ensuring timely completion of the project. The PMBOK continues to state that these processes interact with each other as well as with processes in other knowledge areas (Project Management Institute [PMI], 2000:65-79).

Campbell, et al. (2003:122) recommend that any project manager begin planning by starting with scheduling and time frames as time is money and mismanagement of the project time will cause unbudgeted costs.

2.3.2 Project cost management

Campbell et al. (2003:160) state that the budgeting process can be intimidating to a project manager and that the project manager must know what the project will really cost. The PMBOK (2000:83) defines project cost management as the process required to ensure that the project is completed within the approved budget. It comprises the following main processes: Resource planning cost estimating, cost budgeting and cost control. The PMBOK (2000:83) continues to describe project cost management as primarily being concerned with the cost of the resources needed to complete the project activities.

2.3.3 Project quality management

As described in Verzuh (2003:208), quality management can result in the team being more effective in carrying out the management of the model. Project quality management provides the tools to ensure that projects meet the required objectives. It prescribes (plays) an important role in project planning and establishes the major functions of the project manager during project execution. The goal of project quality management is to ensure that the design and construction of a project meet the quality requirements

established by an organisation. Lockyear and Gordon (2000:36) state that the need to achieve quality affects all areas of industry including projects and project management. One of the main problems with quality is defining what is meant in a particular case in measurable terms.

2.3.4 Project communication management

The PMBOK (2000:117) defines project communication management as the processes required to ensure timely and appropriate generation, collection, dissemination, storage and ultimate disposition of project information. It comprises communication planning, information distribution, performance reporting and administrative closure. Project communication management is an effective component of the IECDM, as the emerging contractors' development must be carefully monitored; the results captured and disseminated correctly to the project stakeholders.

2.3.5 Project risk management

Van Well-Stam, Lindenaar, van Kinderen and van den Bunt (2004:2) state that risk management provides support for attempts to gain better control over a project when it comes to time, money, quality, information and organisation. According to Chapman and Ward (1998:9), the essential purpose of risk management is to improve project performance.

Project risk management is a broad concept that can be approached in different ways. Two standards have emerged that provide project teams with useful guidance with regard to managing risk (Frame, 2002:83). One is the Australia/New Zealand standard, the other is the standard promoted by the PMBOK. The PMBOK (2000:127) guide sees managing risk as made up of six processes: Risk management planning, risk identification, qualitative risk analysis, quantitative risk analysis, risk response planning and risk monitoring and control.

The concept of risk for the model to be presented relates to the project management objectives of time, cost and specifications as well as the business objectives of the

project. Risk management forms an integrated part of business management and project management. Risk management planning, if it is going to be managed effectively, must have conscious planning to deal with it. When planning the overall project, time must be set aside to deal specifically with a risk management plan (Frame, 2002:83). Risk management is more than just the management of project risks; it is also the management of the risks that the project may place on the business.

Effective management of risk will often require a substantial investment of resources. Therefore, a key goal for risk management is to cultivate support among senior management and other stakeholders and participants in the project for the actions or programme that are needed to reduce or mitigate risks. Barkley (2004:13) states that the challenge in overcoming risk is to have effective project leaders. Van Well-Stam et al. (2004:109) add that risk management becomes the responsibility of each project team member and must correspond to the level of authority.

Van Well-Stam et al. (2004:109) continue to state that risk management is a component in the successful management of any project. It is a process that must start from the inception of the project and continue until the project is completed and its expected benefits have been realised. Risk management must focus on the areas of highest risk in the project and continuously monitor other areas of the project in order to identify any new or escalating risks.

The development of an integrated model may require risk assessments to be performed prior, during and post completion of the project. Risk assessments comprise three key elements: identifying uncertainties, analysing risk and prioritising risk. In the same way, risk control comprises three elements: mitigating risk, planning for emergencies and implementing control measures.

Verzuh (2003:179) states that project risk management techniques are complementary to all project management functions, hence the incorporation of stringent project risk management controls for the role, as taken from (implemented in) the development model.

2.4 Attributes of successful project management and the project team

According to Wideman (1991:14-15) The Project Executive has a vital role to play and should insist on the following:

Executive Support - The Executive must clearly demonstrate support for the project management concept by active sponsorship and control.

External Authority - The project manager must be seen as the authoritative agent in dealing with outside parties, and be the responsible and single formal contact with them.

Internal Authority - The project manager must have the necessary managerial authority within his organization to ensure response to his requirements.

Commitment Authority - The project manager should have capability and authority to control the commitment of funds within prescribed limits.

Competence - The project manager and his team members must be competent. Other functional personnel assigned to the project must also be competent.

Project Team - The project manager should have a say in the assembly of his project team, which will help him to obtain their personal commitment. The private sector should build up the best source of expertise.

Project Manager Involved in All Major Decisions - No major technical, cost, schedule, or performance decisions should be made without the project manager's participation.

Management Information Systems - Effective project management information and control systems must be in place, preferably with third party observation, scheduling and estimating resources.

2.5 Conclusion

By reviewing the related literature on project management, it is apparent that projects undertaken require project management. The development and implementation of a skills development model require a stringent project management process, as described in the literature. A project, together with emerging contractors, construction mentors and service providers, needs to be managed in terms of its roles and responsibilities. The project carries a degree of risk, which needs to be managed in order to ensure quality assurance, efficiency and that the project delivers in terms of the agreed on objectives.

A key goal of disciplined project managers is to avoid the unforeseen surprises that can occur. These surprises may include cancelled projects, late delivery, cost overruns, dissatisfied customers, outsourcing, termination and/or unemployment. Careful consideration is, therefore, required by the ECDC Programme Manager in selecting efficient project managers capable of managing the interests of the corporation.

The Project Managers for the IECDM need to understand Black Economic Empowerment (BEE), as the skills development model is an attempt to promote BEE in the construction industry referring specifically to non white or black South Africans. BEE and the role it plays in transformation and the construction industry is explained in chapter three.

CHAPTER 3: BLACK ECONOMIC EMPOWERMENT (BEE)

3.1 Introduction

In this chapter, BEE in South Africa is addressed as well as the strategy which Government has put in place to address the issue of BEE. Addressing BEE in the construction industry requires an understanding of the importance of the industry as catalyst for transformation as well as the overall role that Small Medium and Micro Enterprises (SMME) play in developing a robust economy and the role that the emerging contractor plays in each of these areas.

Furthermore, in order to address BEE in the construction industry, one needs to study the challenges faced by emerging contractors. Skills development programmes are empowerment exercises in addressing the lack of opportunities afforded to black South Africans in the past; this is the basis behind the development of an Integrated Emerging Contractor Development Model (IECDM) to address the skill shortage of black South Africans.

According to Chege, Knoetze and van Wyk (2004:1), South Africa's socio-economic history is characterised by exclusion, referring to not all race groups benefiting from the countries economic growth. Ever since the establishment of the Dutch settlement in the Cape, successive governments have taken a narrow and sectionalist approach to governance. The litany of exclusionary legislation of the past century is well known to all South Africans. It culminated in the official policy of apartheid (separate development) of the National Party government which was implemented as a national objective from 1948 onwards.

Chege et al. (2004:1) state that the historical and deliberate exclusion of black South Africans from participating freely in the economy resulted in a society marked by vast discrepancies and disparities. Government's BEE policy aims to further strengthen South Africa's shared economy, which meets the needs of all the people of South Africa and significantly reduces the gulf between black and white in terms of skills and job opportunities in the shortest possible time.

Chege et al. (2004:1) add that nonetheless, the slow pace of transformation has generated much frustration among historically disadvantaged South Africans at the apparent lack of commitment to BEE by government and the private sector. Many argue that the market system, if left to its own devices, would not undo the damage caused by colonialism and apartheid. Government, in its view, had to intervene. Chege et al. (2004) state that subsequent to the initial employment equity legislation, a further act, the Broad-Based Black Economic Empowerment Act, act no. 53 of 2003 has been introduced which provides further impetus for BEE (South Africa, 2003).

Chege et al. (2004:1-14) add that the Act was introduced as a direct result of the apathy by the private sector, in collaborating with the previously disadvantaged communities in order to fast-track their mainstreaming into the economy. A key ingredient of this legislation is the sector charters that have been developed by each sector and which have translated into BEE goals that industries need to achieve in order to secure lucrative contracts.

The construction charter (South Africa. Department of Public Works, 2006:online) was finalised on 26 January 2006 but was suspended, pending the completion of other sector codes according to Shubane (2006:online). In particular, the charter addresses the elements of the BEE rating, ie ownership, control, employment equity, skills development, procurement, enterprise development and corporate social investment.

The construction industry remains a target sector for government as well as industry commentators since it is seen as a sector that is most able to contribute to Government's mandate in terms of job creation and economic growth.

In the Construction Industry Development Board's annual report, Chairman Pepi Silinga said: "Since the advent of democracy in 1994, Government has been unambiguous about the strategic role of the construction industry in improving the quality of lives of the people of South Africa" (Construction Industry Development Board [CIDB], 2005b:1). Furthermore in the Construction Industry Development Board's annual report, the board's CEO Hodgson also pointed to the need for South Africa to significantly grow its

construction output over the next 10 years (2007-2017) (Construction Industry Development Board [CIDB], 2005b:8).

A report by Fin24 (2006a:online) reported the late Public Works Minister Stella Sigcau as saying that "South Africa's construction industry is on the brink of a boom … an industry which is set to grow strongly in the next five years as a result of increased infrastructure spending by government as part of the Accelerated Skills and Growth Initiative of South Africa (ASGISA)".

In a later report, Fin24 (2006b:online) reported that R360bn would be spent on infrastructure over the next few years. Indicative of the boom are figures released by Statistics South Africa in (2006) which pointed out that the value of recorded building plans passed by larger municipalities during January 2006 rose by 32,3% over the previous year. Large increases for non-residential buildings were reported - industrial and warehouse space (75.2%) and shopping space (56,2%). Building plans for flats and townhouses showed the largest percentage increase (70,6%) (Lehohla, 2006:online).

Gounden (1997:2-7) identified public sector construction procurement as a key instrument that could contribute to the realisation of specific socio economic objectives. Gounden (1997:2-7) pointed out that the National Department of Public Works, between August 1996 to July 1997, issued building and civil contracts worth US$190 million, using affirmative procurement policy specifications.

Gounden (1997:2-7) also noted that SMME's could provide a foundation to de-racialise the South African construction industry and provide a platform for the development of future medium and large scaled firms that are owned and controlled by historically disadvantaged firms.

The construction industry has suffered the same challenges, and hence the need to fast-track BEE in the construction industry. Chege et al. (2004:1-14) state that the call for government intervention is worth closer scrutiny. Chege et al. (2004:1-14) refer to the Grant Thornton International Business Owners' survey, published in 2004, that states that three-quarters of South Africa's medium-sized companies indicated that it does not care

about suppliers' empowerment profiles, while over a third did not feel that empowerment was an issue when it came to winning business.

Chege et al. (2004:4) state that the survey concluded: "White males still run the economy almost a decade after the African National Congress (ANC) came to power with a pledge to transform the apartheid economy. Black people run the public sector while white people run the private sector, the engine of the economy." Whites still fill 80% of all top management positions, though they represent significantly less than 20% of the workforce. In addition, the 1,9 million employed whites command most of the 780 000 jobs that pay more than R8 000 a month.

A report by the South African Press Association (SAPA) (2006:online) reported that management transformation has been achingly slow despite the fact that the fanfare accorded too many large empowerment deals. The report continued to state that 524 directorships surveyed in an annual probe into executive pay that only six were held by women in executive positions, and only 19 are taken by black executive directors.

3.2 What is Black Economic Empowerment?

The Broad-Based Black Economic Empowerment (BBBEE) Act 53 of 2003 (South Africa, 2003:4) defines "black people" as a generic term that includes "Africans, Coloureds and Indians". According to the Act, "broad-based black economic empowerment" – with an emphasis on 'broad-based' - refers to the economic empowerment of all black people, including women, workers, youth, people with disabilities and people living in rural areas.

The socio-economic strategies of the BBBEE Act 53 of 2003 envisaged include:

- Increasing black ownership and management of businesses;
- Facilitating community and worker ownership of "enterprises and productive assets";

- Skills development;
- Issues surrounding equal representation in the workplace; and
- Preferential procurement and investment in businesses that are owned by black people (South Africa, 2003:4-5).

3.3 The Construction Charter final version 2006

The construction sector believes that a positive and proactive response, through the implementation of a transformation charter, would address inequalities in the sector, thus unlocking the sector's potential and enhancing its growth. According to the South African Department of Public Works (2006:3) the Construction Sector Transformation Charter:

- Constitutes a shared approach, reflecting targets that are visionary and contain significant stretch to facilitate the rapid transformation of the construction sector, which all sector stakeholders hold, and establishes the principles on which BBBEE should be implemented in the sector;
- Establishes targets and qualitative responsibilities in respect of each principle;
- Lays the basis for the development of a Code of Good Practice for the construction sector, as envisioned in the BBBEE Act; and
- Applies to all stakeholders in the sector.

The charter (South Africa. Department of Public Works, 2006:5) provides a framework for the construction sector to address BBBEE, enhance capacity and increase the productivity of the sector to meet world best practice.

The charter (South Africa. Department of Public Works, 2006:5-6) aims to:

- Achieve a substantial change in the racial and gender composition of ownership, control and management in the sector;

- Promote the effective advancement of employment equity in the sector and adherence to principles of non-racialism and non-sexism;

- Provide to the construction sector the first quantitative method for monitoring and evaluating the progress of an enterprise towards BBBEE and thereby aims to contribute to the end of the fronting malpractice;

- Expand the employment potential and absorption capacity of the sector using labour-intensive approaches where economically feasible and possible;

- Address skills development in a manner that accelerates the advancement of black people, black women and designated groups with particular emphasis on learnerships, technical and management training;

- Increase the procurement of goods and services from BBBEE enterprises and standardise preferential procurement methodology;

- Enhance entrepreneurial development and promote the sustainable growth of micro, medium and small BBBEE enterprises;

- Devise mechanisms to bring about the formalisation of labour-only contractors, ensure that they participate in training and abide by all relevant legislation and regulation aimed at protecting their rights, improving workplace conditions and the safety of labour;
- Encourage adherence to triple bottom-line accountability and fair labour practices through employment equity, skills development and Corporate Social Investment (CSI) interventions;

- Improve the capacity of the public sector to deliver, by promoting greater partnership with Government in developmental initiatives, especially in under-resourced areas, as enhanced delivery by the public sector will play a crucial role in facilitating growth of the sector; and

- Lay the foundations for the integration of construction sector associations to create efficiency, promote a shared vision and enhance the sector's ability to communicate with Government and other stakeholders.

3.4 Government's Broad-Based Black Economic Empowerment strategy

A report by BuaNews (2003:online) states that government identified the need for BEE not due to political reasons but to grow the economy. According to a report by the Business Map Foundation (2006:online) the rationale for empowerment is simple: redress the economic exclusion of the majority of South Africans and through that, create a more equitable and stronger economy. The report continues to state that BEE has been on the agenda of the African National Congress (ANC) since it was elected in 1994. However under President Thabo Mbeki the tempo picked up, with government employing all the legislative leverage and buying power it has to force the pace of change, culminating in the publication of a BEE strategy by the Department of Trade and Industry (DTI) in 2003 and the passing of the BBBEE Act 53 of 2003.

3.5 Black Economic Empowerment in the South African construction industry

According to Strydom (2006:online) BEE in South Africa is governed by the BBBEE Act 53 of 2003, and that the act regulates the objectives of BEE.

A report by the BMI Building Research Strategy Consultants Unit CC (2005:10) for the Construction Industry Development Board (CIDB) found that there is limited scope for BEE within the medium sized construction companies who tend to make use of sub-contracting for specialised skills proposes that BEE should take place by encouraging those with the skills to become owner entrepreneurs, firstly as sub-contractors and then migrate to full contracting status over time as experience is gained.

By comparing the performance of the industry on the components of BEE against idealised performance scenarios (leading BEE, lagging BEE, tracking BEE and avoiding BEE), the report concluded that:

- The performance of the industry in the area of Employment Equity could be regarded as leading BEE;

- The performance of the industry on the components of Equity ownership, preferential procurement and management could be regarded as lagging BEE; and

- The performance on components of skills development, enterprise development can be described as avoiding BEE (BMI. Building Research Strategy Consultants Unit CC, 2005:13).

3.6 Problems facing emerging contractors

The key constraints facing emerging contractors in the South African construction industry are no different to the problems encountered by emerging contractors in other developing countries. It may be argued, however, that when compared to other SMME's in the South African construction sector, the problems confronting emerging contractors are more acute. Significant research has been conducted, internationally and locally, on the problems facing emerging contractors. Ofori (1995), in a report prepared for the United Nations Centre for Human Settlements (UNCHS) on policies and measures for small contractor development identified a range of problems confronting SMME's.

Dlungwana and Rwelamila (2003) state that contractors can be distinguished from each other by using variables such as the size of annual turnover, capacity and capability. The challenges facing small and medium-sized contractors can be distinguished as those that affect small-scale contractors and those that affect medium-sized contractors. Some key features of small-scale contractors are that they are largely unregistered, operate in the informal sector of the economy and have very little formal business systems. The small-scale sector comprises the largest percentage of total contractors, although they employ very few permanent staff - usually less than 10 employees.

The medium-sized contractors are usually registered businesses that have formal business systems in place, operating in the formal sector of the economy. These contractors employ a relatively larger number of employees, approximately between 40 and 100, on a

permanent basis. While many small and medium-sized contractors throughout the world face challenges, contractors in developing countries have additional problems to those experienced by their counterparts in the developed countries, states Ofori (1991).

Ofori (1991) adds that the conditions in developing countries present additional challenges, which include, amongst others, the lack of resources for training contractors, such as funds, poor construction procurement systems and lack of management capacity as well as resources to equip managers to operate their business enterprises effectively and efficiently. Contractors have to meet the traditional project measures of cost, time and quality. In addition to these measures, sustainability issues, such as environment and social responsibilities, have recently come to the fore.

Several researchers have analysed problems confronting emerging contractors similar to that of Dlungwana and Rwelamila (2003:1-12), such as Atkinson and Milne (1996) and Hodgson and Gwagwa (1997:165-173).

3.7 Financial support from government for Black Economic Empowerment

According to Strydoms (2006:online) governments approach towards the financing of BEE is that its own efforts are merely facilitating BEE and that the private sector should play a dominant role in the financing of BEE. Strydom continues to add that despite this position government has channelled funds for BEE through the Department of Trade and Industry (DTI) and its agencies such as the Independent Development Corporation (IDC), the Land Bank, the Development Bank of Southern Africa (DBSA, Ntsika and Khula Enterprise Finance Ltd.

3.8 Conclusion

After reviewing the related literature on BEE, it is indicated that BEE, like economic growth, is unsustainable unless it is shared by all construction industry stakeholders. Therefore, BEE should be seen as an important element for restructuring the economy. The role of development programmes therefore supports the government's position regarding promoting BEE in the economy of South Africa of which the construction industry is one of the largest employers.

The development of the IECDM and BEE is closely interrelated. The purpose of the model is to address the issue of the lack of BEE in the construction industry since it targets individuals from historical disadvantaged backgrounds in the construction industry while seeking to promote BEE in the construction industry. This should contribute to the government's overall BEE goals.

In order to promote BEE the skills of black South Africans needs to be addressed due to the shortage of skilled labour experienced in South Africa. BEE as described in chapter three will not be achieved without the necessary skills in place. Chapter four therefore highlights the initiative of government to address the skills shortage in South Africa by introducing the Skills Development Act, act 27 of 1998, the development of the Construction Industry Development Board (CIDB) and the Construction Education and Training Authority (CETA) as well as looking into developmental initiatives by government.

CHAPTER 4: EMERGING CONTRACTORS AND SKILLS DEVELOPMENT

4.1 Introduction

This chapter focuses on emerging contractors and the interventions that are in place to develop the skills of black contractors in South Africa. Previous initiatives to develop the skills of emerging contractors will be reviewed in order to develop a "best practice" skills development model. McCutcheon and Croswell (2001:365-379) outline the challenges facing emerging contractors as capital and expertise (entrepreneurial, managerial, technical and administrative) as well as a record of accomplishment. All relate or result from the lack of skills.

McCutcheon and Croswell (2001:365-379) explain that contract continuity holds the key, since without business continuity; the contractor is likely to go out of business, be unavailable for the work when required and lose competence through lack of practice. In all cases, the training invested in the small contractor will be lost. The issue for continuity becomes even more relevant if one takes into account the substantial resources of time and money that are invested in emerging contractors.

McCutcheon and Croswell (2001:365-379) recommend that a programme approach should include, among others:

- Continuity of contracting opportunities;
- Training and ongoing mentoring;
- High-level support "champion"; and
- Institutional support.

McCutcheon and Croswell (2001:365-379) highlight a programme implemented in Egypt, which was a viable and potentially successful employment-intensive contractor development programme. It is considered to be ahead of the South African initiatives,

chiefly because of high-level commitment and allocation of the necessary funds and political support.

McCutcheon and Croswell (2001:365-379) recommend a programme that is structured as a series of consecutive contracts, during which the basically-trained small contractor is progressively less closely mentored until he or she finally becomes able to act independently, ie has the entrepreneurial approach towards looking for work and tendering successfully, combined with the technical, managerial and administrative skills to survive.

McCutcheon and Croswell (2001:365-379) add that skills development, particularly on the entrepreneurial side, should address the period post 2010, when the big infrastructural projects would have reduced dramatically. It is likely that the emerging contractor will have exited the programme by then and may not be able to use it to fall back on. Their skills may need to be of a sufficiently high standard to be able to export these into Africa, as well as to compete locally with global competitors such as China.

Gann and Senker (1998:569-580) point out that the type of skills acquired is equally important. It is likely that the current environment may not support entrepreneurship or innovation, which is required to sustain long-term performance improvements. The type of skills being transferred or gained should ensure that the skilled labour force ensures improvements in delivery, productivity and cost. Improved skills will also reduce the number of site accidents resulting from poor management and a lack of adequate and appropriate operative training. Furthermore, air, noise and water pollution are important business issues and will change existing processes. These have implications for business processes and skill requirements.

Gann and Senker (1998:569-580) add that sophisticated construction products and processes, as well as the increased need of technical knowledge and skills, can only be achieved with properly trained and skilled workers.

An article by Fin24 (2006a:online) reported the late Stella Sigcau, Public Works Minister, as saying that the industry was on the brink of a boom, necessitating an urgent and vigorous drive to attract the youth and women in the sector. She said that the

Accelerated Shared Growth Initiative of South African investment would have a direct impact on the skill requirements of the construction industry, already flagging the shortage of professionals and artisans.

A key ingredient for success, pre and post 2010, is entrepreneurship. Unfortunately, according to a report in the Sunday Times by Jackson (2006:19), this remains an area of concern, as South Africans continue to perform poorly in terms of indicators, such as The Global Entrepreneurship Monitor, in which South Africa was rated 25th of 35 countries. Furthermore, this trend is shared by high-income countries and not by other emerging economies. In addition, while South Africa performs badly on two out of the three measures of innovation, it is also becoming less innovative year on year.

McCutcheon (2001:275-284) states that unemployment remains one of South Africa's most pressing problems. At the same time, there is a great need for physical infrastructure in urban and rural areas. Concurrently, there is also a lack of individual skills and institutional capacity. From a theoretical perspective, substantiated by large-scale experience elsewhere in Africa, there are reasons for advocating the establishment of carefully formulated, long-term programmes using employment-intensive methods for the construction and maintenance of the required infrastructure.

McCutcheon (2001:275-284) adds that these programmes have also improved institutional capacities and developed individual skills. These can be financially competitive with conventional (equipment-based) construction and produce the same quality of product in the same time. From a development perspective, there are additional socio-economic benefits to be gained, such as the development of individual skills and institutional capacities, and the alleviation of poverty.

4.2 Skills Development Act, act 27 of 1998

The Skills Development Act provides an institutional framework to devise and implement national, sector and workplace strategies to develop and improve the skills of the South African workforce (Engdahl and Hauki, 2001:62). According to Engdahl and Hauki (2001: 62) the purpose of the Act is to:

- Increase the levels of investment in education and training of the labour force;
- Improve the employment prospects of persons previously disadvantaged by unfair discrimination; and
- Redress the disadvantages through training and education.

Employers are:

- Encouraged to use the workplace as an active learning environment;
- To provide the employees with the opportunities to acquire new skills;
- To provide opportunities to new entrants to the labour market to gain work experience; and
- To employ persons who find it difficult to find employment.

Engdahl and Hauki (2001:62) state that the definition of an employee in this Act is the same as in the Employment Equity Act. A worker is defined as an employee, an unemployed person or a work-seeker. The Act established the National Skills Authority and the National Skills Fund and provided for the establishment of Sector Education and Training Authority (SETA). The functions of the National Skills Authority are, among others, to:

- Advise the Minister of Labour (the Minister) on regulations to be made;

- Liaise with SETA regarding different skills development policies and strategies;

- Conduct investigations; and

- Report on the progress made in the implementation of the national skills development strategy.

Engdahl and Hauki (2001:62) add that members of the authority are appointed by the Minister to represent interests from labour, business, the community and development interests as well as the State. They focus on specific economic sectors, determined by the education and training needs of employers and employees in similar categories of businesses. The potential for coherent occupational structures and career planning as well as the financial and organisational ability of the proposed sector to support a SETA, are other issues taken into consideration.

According to Engdahl and Hauki (2001:62), the function of SETAs is to:

- Develop and implement a sector skills plan by establishing learnerships;

- Approve workplace skills plans, allocate grants to employees, employers and education and training providers; and

- Monitor education and training in the sector.

Furthermore, they are to collect and disburse the skills development levies in their sectors. The SETAs liaise with the national skills authority and report to the Director General of Labour. Every SETA consists of representatives from labour, employers and relevant government departments and might also include other interested parties if the Minister of Labour considers it appropriate (Engdahl and Hauki, 2001:63).

Employers may develop a skills programme for their workforce, after which they can apply to their SETA for a grant or to the Director General of Labour for a subsidy.

Engdahl and Hauki (2001:63) define a skills programme as:

> A programme that is occupationally-based, will constitute a credit towards a qualification registered in terms of the National Qualification Framework when completed, uses a training provider accredited by a body contemplated in the South African Qualifications Authority Act or complies with the prescribed requirements.

4.3 The Construction Charter and skills development

The construction charter (South Africa. Department of Public Works, 2006:7) outlines skills and entrepreneurial development objectives that the construction industry needs to achieve over a three and seven-year period. These objectives are:

- Address skills development in a manner that accelerates the advancement of black people, black women and designated groups, with a particular emphasis on learnerships, technical and management training; and

- Enhance entrepreneurial development and promote the sustainable growth of micro, medium and small BBBEE enterprises.

The charter (South Africa. Department of Public Works, 2006:10) targets specific skills development expenditure during this time, namely:

- Seventy percent of total skills development must be spent on black people;

- Twenty five percent of skills development spent on black people must be spent on black women;

- Twenty five percent of skills development spent on black people must be spent on black management; and

- Twenty percent of skills development spent on black management must be spent on black women management.

4.4 Accelerated Shared Growth Initiative of South Africa

McCutcheon and Croswell (2001:365-379) state that there is a corollary of a formal link between large-scale construction programmes and training programmes, i.e. the actual construction works expand at the rate to which the training programme has been able to produce competent people. In effect, institutional capacity has been established by producing people who are functional at a particular level and inserting them into the institution so that, as a whole, the whole institution functions in accordance with its overall objectives.

As part of the ASGISA project, Government has targeted skills through its Joint Initiative for Priority Skills Acquisition (JIPSA) project. This relates to building a database of graduates, as well as linking up experienced persons in various industries who are able to mentor new entrants to the market.

4.5 The role of the Construction Education and Training Authority

In April 2000, the Construction Education and Training Authority (CETA), (2004:online) took over the responsibility for all education and training in the construction sector, which includes all building, civil engineering and related activities (which are performed in an office, on site, in a workshop or factory) associated with the design of, planning for, preparation for and the building, construction, erection, fitting, completion, maintenance and repair of buildings, structures, factories, dam walls, weirs, reservoirs, pipelines, canals, tunnels, roads, runways, driveways and parking areas as well as building and civil infrastructure.

According to CETA (2004:online), one of the tasks of the CETA is to ensure that a skilled and motivated construction sector workforce is developed, and that the skills are recognised and valued in terms of the National Qualifications Framework (NQF). It is also in the interest of the CETA that people who have acquired skills, but do not have qualifications, are put through the Recognition of Prior Learning (RPL) assessment process, so as to ensure that they can compete on an equal footing for those jobs that require some form of qualification.

According to CETA (2004:online), in addition to carrying out the functions listed above, the CETA is also accredited by the South African Qualifications Authority (SAQA) to provide an Education and Training Quality Assurance (ETQA) role to the industry, ensuring that standards of training are rigorously adhered to. The CETA is funded from the levies paid by employers, with 70% of the total levies paid being available to be claimed as grants. Twenty percent of the levies go to the National Skills Fund.

In order to ensure adequacy of representation, the CETA has been formed with four sub-sectors, namely:

- Construction (the contractors);
- Consultants (engineers, architects, quantity surveyors);
- Town planners and landscape architects; and
- The manufacturers and suppliers of construction materials.

Each of these sub-sectors has a standing committee reporting directly to the authority members on matters particular to its sub-sector.

4.6 The role of the Construction Industry Development Board

The Construction Industry Development Board (CIDB) (2006:online) was established by parliament (Act 38 of 2000) as a statutory body to provide leadership to stakeholders and to stimulate sustainable growth, reform and improvement of the construction sector for effective delivery and the industry's enhanced role in the country's economy.

The CIDB, which is responsible to the Minister of Public Works, comprises private and public sector individuals appointed by the minister on the basis of their individual knowledge and expertise. The board is supported by a professional and knowledge-based organisation, structured to drive the strategic objectives of the CIDB (CIDB, 2006: online),.

The CIDB's mandate is to provide:

- Strategic leadership;
- Promote sustainable growth;
- Promote improved performance and best practice; and

- Promote improved procurement and delivery management, and develop methods for monitoring and regulating the performance and registration of projects and contractors.

4.7 The Emerging Contractor Development Programme

In 1997, the South African Department of Public Works set up the Emerging Contractor Development Programme (ECDP) to help fast track the involvement of black-owned construction businesses in the sector. The programme has brought about the management of 50 000 construction projects by black-owned companies, generating R431 million, but the slump in the industry in the 1990s starved many of these companies of business, states Neveling (2003:online).

Training should be developed for different levels of emerging contractors, including contract-specific training to prepare entrepreneurs for work appropriate to their size and stage of development.

4.8 The Expanded Public Works Programme

Van Wyk (2003:15) states that the Expanded Public Works Programme (EPWP), over the next five years, will spend at least R15 billion of R45 billion on work that lends itself to labour-intensive jobs. These jobs include the upgrading of rural and municipal roads (37 416km), pipelines (31 000km), storm water drains (1 500km) and urban sidewalks (150 km). The programme is intended to create employment, enhance service and infrastructure delivery and provide skills and training.

Van Wyk (2003:15) states that the programme is to be effected by the private sector, which will be invited to tender for infrastructure projects earmarked as labour-intensive. The role of the public sector will be to manage procurement, select projects and provide project management. The EPWP has received widespread support, as public works projects are seen as more beneficial than a basic income grant, in that it targets the poor

more effectively, creates infrastructure that is more widely useful to society and provides for on-the-job training and skills development.

Economists and policy analysts, however, fear that the programme may be severely impeded by the lack of capacity in Government to roll out the necessary projects. The private sector is to be asked to second skilled project managers to work in some municipalities to assist with the management of the projects. Concern has also been expressed that placing the EPWP in the Department of Public Works may undermine the programme as the Department is severely overloaded. It is likely that the EPWP projects will be more attractive to smaller contractors than the larger contractors who tend to make greater use of capital-intensive construction methods. Utilising smaller contractors will, by contrast, result in greater job creation.

4.9 Analysis of previous research on development programmes

This section focuses on the analysis of previous skills development programmes undertaken in South Africa in an attempt to source the positive aspects thereof and incorporate these in the integrated development model to be developed.

A case study conducted by English (2002:583-593) on 200 workers revealed that the easy entrance into construction labour and the lack of barriers, due to informal employment practices, has meant that there is a low level of ability.

English (2002:583-593) found that the trend of outsourcing has resulted in a drastically reduced formal labour force available for formal training. Most workers in the informal sector (over 50% of the sample) are casually employed and nearly 50% of the sample had not worked for the current employer for more than a year. Workers in impermanent positions do not have the opportunity to develop skills, and hence 76% of the sample were working in their original role of labourer and had not progressed into other roles.

Workers' principal opportunity to improve skills appears to be on-site. English (2002:583-593) found that, given the low education level of the sample, it is unsurprising that few showed interest in acquiring skills other than building ones pertinent to their

jobs. However, the workers were also asked to assess their language skills. Shared language is an important factor in effective communication. According to English (2002:583-593), almost half the sample said they would like to improve their language skills, with English the most favoured choice.

English (2002:583-593) asked workers how they had acquired their skills. Thirty-four percent of those who answered this question said that they had acquired their skills formally and was in the older age bracket. Sixty-six percent had acquired their skills informally.

English (2002:583-593) also found that training is vital to the future skill requirements of the construction industry. The Government has affirmed this with its creation of SETAs for different sectors, with CETA being the SETA for the construction industry. The major task of CETA is to develop a skilled and motivated construction sector workforce. A feature of this skills improvement programme will be the Recognition of Prior Learning (RPL), a process of assessment for people who have acquired skills, but who do not have qualifications, but who have developed in the informal sector.

English (2002:583-593) adds that given the predominance illustrated by the sample of workers without qualifications, but with skills acquired on the job, this is a topical approach. CETA has committed to certain targets in terms of training and is to develop learnerships in construction. These learnerships replace the apprenticeship system.

Merrifield (1999:74) states that research on programmes, designed to support small-scale contractors in the low income housing sector in the pre-1994 period, indicated that many of these programmes did not equip the builders with the skills of “risk management” that would enable them to survive in a competitive market. While the programmes provided managerial support, it restricted builder operations to a level that did not guarantee them sufficiency. Since 1994, support is less emphasised and providing work opportunities has received more emphasis.

Merrifield (1999:74) states that to some extent, support programmes have been replaced by joint venture contracts between black (small, under-resourced) and white (large, well-resourced) contractors. In many cases, these joint ventures have developed small

contractor skills and increased their exposure to larger contracts. However, they do not have “risk management” experience, which is necessary to become competitive in the market.

Larcher (2001:5) states that there is no definitive answer to the design of a contractor development programme. Experience in designing programmes is currently fragmented and poorly documented. The Department for International Development (formally the Overseas Development Administration) recognised the need to gather and collate existing experience with its support of the Management of Appropriate Road Technology (MART) initiative.

McCutcheon and Croswell (2001:365-379) found that small contractor development, in relation to employment-intensive rural road programmes in sub-Saharan Africa and other types of work in South Africa, must introduce the main lessons from employment-intensive work. One of the main lessons is to adopt a long-term programme approach as opposed to an ad hoc project approach. The adoption of such an approach, combined with the recognition and acceptance of the extremely poor educational base, lack of individual skills and institutional capacity, must lead to the formal linking of a comprehensive training programme with a construction programme.

Ofori (2002:38) report that most of the previous work, in terms of the development of contractors in developing countries, concentrate on small contractors and conclude that the process of contractor development is extensive and must include a wide range of initiatives targeted at:

- The enterprises itself;
- The employees and proprietors of these companies;
- The resources which these companies require;
- The rest of the construction industry, such as the designers; and
- The operating environment of the contractors.

Van Wyk (2003:16) states that the South African Department of Public Works has, since 1996, increased the share of value of its capital projects to 43% in favour of emerging contractors, compared to the four percent in 1994. It has also registered more than 3 300 emerging contractor firms, of which 290 are women-owned, on its database. Emerging contractors have been the recipients of about 50 000 contracts of varying sizes, with a value in excess of R400 million, while women contractors executed 79 construction-related projects with a value of R188 million between 2001 and 2003.

4.10 Conclusion

The literature reveals that Government has put interventions in place to address the problems faced by emerging contractors such as the CETA, CIDB, ECDP, and EPWP. These are proof of the initiatives taken by Government to ensure viability and sustainability of black contractors in the construction industry. By reviewing the skills development initiatives, it becomes apparent that an integrated development model, combining the three key areas of development, namely financing, mentoring and CETA learnerships, should be introduced. Emerging contractors vary in size and capacity. Therefore, skills development programmes need to be flexible in terms of content adjustment, methods of implementation and accessibility.

In response the initiative of government to address the skills shortage as described in chapter four and to promote BEE in the construction industry as described in chapter three, chapter five describes the Emerging Contractor Development model (ECDM) and its strategic intent to create sustainable and development contractors.

PART 3 EMERGING CONTRACTOR DEVELOPMENT MODEL (ECDM)

CHAPTER 5: DESIGN AND IMPLEMENTATION OF THE ECDM

5.1 Introduction

The primary objective of, and the theory supporting, the development of an integrated development model is to contribute to the procedures and processes that may empower existing construction contractors and entrepreneurs from disadvantaged communities by providing them with opportunities in order that they may become successful and independent.

The Emerging Contractor Development Model (ECDM) as documented by Dlungwana, Noyana and Oloo (2004), seeks to enable emerging contractors, through the development of their entrepreneurial, business and contract management skills, in a real project environment, to access opportunities created by the Public Preferential Procurement Framework Act (PPPFA). It aims to overcome the impediments that they face, which arise from the legacy of apartheid, and consolidate their growth and development.

This research is based on the ECDM, as developed by the Council for Scientific and Industrial Research (CSIR). The ECDM is a best practice tool aimed at assisting implementing agents which facilitate an emerging contractor development programme. The ECDM helps focus on the quality and effectiveness elements of development programmes by ensuring more effective and comprehensive development of contractors' capabilities and capacity. Central to the ECDM is the implementation of a business plan with clear contractor development outcomes.

The research proposes that, through the implementation of the to-be-developed integrated model, implementing agents will be able to implement enabling environment initiatives in a manner that is responsive to the development imperatives of individual enterprises. The model endeavours to create a balance between facilitating an enabling environment for emerging construction firms and coordinating enabling environment initiatives that respond effectively to the needs of firms.

The key components of the integrated model are investigated and discussed in this chapter. Thereafter the functioning of the ECDM model will be explored as the primary model for the study, in order to develop an integrated model.

5.2 Mentorship in the construction industry

According to the South African Department of Public Works Code of Practice, mentorship, in one form or another, has existed in the construction industry for centuries. In South Africa, mentorship has been identified as a means of developing capacity in new entrants to the construction sector and overcoming business impediments in existing firms that have arisen as a result of the legacies of apartheid. It aims to achieve this goal through the coordinated and controlled transfer of knowledge and experience with the help of mentors who are responsible for giving reliable and honest advice to the person being mentored (South Africa. Department of Public Works, 2001:2-3).

The South African Department of Public Works Code of Practice adds that mentorship involves the transfer of knowledge and experience, but excludes the performance of essential daily contracting functions on behalf of the mentored contractor. Mentorship is essential to accelerate the process of empowerment. It affords emerging contractors, who are awarded contracts, the benefit of the experience of those individuals who have extensive experience in the construction industry. This exposure is designed to address many of the common shortcomings encountered by emerging contractors, such as poor pricing structures, the winning of non-profitable tenders, late starts to contracts, late submissions of payment claims, late commissioning and the hand over of contracts (South Africa. Department of Public Works, 2001:2-3).

5.2.1 Mentor accreditation and development

The mentor accreditation and development process forms part of a quality assurance programme for the integrated model. A model of this nature requires strict quality control measures and a strong project management team. Mentors are selected for the programme after successfully passing the mentor accreditation examination (University of the Free

State, 2006). The examination was developed by the University of the Free State after initially pioneered by the Pretoria University. The examination tests the mentor's ability to transfer skills to emerging contractors and their knowledge of the construction industry.

5.3 Construction Education and Training Authority's skills programmes

5.3.1 Recognition of Prior Learning

Recognition of Prior Learning (RPL), as described by CETA (2004: online) is a process of evaluating and crediting a person's prior learning and experience, no matter where, when or how that learning was obtained, by assessing the value of such learning against national registered Unit Standards or Qualifications, using Qualified Assessment Practitioners in the National Qualification Framework (NQF).

The overall objective of the project is to increase employment opportunities and productivity in the building and construction sector. The purpose of the project is to develop an efficient, sustainable nationwide system of RPL for the building trades, linked to the NQF.

5.3.2 National Certificate in Construction Contracting

- **Rationale of the qualification**

According to the National Certificate in Construction Contracting by CETA (2004:online), many building construction practitioners were denied career advancement and possible recognition as qualified contractors as a result of past legacies. This was as a result of poor educational opportunities at some schools, which led to their exclusion from formal training institutions. The introduction of a National Certificate in Construction Contracting, based on unit standards, will allow learners to reach their full potential of advancement through RPL. The sector skills plan, developed by the CETA, showed a definite need for entrepreneurial and management personnel in the emerging sector in order to develop smaller construction contracting businesses.

- **Purpose of the qualification**

The National Certificate in Construction Contracting qualification has been developed to assist with standardisation across the construction industry. This will allow a person to register as a construction contractor and use it as foundation for future career advancement across similar Small, Medium and Micro Enterprise (SMME) programmes in other sectors, as well as to supervisory and management qualifications in the construction sector.

5.4 Strategic objectives of the model

The integrated long-term management of developmental issues is the key objective of the proposed model and is the platform for a holistic and sustainable enabling environment applied to a range of opportunities. Dlungwana et al. (2004:16) state that integrated coordination through the model would provide the results as set out below:

- Access to work opportunities - unbundling or the identification of packages of work suited to emerging contractors, tied to the objectives of a wider contractor development programme, which provide for a defined developmental path and incremental enterprise growth according to a development framework;

- Training and skills development - formulating and managing defined mentorship and management support for contractors to undertake contracts successfully, as well as provide a basis for ongoing competency development;

- Institutional support arrangements - addressing the entry barriers to participation, such as waiver on guarantee requirements; through the Affirmative Procurement Policies and Targeted Procurement;

- Access to finance - financial institutions are starting to emerge with innovative schemes, such as mentorship-linked access to bridging finance and construction guarantees that are designed to manage the perceived risks.

The overall objective is, therefore, to transform the emerging sector into a sustainable growth-oriented sector with good commercial credentials that allows for the sector's integration into the mainstream commercial practices.

5.5 Generic principles of the model

The following generic principles of the contractor development programme, as identified by Dlungwana et al. (2004:18-46), should be adopted in order to ensure an effective development programme:

- Support should be provided to enterprises that make best use of the support provided;

- As a programme, it must not perpetuate the division in the construction industry, ie a relatively well-resourced formal sector on the one hand, with an unregistered, poorly resourced informal sector on the other;

- The criteria for the provision and discontinuation of support must be clearly stated and made known to interested parties;

- The performance of emerging contractors should be systematically monitored and evaluated, using a database/register, which creates, inter alia, a track record;

- Clients should pay contractors promptly;
- Enabling programmes must endeavour to maximise the use of uniform, user-friendly and standard procurements documents, practices and procedures. Standard targeting strategies and uniform preferential procurement policies, which are based on those developed at a national level with minimal locality/organisational-specific amendments, should be used;

- Strategies for enabling programmes must be based on the Public Finance Management Act, act 1 of 1999 amended by act 29 of 1999;

- The principles of the National Qualifications Framework, as outlined in the South African Qualifications Act, act 58 of 1995, should form the basis of any managerial and skills development;

- Training should promote career progression;

- Interventions should not promote dependency on the programme.

5.6 The structure and functioning of the model

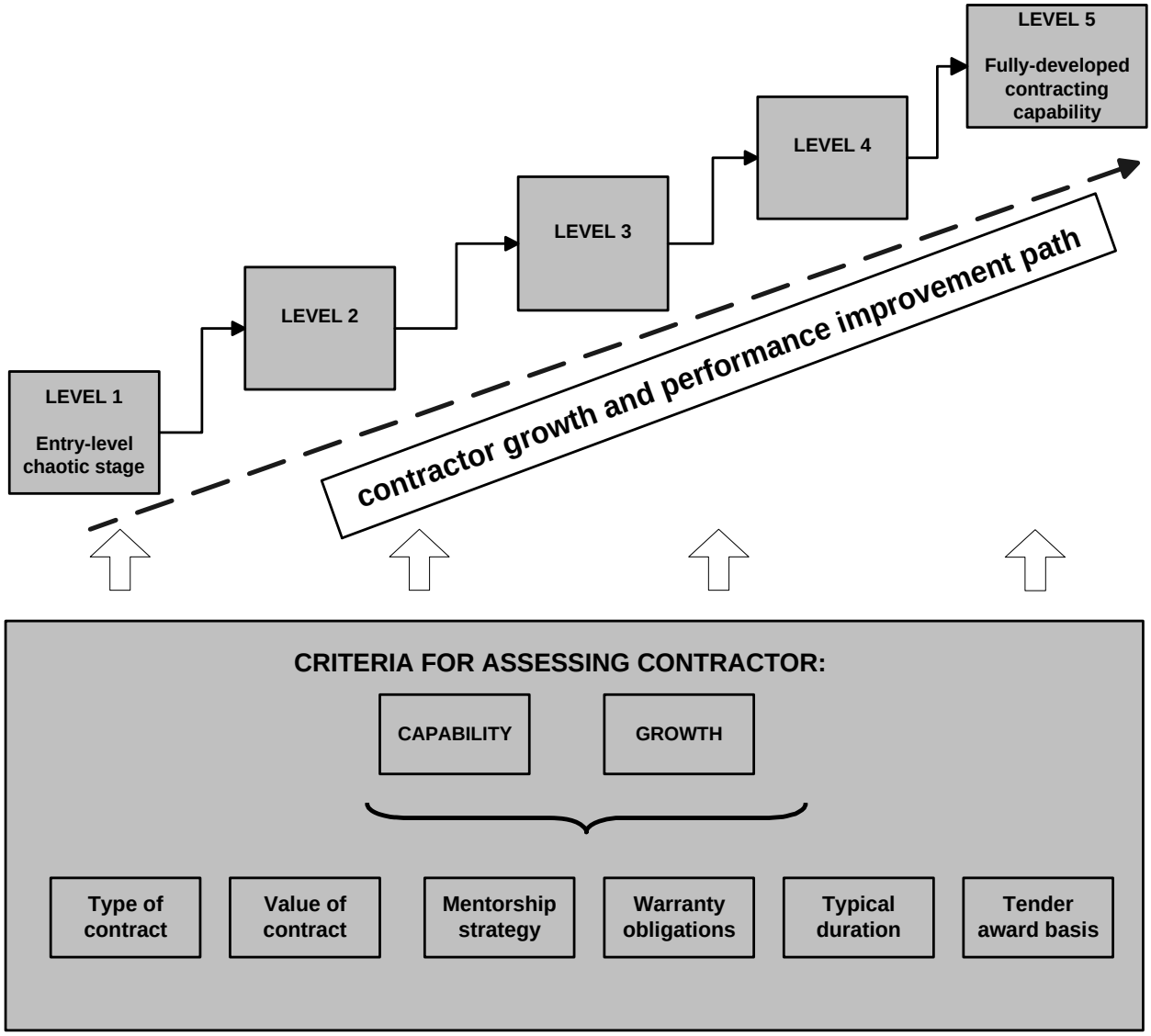

Figure 1: Basic structure of the emerging contractor development model

Source: Dlungwana et al., 2004:36

The model, shown in Figure 1, is characterised by the two main features, namely:

- The grading levels indicating the level of contractor performance capacity and capability; and

- The criteria that assesses the capacity, capability and growth.

The current model provides a growth path that enables a contractor to move from an entry-level stage level 1 to level 5 where a contractor achieves full capability to execute contracts without handholding. The model, thus, ensures that contractors are taken on a continuous improvement path, in a series of capacity development steps, so that they learn the basic management principles in order to grow their businesses into sustainable enterprises.

It is important to begin the development process by determining the contractor's performance. This level is achieved by carrying out a performance assessment that determines the level to which a contractor must be allocated in terms of current knowledge and skill. The level determines the type of training and mentorship support required. Contractors on the programme will enter at level 1 and exit at level 5.

Dlungwana et al. (2004:18-46) continue to state that the current model is structured to address the following key development challenges:

- Facilitation of a suitable plan for the creation of an enabling environment and the facilitation of linkages between the contractors and other regional and national programmes and stakeholders;

- Facilitation of an appropriate training, mentorship and other relevant support programme;

- Facilitation of access to financing and credit;

- Monitoring, control and evaluation of the development programme so as to ensure that the required outcomes are achieved and contractors can progress to the level where they can execute relatively high-risk projects.

Dlungwana et al. (2004:38) state that a need for clear grading criteria is fundamental to the monitoring and evaluation of contractor development. A comprehensive contractor-grading framework, with specific capacity development milestones, requires verification indicators as well as entry, progression and exit criteria as well as a clearly defined career

path, in order to profile each emerging contractor. Based on such grading, it is possible to determine which support interventions are required.

Dlungwana et al. (2004:38) state that the principle of contractor grading stems from the need to understand the levels of contractors' capabilities in order to provide appropriate development support and the need to match a contractor's capability to a project with an appropriate level of complexity.

Dlungwana et al. (2004:38) add that, with the help of mentors, the contractors are able to apply the theoretical knowledge to real construction projects. An ongoing performance assessment is conducted to assess progress, as set out in the performance criteria. Contractors that develop the necessary contractor capacity move from the one level to the other until they have completed the programme and are able to compete in an open market where less assistance is provided.

Figure 2 illustrates a step-by-step procedure of how the model functions. The first activity is to select a contractor as a candidate for the development programme based on, inter alia, the following criteria:

- Affirmative Business Enterprise status;
- Previous work experience;
- Academic qualifications;
- Previous training;
- Compliance with legal and tax requirements;
- Resources owned; and
- Aspects of empowerment, such as the proximity of the contractor to the site, to address development of local enterprises.

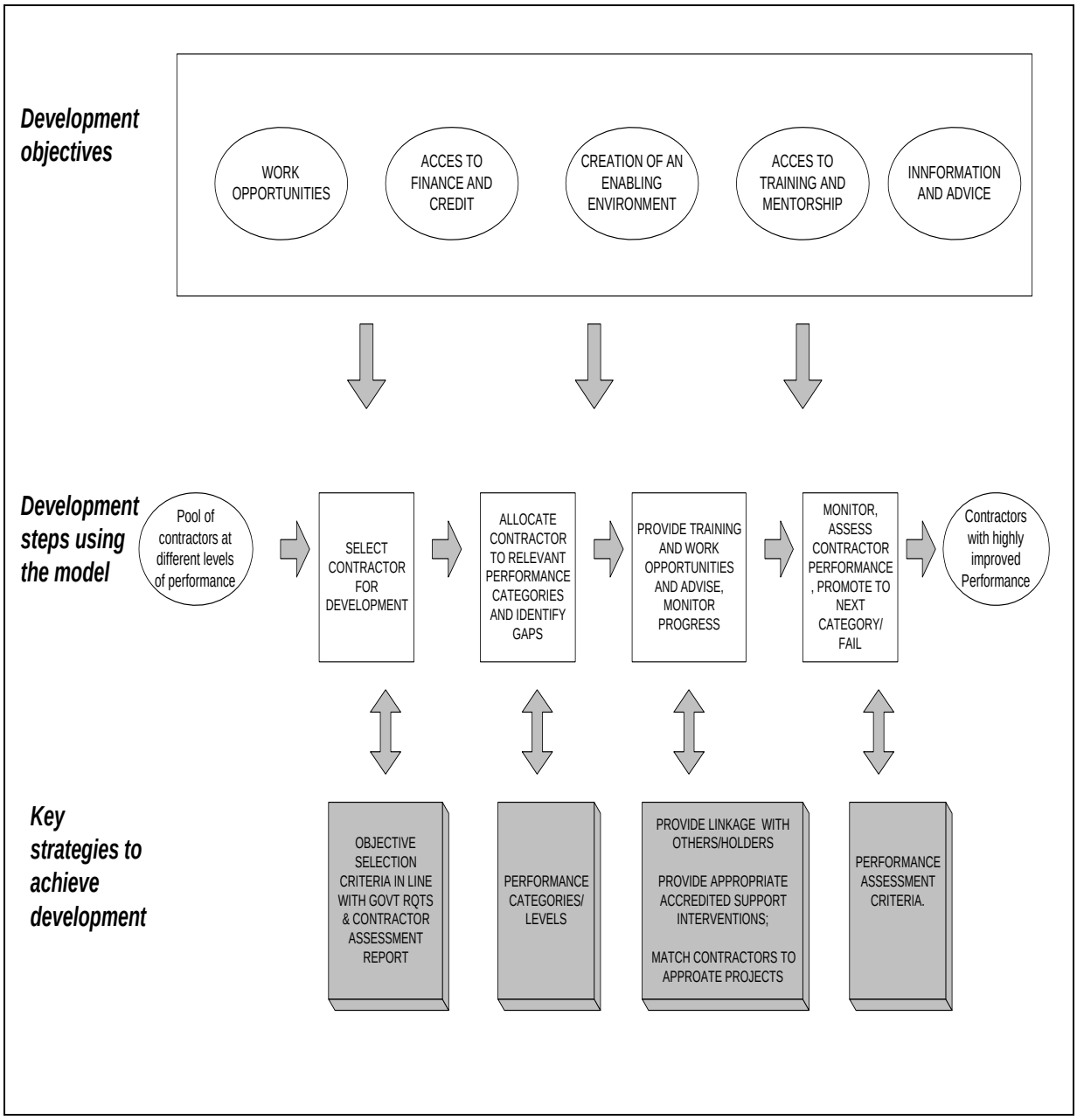

Figure 2: Functioning of the model

Source: Dlungwana et al., 2004:42

Dlungwana et al. (2004:18-46) state that the gaps or areas for improvement in each category must be identified in order for contractors to attain the specific capacity that is required for them to grow and become competitive. Development needs in terms of work

opportunities, training and mentorship are also identified and matched with contractors in the specific categories.

Dlungwana et al. (2004:38) also add that other key development activities that may be required are the provision of work opportunities, training, appropriate mentorship and information. Ongoing performance assessment forms part of an evaluation process that ensures that the development programme yields positive results.

5.7 The Emerging Contractor Development Model

5.7.1 Scope of work

The model is tailored to cater for the needs of contractors, recognising the dynamics of the industry and contextualised for construction projects. While the course is basic, it lays an appropriate foundation for learning that allows the contractor to move from small-scale projects to medium-sized contracts, ranging up to R5m. The business and management/entrepreneurship theory is delivered in a workshop environment where there is wide participation and sharing of experiences. The entire programme takes between 12 and 18 months.

5.7.2 Methodology

The methodology to be followed in developing contractors is illustrated in Figure 3 and described in section 5.7.3

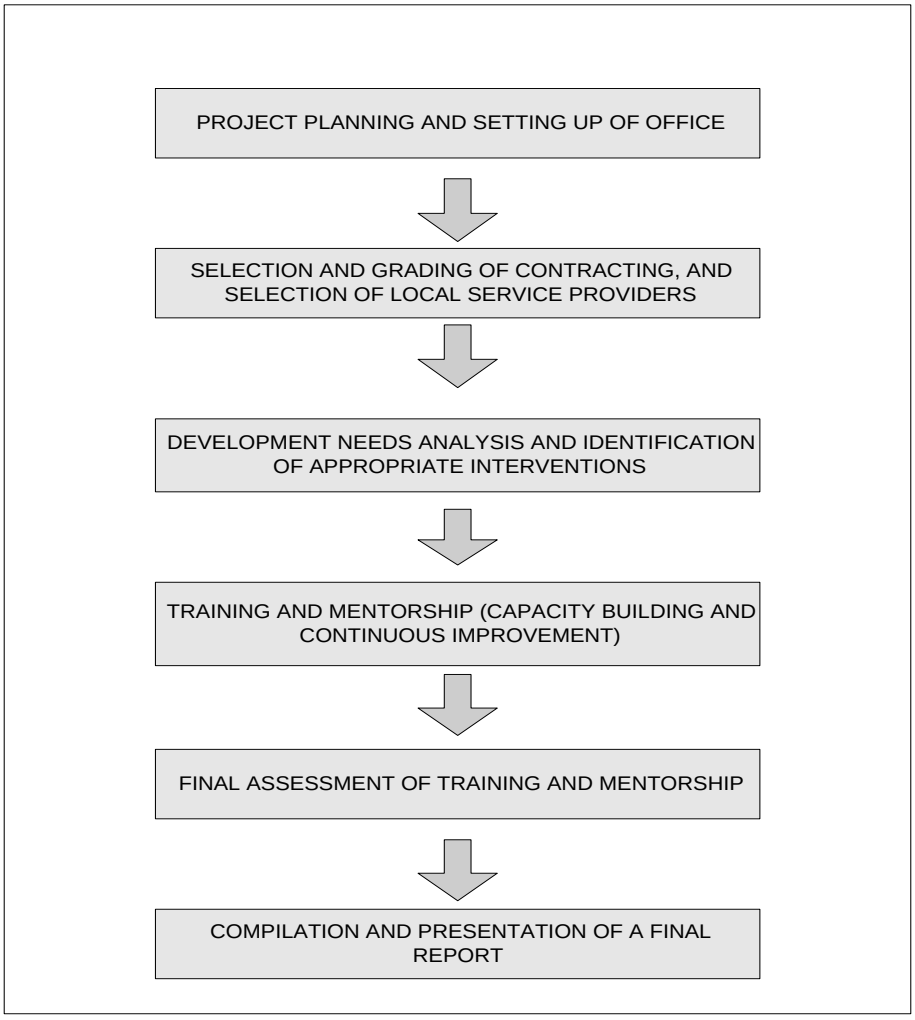

Figure 3: Methodology for contractor development

Source: Dlungwana et al., 2004:42

Figure 3 outlines the phases of the model, ie from the start to completion of the model. Six phases have been identified in order to ensure that the objectives of the model are met.

Figure 4 outlines the overall project team structure and the relation between the project team and the identified construction stakeholders. The core team is represented by the project leader and programme manager with the assistance of the CETA, training providers, Total Quality Management (TQM) consultants, the researcher as the overall programme manager and lead project managers.

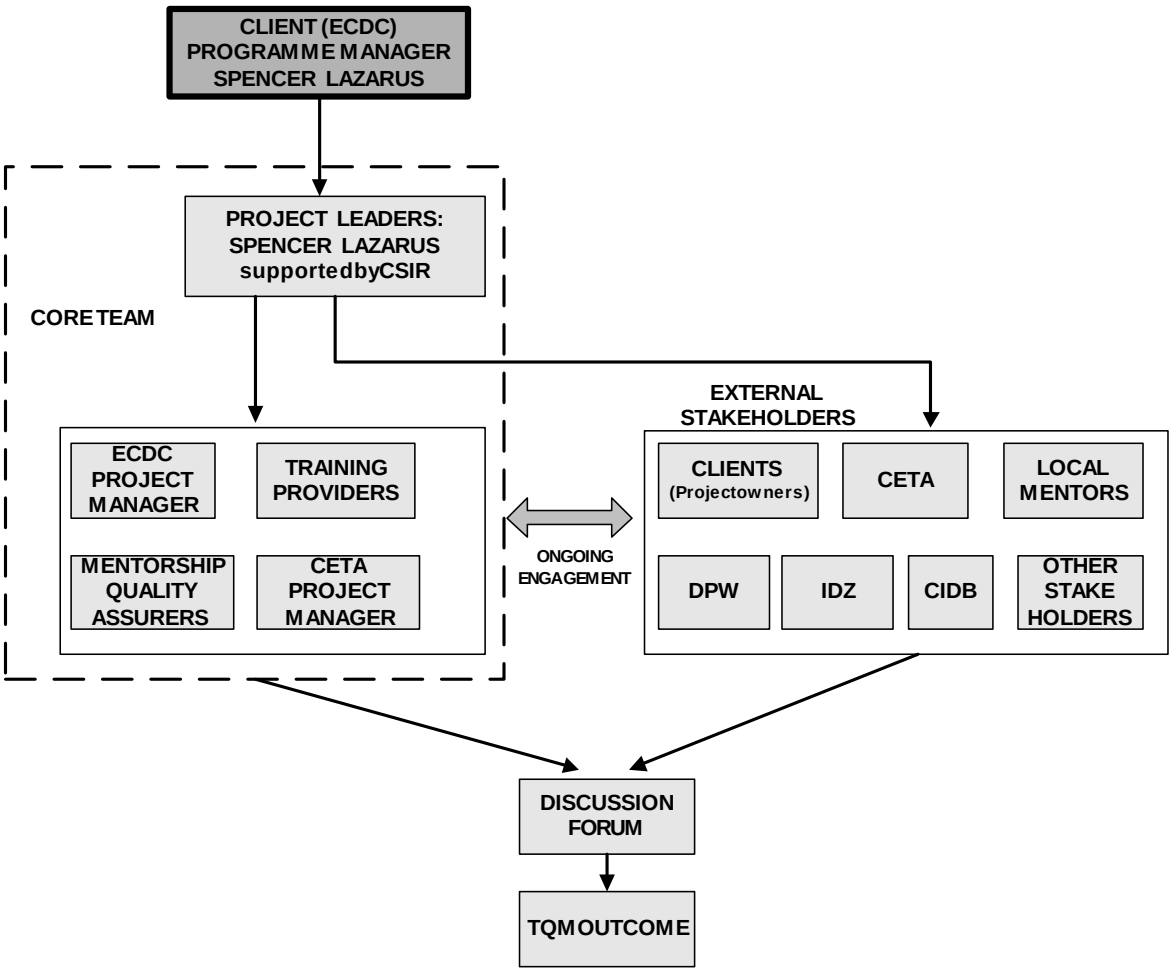

Figure 4: Stakeholder structure

Source: Dlungwana et al., 2004:42

5.7.3 Project phases, resources and activities

The project was executed in six project phases, as outlined in Table 1. The phases have been identified by the project team as the required elements of the model in order to implement the model as well as for the formation of the integrated development model.

Table 1: Project phasing

Phase	Description of activity	Resources	Deliverables
Phase 1 Project planning, setting up office and ongoing creation of enabling environment (including securing of projects)	This activity involves agreement on the project scope, methodology, the project plan and the development plan. The activity includes the preliminary planning to set up the office and the infrastructure, including programme management systems and procedures. The primary role players include the: • CSIR and its partners (service providers); • the client (ECDC); and • the employers (construction site owners) and contractors. The project manager assisted the client, ensuring that an enabling environment was created so that obstacles hampering development are removed and that contractors are able to develop their full potential. The role of the project for the purposes of the study was to allow the project team to assess and evaluate the project with the intention of identifying the strengths and weaknesses of the project in order to develop a best practice emerging contractor development model.	• CSIR (project manager) • Local coordinator	• Project plan • Training programme administration system
Phase 2 Selection of contractors and local service providers Matching of contractors to projects	An operations office help desk was set up to integrate all development activities, and a local project coordinator was trained to manage all activities. The project coordinator (CSIR ensured transfer of skills and knowledge to the local coordinator for the continuity of the project. 54 contractors were selected, assessed and graded to determine key development needs (areas for improvement). Local service providers were selected for training and involvement in the project with the aim of transferring skills that are necessary to sustain the project.	• Training provider • Local coordinator • Mentors (CSIR partners) • Project manager • Implementing agents (government departments)	• Database of selected contractors • Database of selected local service providers • Assessment frameworks for contractors and service providers

Phase 3 Development of needs analysis and identification of appropriate interventions	Identification and alignment of interventions required to develop the necessary capacity for contractors, including appropriate training courses and mentorship.	• Local coordinator • Training provider • Mentors (CSIR partners) • Project manager	• Needs analysis report • Required training and mentorship interventions • Development plan
Phase 4 Provision of training, mentorship, continuous monitoring and performance improvement of the programme Train and monitor local mentors.	• Accredited training service provider conducted a training workshop with contractors, giving particular attention to identified improvement areas. • After covering theoretical training modules, mentors provided practical on-site advice and guidance. • Training providers and mentors worked in close cooperation so that theory and practical outcomes were complementary. • Mentors and individual contractors formalised their professional relationship by signing a performance agreement. • The project manager (CSIR) continually coordinated all training and mentorship activities and monitor overall performance to determine progress. Progress reports were given to the client on a regular basis.	• Project manager • Local coordinator/ client • Training provider • Mentors (CSIR partners) • Local mentors	• Training courses and programme • Mentorship programme • Skills transfer plan to local service providers • Programme monitoring and control framework (monthly reports)
Phase 5 Final assessment of training and mentorship	• Assessment of competency was conducted to test the learning. • CETA was involved in the assessment to award successful contractors at an appropriate NQF level. • Regrading of contractors were conducted, where appropriate. Regrading is important, as it ensures ongoing assessment of the contractor's capacity and contracting risk, hence the contract amount for which the contractor can tender.	• Independent assessor • CETA • CIDB • CSIR • Client	Independent competency assessment report

Phase 6 Final hand over, compilation and presentation of a final report	• The final report addressed the impact of training and mentorship, promotion of contractors to higher grades, growth of contractors and the extent to which identified improvement areas have been addressed. • Final presentation of the report will be made to the ECDC and the parties deemed appropriate by the ECDC.	• Project manager (Oversee implementation and daily management of project.) • Local coordinator/ client (management of help desk)	• Hand over of all appropriate material. Final progress report

Source: Dlungwana et al., 2004:42

Table 1 documents the project phases and the keys functions of each phase. According to Dlungwana et al. (2004:12), a contractor development model is a best practice tool, aimed at assisting implementing agents to facilitate the implementation of an emerging contractor development programme. The model should help to focus on the quality and effectiveness of development programmes by ensuring more effective and comprehensive development of contractors' capabilities and capacity. Central to the model must be the implementation of a business plan with clear contractor development outcomes.

Through an integrated development model, implementing agents must be able to apply initiatives in a manner that is responsive to the development imperatives of individual enterprises. The model endeavours to create a balance between facilitating an enabling environment for emerging construction firms and coordinating enabling environment initiatives that respond effectively to the needs of firms.

5.7.4 Works programme and time frames

Table 2 illustrates the planned programme and time frames for a 24-month model. Although the programme can be completed in 18 months, allowance has been made for a two-year period should some learners require additional training or mentorship. CETA requires a minimum of 24 months for the implementation of a learnership, but has allowed for an 18-month period for the IECDM.

Table 2: Planned work programme

	Phase	First period Six-monthly			Second period Six-monthly			Third period Six-monthly			Fourth period Six-monthly		
1	Project planning and setting up office												
2	Selection of emerging contractors, local service providers and a local coordinator												
3	Development needs analysis and identification of appropriate interventions												
4	Provision of training, mentorship and continuous performance improvement												
5	Final assessment of training and mentorship												
6	Compilation and presentation of a final report												

Source: Dlungwana et al., 2004:42

5.8 Model deliverables

The following is a summary of the key deliverables as described by Dlungwana et al. (2004:18-46) and Lazarus (2005a:50-79). Research for this study was based on the feedback and results of the following:

- Monthly progress and quality assurance reports- in respect of the research, these reports provided the researcher with the EC's rate of development and the effectiveness of the relationship of the mentor, EC and training provider;

- Training workshops for the contractor management training course- based on the research findings, corrective measures were implemented through the structured workshops;

- Capacity building mentorship sessions- these sessions were conducted with individual contractors weekly, so as to develop their management and on-site administration skills;

- Training sessions and consultations- these interventions enabled transfer of knowledge and skills to the local officials and service providers;

- Independent assessment reports- the reports supported the findings of the research;

- Final progress report on the entire programme- the report presented the findings and recommendations of the research.

5.9 Conclusion

The construction sector in the Eastern Cape is in dire need of a skilled construction workforce. The task of the construction industry (building and civil) to cater for the shortfall in housing, accommodation and educational facilities for all target groups is a

challenging one. In the light of this need, the ECDC's Enterprise Development Services Unit has developed the Emerging Contractor Development and Support Programme.

The purpose of the ECDM is to assist emerging contractors in the development of their capabilities in order to deliver infrastructure projects effectively and efficiently. It also aims to help developed contractors, with sustainable construction operations, to create further employment opportunities. While the programme is flexible, in terms of addressing the development areas that are unique to individual contractors, it will also provide training in administration, resource management, marketing and tendering to all selected contractors.

The ECDM creates a solid foundation for the study and allows the researcher to avoid duplication of systems already designed. The ECDM, as published by the CSIR, is being implemented as pilot project in this study.

The adoption of the ECDM, as documented above for the study, is the basis of the research which will form the basis of an integrated model, and allows for flexibility and customisation of the ECDM in order to meet the set objectives, thus creating an IECDM.

In order to ensure ECDM develops into an IECDM, the need for quality assurance and quality management tools is required as described in chapter six.

CHAPTER 6: TOTAL QUALITY MANAGEMENT FOR THE INTEGRATED MODEL

6.1 Introduction

In order to measure the outcomes of the ECDM as inputs for the development of an IECDM, quality assurance component has been introduced. Wikipedia (2007:online) describes Total Quality Management (TQM) as a management strategy aimed at embedding awareness of quality in all organisational processes. Knipe et al. (2002:244) describe TQM as a strategic integrated management philosophy, based on a concept of achieving ever-higher levels of customer satisfaction in response to customer demands. To quality assure the model for the purposes of the study, emerging contractors (EC) and mentors participating in the project were assessed in terms of knowledge gained and knowledge transferred.

Emerging contractors and mentors were assessed monthly by the project team, based on a TQM strategy. Assessment tools have been developed to monitor the emerging contractors' growth path and assess mentors in terms of their ability to transfer skills to emerging contractors.

The assessment tools provide feedback on all the role players in the programme, as contained in the various annexures referred to in this chapter. The assessment tools allocate various scores to the elements being assessed, which allows the programme manager to present the results graphically as well as illustrate actual development.

The project team were responsible for the daily quality assurance of the integrated development model.

6.2 Total quality management for the integrated development model

6.2.1 Sourcing the project participants

6.2.1.1 Construction mentors

- The mentors were selected from a database of accredited mentors provided by the University of the Free State. The accreditation process, conducted by the University of the Free State, comprises a three-hour written examination, a 45-minute psychometric test and an interview with a psychologist. *(See Annexure 1 - Mentor accreditation examination paper, University of the Free State.)*

- Once selected for the database, the mentors were subjected to a standard development assessment and interview process. *(See Annexure 2 - Mentor interview and assessment tool kit by Hauptfleisch, 2005a.)* Mentors are ranked in response to the answers provided. These rankings are transposed into the matrix and mentors scoring under 75% are not recommended for inclusion in the programme. *(See Annexure 3 - Construction mentor schedule of knowledge areas, by Hauptfleisch, 2005b.)* Based on a favourable assessment, the mentors were selected to participate in the model.

6.2.1.2 Emerging contractors

Adverts were placed in all local printed media in the Eastern Cape, calling for emerging contractors to register for the programme. Emerging contractors participating in the programme were assessed by the CSIR in order to determine competency and technical ability to participate in the programme. *(See Annexure 4 - Programme application package, by CSIR, 2004.)*

6.2.1.3 Training providers

The training providers who conducted the class room-based training were sourced from the Construction Education and Training Authority (CETA) database. Three service providers were selected from the pool of five provided by the CETA after being interviewed by the project team. The training providers appointed were South Africa Value Education (East London and Kokstad), Phambili Training and Management (Port Elizabeth) and Siyakha Skills centre (Queenstown and Mthatha).

6.2.1.4 Project team

The project team consisted of the ECDC, supported by the CSIR and two consultants who were selected based on their attributes and skills as built environment practitioners and as identified by the ECDC in discussions with the National Department of Public Works (NDPW). The TQM consultants were Noyanas Management Consultancy (PTY) Ltd (Johannesburg) and Ecospan Projects cc (Pretoria).

6.2.2 Assessment tools and quality assurance tools for the model

6.2.2.1 Mentor evaluation of the emerging contractor

The mentor's evaluation of the emerging contractor was conducted by way of an assessment tool which assesses the emerging contractor's construction industry experience, management experience, level of development and access to skilled resources. The evaluation was completed on a monthly basis by the mentor and allows the project team to assess the contractor's developmental growth. It serves as an early warning system to alert the project team to areas of weakness experienced by the contractor, and allows for early intervention and corrective measures.

The monthly mentor assessment report assesses the contractor in 47 key identified business and construction-related elements. *(See Annexure 5 - Mentor's monthly progress evaluation of emerging contractor, by Hauptfleisch, 2005a.)*

6.2.2.2 Emerging contractor evaluation of the mentoring process

The end-user of the IECDM is the emerging contractor and a report system has been designed for the contractors to convey their opinions and satisfaction with the programme, mentors and project team. (*See Annexure 6 - Emerging contractors' evaluation of mentoring process, by Hauptfleisch, 2005c.)*

The gathering of data, using the assessment tools designed for the programme, allows the project team to track the contractors' level of satisfaction with the programme role players. Areas of low satisfaction were addressed immediately in order to ensure that the programme maintains its structure and objectives.

6.2.2.3 Total quality management assessment

Hauptfleisch (2006:8) found that independent quality management has to take place throughout the programme. This function was executed on all the elements of the programme and reported to all concerned, typically in a statistical diagrammatic format.

Practically, it was executed by visiting the contractors and their mentors monthly, and holding a quarterly meeting with all concerned.

The monthly meetings between the TQM consultants, mentors and emerging contractors allowed the participants to assess the data as gathered by the assessment tools, in order to address any shortcomings and to implement corrective measures where necessary. The introduction of the TQM assessments allows for a continuous flow in the project roll-out and monitors and scrutinises the relationship between mentor and emerging contractor.

Monthly progress reports from mentors, contractors, training providers, quality managers and the project manager are the main input documents for providing the client with comprehensive feedback regarding the programme.

6.2.2.4 Manual for Smaller Construction Contractors: guidelines for mentorship

A guideline document for mentors to facilitate the transfer of knowledge to emerging contractors does not exist, and the project team, with permission from the Master Builders South Africa (MBSA) (formerly the Building Industries Federation of South Africa (BIFSA), has revived the Manual for Smaller Construction Contractors, updated the information and implemented the manual as a basis for mentor-contractor interaction and using the developmental elements as discussion points for the mentor and contractor.

The manual corresponds with the 45 key identified business- and construction-related elements according to which the mentors assess the contractors on a monthly basis, as per paragraph. 6.2.2.1. *(See Annexure 7 - Manual for Smaller Construction Contractors, table of contents.)*

6.2.2.5 Management Development Programme

The Management Development Programme (MDP) introduced for the programme is a bar chart of activities governing the transfer of skills from the mentor to the emerging contractor, based on the 45 business and construction-related elements identified. Mentors would mark up the programme bar charts in term of elements completed and in which the emerging contractor had displayed competency. It would also include elements to be addressed within the confines of the project time frame.

The MDP, therefore, alerts the project team to all the elements covered by the mentor and contractor and helps to evaluate the progress of the emerging contractor's development. *(See annexure 8 - Management Development Programme, by Hauptfleisch, 2005d.)*

6.2.2.6 Stakeholders' questionnaire

A stakeholders' questionnaire has been developed to gather feedback from all programme stakeholders on completion of the programme. This was implemented to gather additional

information that might have been overlooked in the programme implementation, and ould also serve to provide a guideline for corrective measures to be implemented on the IECDM programme for future implementation. *(See Annexure 9 and 10 – Stakeholders' questionnaire 1 and 2, by Lazarus, 2005b.)*

6.2.2.7 Workshop sessions

Throughout the programme, quarterly workshops were held in order to present to all stakeholders the past three months' findings using the TQM assessment tools. These sessions were also used to share the information and to plot the way forward for the next three months, thereby ensuring that the programme objectives were always adhered to. *(See Annexure 11 - Quarterly workshop agenda, Lazarus, 2005c.)*

6.3 Purpose of Total Quality Management (TQM)

6.3.1 Performance monitoring and quality assurance

The TQM process allowed for continuous improvement of the model, and measured the actual rate of development experienced by the participating emerging contractors. This helped gauge the levels of development experienced by the emerging contractors in the five learning centres. Comparisons between the performances of emerging contractors across the regions could be made. Furthermore, the quality assurance component ensured the smooth running of the programme by addressing areas of concern that were highlighted in the emerging contractors' evaluation of the mentoring process and through the workshop sessions.

6.3.2 Illustration of data gathered via the TQM process

6.3.2.1 Data scoring matrix

The guideline for scoring the assessment areas, as identified in the various assessment tools designed for the model, is described in Table 4. In order to benchmark and for the purposes of the research, the following scoring categories have been used to classify the ECs:

Table 3: Data scoring matrix

Score	Performance
0-20%	Poor performance (contractor is unable to execute an activity independently)
21%-40%	Fair performance
41-60%	Average/good performance (contractor is able to execute an activity with assistance)
61%-80%	Very good performance
81-100%	Excellent performance (contractor is able to execute activities independently and in a sustainable manner)

Source: Council for Scientific and Industrial Research (CSIR), 2007:2

The data scoring matrix, as described in Table 3, was used as a basis for the assessment of data and comprises five categories. The objective was to identify the category that would fit the profiles of the emerging contractors.

6.3.2.2 Monthly mentors assessment report

The monthly mentors' assessment report, as per Annexure 5, assessed the emerging contractor in 45 basic business- and construction-related elements, as identified by the Manual for Smaller Construction Contractors, described in paragraph. 6.2.2.4. The areas of assessment have been categorised into four distinct categories, namely running a small construction business, finding and obtaining work, running an efficient building project and general information.

On completion of each monthly mentor's assessment report of the emerging contractors, the results were formulated in graphical form through line diagrams. This allowed the project team to identify trends in the development of the emerging contractors, identify strengths and weaknesses, monitor the overall performance and compare the rate of development across the five training centres.

The results, therefore, allowed for the effective monitoring of the programme and any identified shortcomings can be addressed on notification.

Figure 5 illustrates the presentation of the data collected. The graphs depict the average of the sub-categories under each of the four key categories and described in Annexure 7.

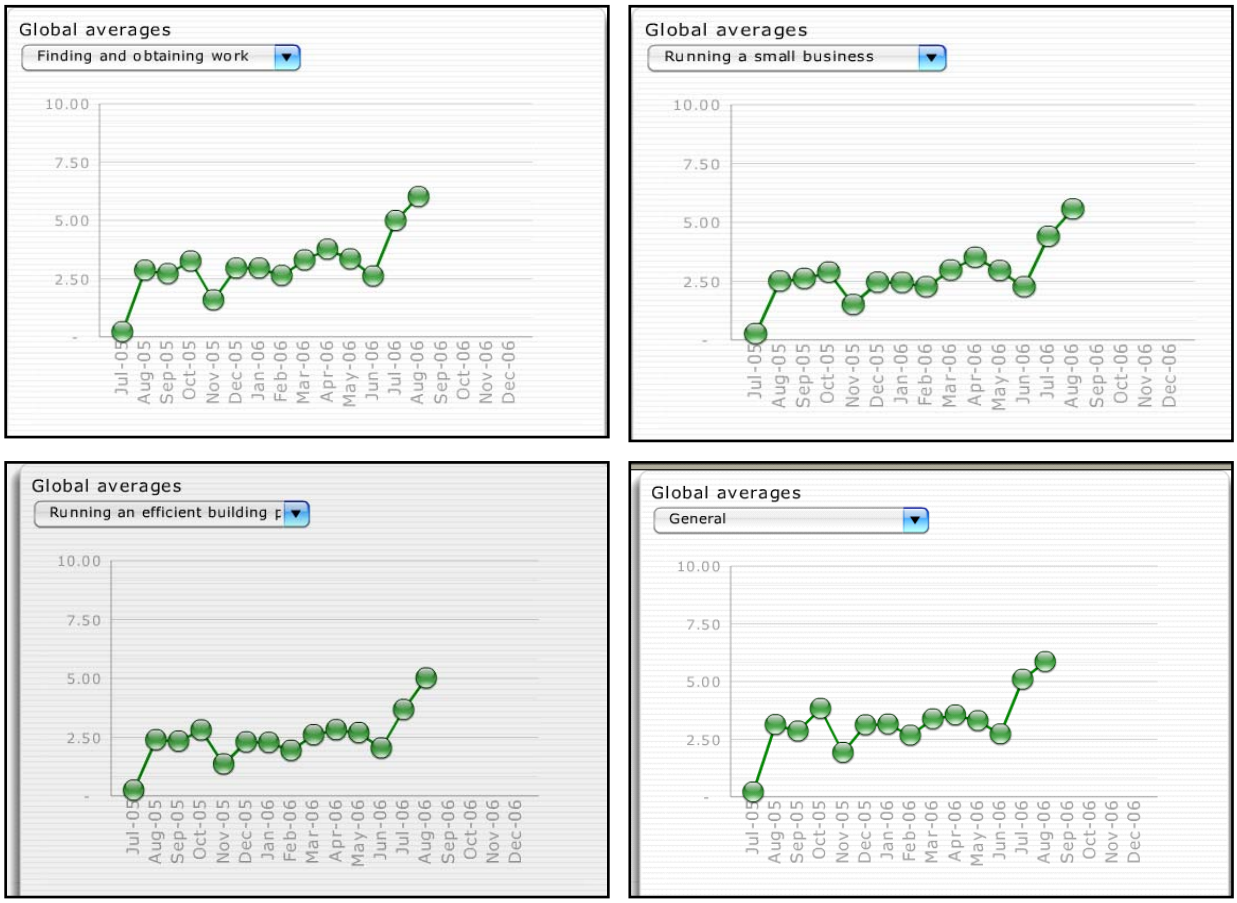

Figure 5: Graphical presentation of data collected via mentor's monthly assessment

Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

Figure 5 provides the results captured by the mentors of the contractors' performance on a monthly basis using Annexure 5. The results are then presented over the project time period, which allows for the contractor's performance to be monitored.

In terms of the research, the figures provided the researcher with a graphical representation of the findings and allow the researcher to identify and analyse trends and changes in the EC's development. This allowed the researcher to identify the elements and create positive change with those who have a negative influence. This enabled the researcher to identify those elements that will positively support the programme and thus recommend these as necessary for an integrated development model.

6.3.2.3 Emerging contractors evaluation of mentoring process

On completion of the emerging contractors' evaluation of mentoring process, the data is presented in graphical form, using line diagrams and the use of tables which helps understand the data provided. This allows the project team to identify trends in the satisfaction levels of the emerging contractors, identify strengths and weaknesses in the programme, as identified by the beneficiaries, monitor the overall performance and development experienced by the emerging contractors, and to compare the acceptance/satisfaction levels of the programme across the five training centres.

In terms of the research, the figures provided the researcher with a graphical representation of the findings and allowed the researcher to identify and analyse trends and changes in the EC's perception and review of the model. This allowed the researcher to identify the elements, create positive change amongst those with a negative influence, and, thus, enable the researcher to identify those elements that will positively support the programme and, thus, recommend these as necessary for an integrated development model.

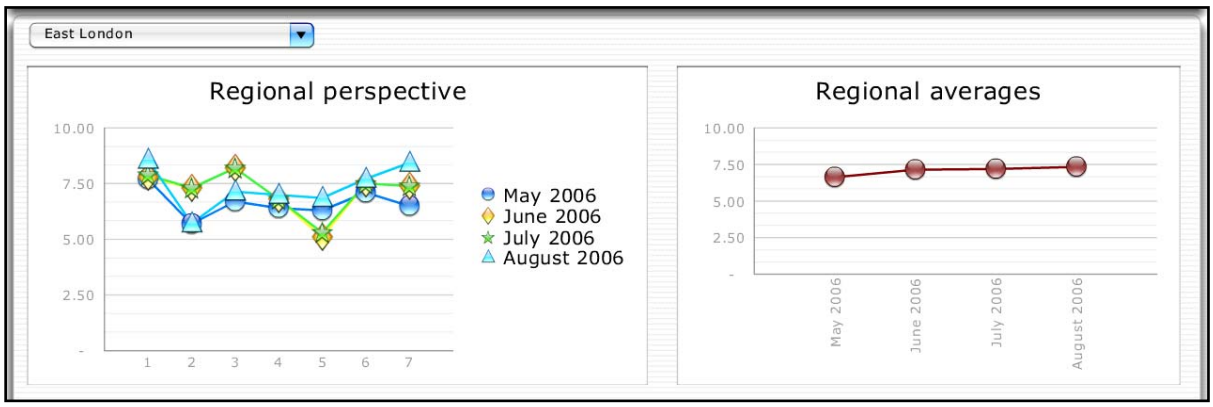

Figure 6: Graphical presentation of data collected via emerging contractors' evaluation of mentoring process (Sample of four months' data for the East London group)

Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

The scoring matrix, as described in Table 3 was used to interpret the data gathered from the emerging contractors.

Table 4: Tabular presentation of data collected via emerging contractors' evaluation of mentoring process

Indicator	Score	August 2006 rating	Previous rating
Evaluation of relationship with mentor and quality of support provided to EC.	85.7%	Excellent	Very good
Evaluation of service levels and quality of interaction with ECDC (business advisor, accounting, reaction time etc.)	57.1%	Average	Very good
Evaluation of the training programme offered by the training service provider.	71.4%	Very good	Excellent
Development of EC's ability to deal independently with construction project professional team (architect, engineer, quantity surveyor etc.)	70%	Very good	Very good
Development of financial stability of EC (improved cash flow, asset base, credit rating etc.)	68.6%	Very good	Average
Management structure and quality of this development programme as introduced and operated by the Project.	75%	Very good	Very good
Overall personal (EC) skills and knowledge development resulting from this ECDC development initiative.	84.3%	Excellent	Very good

Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

Figure 6 and Table 4 present the data in graphical and tabular format to allow the project team to interpret and analyse the data gathered. Table 4 allows the team to view the current month's data against that of the previous month.

6.3.2.4 Stakeholders questionnaire

The stakeholder's questionnaire, completed by all project participants on conclusion of the programme, were assessed, based on the data scoring matrix as described in Table 4. This allows for uniformity in the scoring and interpretation of the data gathered using the implementation of the assessment tools.

6.4 Conclusion

TQM is a key component of the integrated development model. Monitoring the progress of the emerging contractor, construction mentor and other role players allowed the project client to determine the success of the integrated development model and whether the model has achieved the deliverables as stated in chapter five.

The findings could be interpreted, in terms of the development of the emerging contractors, during any stage of the programme. The results would support the industry in understanding the dynamics of contractor development and the levels that should be expected. TQM, therefore, allows for benchmarking of developmental standards for emerging contractor development. The results of the study are described in chapter seven.

Previous training, such as DPW's incubator programme, managed by the ECDP Unit, has not contained a quality assurance component nor does the current Expanded Public Works Programme (EPWP). Consequently they lack the capacity to determine its effectiveness, value for money and level of development taking place.

An earlier study by Lazarus (2005a:85-93) proposed the need for effective quality assurance mechanisms for the design of an integrated development model. The quality assurance mechanisms allow the implementing agent to measure the effectiveness of the programme in terms of developing emerging contractors. It is, therefore, imperative for an integrated development model to consist of a quality management component.

PART 4 EMPIRICAL STUDY

CHAPTER 7: PRESENTATION AND INTEPRETATION OF FINDINGS

7.1 Introduction

The problem statement addressed by the study is the development of a holistic approach towards integrated skills development for emerging construction contractors, by designing a model that can be managed with quantitative and measurable outcomes. Development models, aimed at emerging contractors, should be developed with the emerging contractor in mind. It is, therefore, important that the custodians of the integrated development model involve the emerging contractors so that the model meets their needs.

Although the creation of quantified data was part of the basic scientific methodology to obtain survey data from programme participants, it was supplemented by the following qualitative data:

- Mentors provided written comment on each quantified item (on ten point scale, as per Annexure 5) as part of their monthly evaluations on their appointed contractors. These were then expressed in percentage terms and represented graphically in line diagrams;

- Similarly, contractors were afforded the same opportunity in the evaluations that they made each month, ie they provided written comment regarding each quantified item (ten point scale) in the evaluation, as per Annexure 6 on their mentors;

- The Total Quality Management (TQM) consultants also provided written reports after every series of TQM visits. Their reports did not contain a quantified component but instead included minutes of meetings with actions for the managerial team's consideration.

Although the quantified and qualitative data may be in need of further enhancement, as it primarily reflects personal assessments and is not based on an absolute (triangulated) measurement system, it is regarded as sufficient for the purpose of the Integrated Emerging Contractor Development model (IECDM) for which it was designed and applied. This is supported by Eastern Cape Development Corporation's (ECDC) close out report, as documented by the Council for Scientific and Industrial Research (2007:1-18).

The consistent nature of all the information gathered and the subsequent results, with its consistency over a large geographical area, confirmed that the data is reliable. Furthermore, it is supported by the continuous descriptive surveys as described in chapter six.

7.2 Analysis of literature study

7.2.1 Project Management

Literature on effective project management reviewed in chapter two concluded that:

- In order to effectively implement the integrated development model, the programme should have a "champion" who drives and promotes the programme. The project team would provide the executive capacity for planning, coordinating, monitoring and evaluating the initiatives and policy targets in a manner that would ensure responsiveness to changing circumstances. The champion would be the link between the project team and all construction stakeholders;

- Previous development models had not stressed the need for effective project management and had a project manager rather than a project team as proposed in the integrated development model. The development models reviewed in chapter four of the literature makes no reference to project management techniques being incorporated or utilised.

7.2.2 Black Economic Empowerment (BEE)

Chapter three reviewed the current status of BEE in the construction industry in an attempt to address the reasons for BEE in construction and the impediments to greater BEE progress in the industry.

The literature, as presented in chapter three, indicates that:

- The model may be used as a BEE tool and should promote the expansion and growth of emerging contractors;
- Fronting in the construction industry still exists;
- Black emerging contractors are exploited by established contractors who use emerging contractors PDI status to win lucrative government tenders.

7.2.3 Emerging Contractors and skills development

Chapter four reviewed the current interventions in place to develop the skills of black contractors in South Africa. Government initiatives such as the Expanded Public Works Programme (EPWP), Construction Industry Development Board (CIDB) and the Construction Education and Training Authority (CETA) are attempts by government to address development in the construction industry.

7.2.4 Total Quality Management for the Integrated Development Model

Chapter six reviewed the quality management mechanisms designed for the integrated development model. The introduction of TQM was intended to understand the effectiveness of the model in terms of development of the participating contractors. Previous models analysed showed no evidence of quality assurance processes and hence no qualitative results, depicting the effectiveness of the models, can be presented.

7.3 Analysis of sub problems

Sub problem 1: What is needed to structure an integrated emerging contractor development model (IECDM) that will satisfy the developmental needs of emerging contractors?

In order to design an integrated holistic approach towards sustainable contractor development, the project team used the Council for Scientific and Industrial Research (CSIR) Emerging Contractor Development Model as the base model. This helped create the required foundation for the project client and team which they could enhance.

The findings presented conclude that an integrated development model results in effective contractor development, on condition that the model incorporates Total Quality Management (TQM) and a Management Development Programme (MDP). The results of stakeholder feedback using a questionnaire, three months after the IECDM's completion concluded that sub problem one was addressed by the research.

Sub problem 2: What quality and assurance mechanisms need to be created in order to enhance the elements of the development model so that, inter alia, objectives of the model can be satisfied?

The measurement of contractor development and performance is critical to interpreting the benefits and effects of any developmental model. The creation of assessment tools, which measure and monitor the outcomes, are key to the integrated development model. The corrective measures and developmental growth path of the contractors would not have been observed if quality assurance mechanisms such as the assessment reports, TQM and MDP, had not been in place. It can, therefore, be concluded that sub problem two was addressed by the research.

Sub problem 3: What analysis and evaluation of the qualitative and quantitative results, needed to assist with the design of the development model?

The data gathered through the quality and assurance mechanisms, as identified in sub problem two, allowed the project team to assess and interpret the data. This informed the project team of the emerging contractors' progress, rate of development and the application of corrective measures, where required, in order to ensure continuity of the model. The findings, presented as a result of the quality assurance mechanisms, allowed for analysis of the qualitative and quantitative data generated. It can, therefore, be concluded that sub problem three was addressed by the research in respect of its contribution towards the development of the model.

Sub problem 4: Are project management processes a requisite for the successful management of the IECDM?

Effective project management was required in order to implement the model. Therefore, the project team needed to incorporate diligent and experienced project managers. The programmes' success and implementation depends largely on the quality of the project team entrusted to manage the programme. The literature reviewed in chapter two led to the formation of the project team structure as described in chapter five. It can, therefore, be concluded that sub problem four was addressed by the research and should be included as an element of the model.

7.4 Testing of the hypotheses

Hypothesis 1: Previous research did not adequately identify an integrated model for the development of emerging contractors.

Testing of hypothesis 1- Various training programmes, as reviewed in chapter four, neglected to recognise or make reference to the importance of adopting an integrated approach. This resulted in a lack of quality control measures, measured outcomes or valid assessments of contractors and mentors. The literature reviewed makes no reference to the programmes reviewed being integrated in any way.

Hypothesis 2: Effective quality management and assurance mechanisms were not applied in the development of emerging construction contractors.

Testing of hypothesis 2- In reviewing existing programmes such as the Department of Public Works' (DPW) incubator programme, managed by the Emerging Contractor Development Programme Unit and the Expanded Public Works Programme (EPWP), as referred to in chapter four, no quality assurance mechanisms or assessment tools were referred to and the literature made no reference to quality management being implemented. Therefore, these programmes were unable to produce data such as produced by the integrated model.

Hypothesis 3: The data compiled through structured quality assurance and management contribute to the formulation of a validated IECDM

Testing of hypothesis 3- The data, gathered by the implementation of the TQM process by the mentors, contractors and TQM consultants, was core to understanding contractors' development. This data was also utilised to structure an integrated programme which covered the needs of all the project stakeholders. The data, presented in chapter six, allows the project team to understand the dynamics of contractor development and utilise the findings as a basis for best practice contractor development policies and procedures.

Hypothesis 4: Generally recognised project management knowledge and practices are required to successfully implement an IECDM.

Testing of hypothesis 4- Chapter two described the attributes of the project manager, and defined the role of the project team. The attributes were set out as having a sound knowledge of contractor development, as well as the processes and concepts behind an integrated approach. The project team's role was outlined as coordinating and managing all the model's activities. The literature, therefore, makes strong reference to the importance of project management in implementing any project. Hence, it can be concluded that project management knowledge and practices are key elements for implementing the model.

7.5 Findings and analysis of the qualitative/quantitative data

The data gathered from the mentors and emerging contractors using the various tools described in chapter six is of a perspective nature and is presented with the purpose of formulating a benchmark for future IECDM implementation. The data lacks independent verification and therefore the results will be used as baseline perception data.

The data, sourced from mentor feedback as presented below, is based on the total average of all five learning centres combined since all the Emerging Contractors (EC) from the five centres followed the same trend in terms of their development, as observed by their respective mentors.

A detailed graphic presentation of each measured element is presented in Annexure 12: diagrammatic presentation of quantitative data, by the Council for Scientific and Industrial Research (2007:1-18). The findings, presented below, therefore identify the overall development of the EC's regarding sections 1-4 of Annexure 7: Manual for Smaller Construction Contractors, table of contents. The results, therefore, alert the project team to the developmental growth path of the contractor over a specified period, allowing the project team to assess the impact of the integrated model on the contractors' overall development.

7.5.1 Mentors evaluation of emerging contractor

With reference to Annexure 5, Monthly mentors' assessment report, by (2005a) referred to under 6.2.2.1 and Annexure 12, a diagrammatic presentation of quantitative data by CSIR provides a graphic representation of the data gathered by the mentors of the participating EC's on the programme through the completion of annexure 5. An average response rate of 75% for the 54 participants over the assessment period from July 2006 to October 2006 was measured. The scores received were based on the items listed in Annexure 7, Manual for Smaller Construction Contractors, table of contents.

7.5.1.1 Running a small business

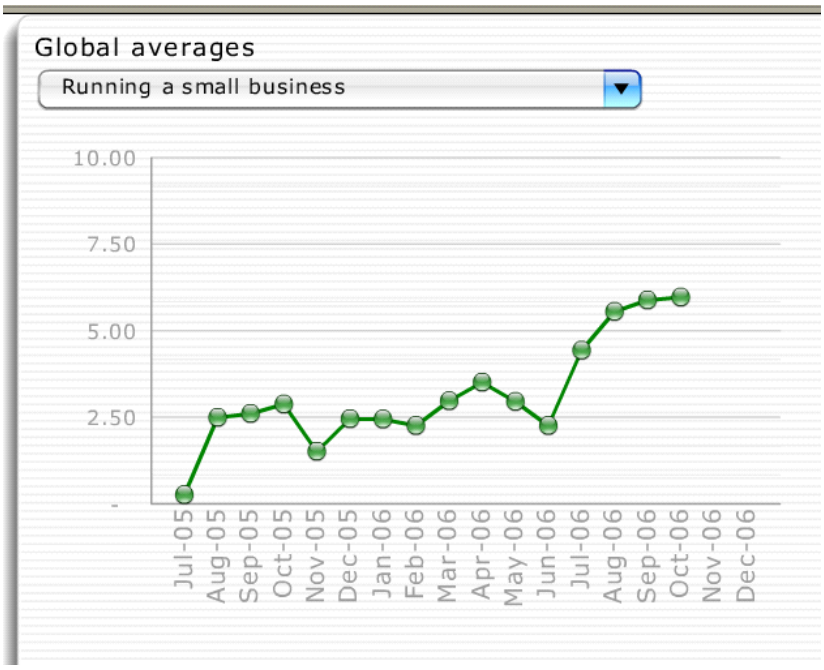

Figure 7: Graphical presentation of data: Running a small business
Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

As per Annexure 7: Manual for Smaller Construction Contractors, table of contents, the element of running a small business covers administration, financial management and contractual obligations. Over the period of assessment, the participating emerging contractors, across all five learning centres, demonstrated a 34% overall increase in their ability to run a small business. This reflected increases from their initial assessment of 24.9% to 59.7% at the final assessment.

The first 10 months of the July 2005 to October 2006 assessment indicated varying but consistently low performance in terms of the indicators. Slight increases were identified every three months. These coincided with the quarterly workshops where the EC's progress were presented and discussed with all project stakeholders. Interventions were subsequently proposed to address or improve performances.

These interventions included the introduction of the TQM assessments for the last six months from May 2006 to October 2006 and the MDP for the last four months, from July 2006 to October 2006. The last six months displayed a 22.6% increase, representing 66.47% of the overall 34% increase in the EC's ability to run a small business. Therefore it can be concluded that the introduction of the TQM concept and the MDP had a positive effect on the development of the EC's in terms of their ability to run small business.

Therefore, the EC's, according to Table 3, moved from the category of fair performance to the category of average/good performance (the contractor is able to execute and activity with assistance) over the last six months of the programme, from May 2006 to October 2006

7.5.1.2 Finding and obtaining work

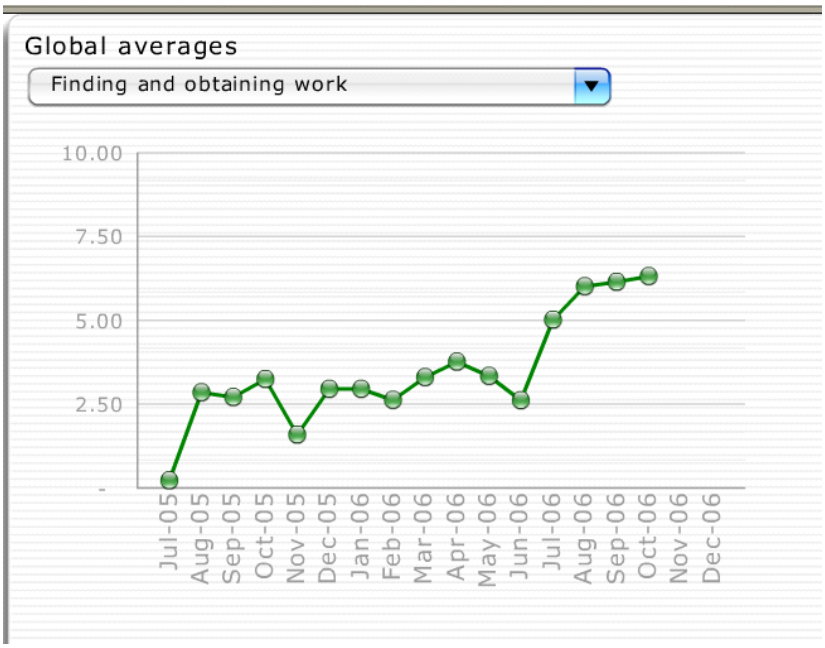

Figure 8: Graphical presentation of data: Finding and obtaining work
Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

As per Annexure 7: Manual for Smaller Construction Contractors, table of contents, the element of finding and obtaining work covers finding and keeping customers, as well as

estimating and tendering. Over the period of assessment, the participating emerging contractors, across all five learning centres, as assessed by their mentors, demonstrated a 34.7% overall increase in their ability to find and obtain work. This represents an increase from an initial assessment of 28.5% to 63.2% at the project's completion.

The first 10 months of the July 2005 to October 2006 assessments follow the same trend as 7.5.1.1 and indicate varying but consistently low performance, with slight increases identified every three months. These improvements coincided with the quarterly workshops where emerging contractors' progress for the preceding three months, were presented and discussed with all project stakeholders. This was followed by suggestions on interventions aimed at addressing or improving performances.

June 2006 results showed a rapid decrease in the EC's ability to find and obtain work. This coincided with several government departments in the Eastern Cape placing moratoriums on progressing new projects. This affected in particular the Department of Education's schools programme, which is implemented through the Independent Development Trust (IDT) and which serves as a main employer of contractors in the province. The project team then interacted with various government departments and several EC's were successful in securing projects.

The interventions introduced included the introduction of the TQM assessments for the last six months, from May 2006 to October 2006 and the MDP for the last four months, from July 2006 to October 2006. The last five months from June 2006 to October 2006 displayed a 38.2% increase in the EC's ability to find and obtain work from the slump experienced in April 2006 and June 2006. This coincided with the introduction of the TQM and the MDP. The significant increase from June 2006 to October 2006 indicated the EC's had acquired the skills to successful estimate a tender and based on this improvement, it can be concluded that the introduction of the TQM concept and the MDP had a positive effect on the development of the EC's in terms of their ability to find and obtain work as well as in their estimating and tendering.

Therefore, EC's, according to Table 3, moved from the category of fair performance to the category of very good performance.

7.5.1.3 Running an efficient building project

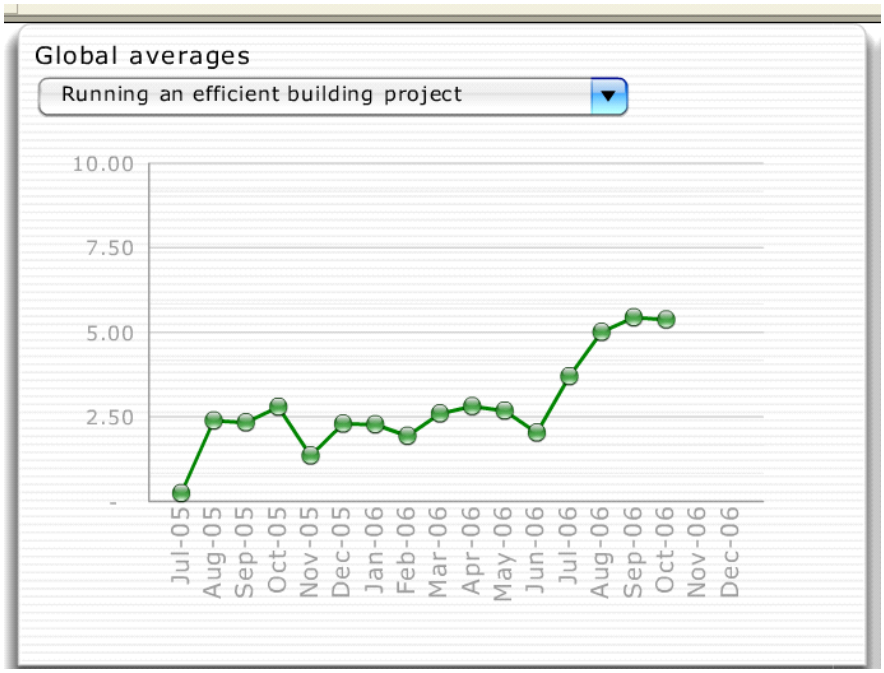

Figure 9: Graphical presentation of data: Running an efficient building project
Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

As per Annexure 7: Manual for Smaller Construction Contractors, table of contents, the aspect of running an efficient building project covers planning and programming, control, progressing and work on site. Over the period of assessment, from June 2005 to October 2006, the participating emerging contractors, across all five learning centres, demonstrated a 29.9% overall increase in their ability to run an efficient building project. This represents an increase from the initial assessment of 23.9% to 54.42% at the project's completion.

The first 10 months of assessment from the July 2005 to October 2006 followed the same trend as 7.5.1.1 with varying but consistently low performance by the EC's. There was evidence of a slight stabilisation every three months before a sudden decrease or increase in performance. June 2006 results showed a rapid decrease in the EC's ability to run an efficient building project which coincided with the decrease as experienced in 7.5.1.2 above, ie largely due to the lack of projects available.

The last five months from June 2006 to October 2006 displayed a 29.9% increase in the EC's ability to run an efficient building project. This coincided with the interventions of introducing TQM and MDP as well as the availability of more employment opportunities in the construction sector in the Eastern Cape. The ECs, therefore, according to Table 3, moved from the category of fair performance to the category of average/good performance (contractor is capable to execute and activity with assistance).

7.5.1.4 General information

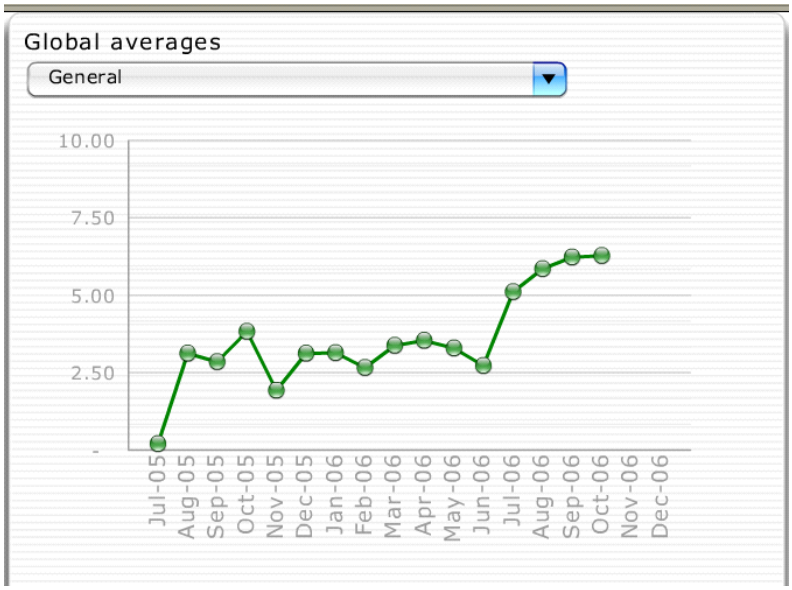

Figure 10: Graphical presentation of data: General information
Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

As per Annexure 7: Manual for Smaller Construction Contractors, table of contents, the element of general information covers management of staff, safety, labour relations, other legislation, training providers and management team.

Over the period of assessment, from July 2005 to October 2006 the participating emerging contractors, across all five learning centres, demonstrated a 31.6% overall increase in their ability in managing the elements mentioned above. This reflected an improvement from their initial assessment of 31.2% to 62.8% at the project's completion.

The first 10 months of assessment from July 2005 to October 2006 followed the same trend as indicated in 7.5.1.1 to 7.5.1.3 above. It indicated varying but consistently low performances by the ECs. June 2006 results showed a rapid decrease in the ECs' ability under general. This coincided with the decrease experienced in 7.5.1.2 and 7.5.1.3 above which was as a result of the lack of employment opportunities.

The interventions introduced again included the introduction of the TQM assessments over the last six months, May 2006 to October 2006 and the MDP for the last four months, from July 2006 to October 2006. Of the total increased performance measured, a 27.3% increase took place within the final five months.

The significant increase from June 2006 to October 2006 indicated the ECs had acquired the skills to successfully manage the elements under general. It may be concluded that the introduction of the TQM concept and the MDP had a positive effect on the development of the ECs in terms of their ability to manage the elements under general.

Therefore, the ECs, according to Table 3, moved from the category of fair performance to the category of very good performance.

7.5.2 Emerging Contractor evaluation of mentoring process

Assessments of the ECs' mentoring process, as per Annexure 6: Emerging Contractors evaluation of mentoring process, by Hauptfleisch (2005c), is presented per region, covering the five learning centres with an average response rate of 60% from the 54 participating contractors. The results presented were the total averages achieved at the completion stage of the project.

The results, as gathered from the ECs, are presented per learning centre as the ECs' evaluation followed different trends in the various learning centres. The mentor's evaluation identified a general trend throughout all five centres. The scores, presented by all the contractors, are noted in percentage form.

7.5.2.1 East London learning centre

Table 5: Tabular presentations of data collected through Emerging Contractors' evaluation of mentoring process, global average: East London learning centre

Indicator	Score	August 2006 rating	Previous rating
Evaluation of relationship with mentor and quality of support provided to EC	78%	Very good	Very good
Evaluation of service levels and quality of interaction with ECDC (business advisor, accounting, reaction time, etc)	73%	Very good	Very good
Evaluation of the training programme offered by the training service provider	82%	Excellent	Excellent
Development of EC's ability to deal independently with construction project professional team (architect, engineer, quantity surveyor, etc)	68%	Very good	Very good
Development of financial stability of EC (improved cash flow, asset base, credit rating, etc)	53%	Average	Average
Management structure and quality of this development programme as introduced and operated by the Project	75%	Very good	Very good
Overall personal (EC) skills and knowledge development resulting from this ECDC development initiative	74%	Very good	Very good

Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

The East London group demonstrated a high degree of satisfaction with the elements assessed. All elements showed a steady increase. The ECs' indicated a great degree of satisfaction with the overall knowledge gained as a result of the programme and with the relationships developed with their respective mentors as well as with the project team: Elements of concern included the ECs' self assessment of their own ability to manage their finances including cash flows. It can, therefore, be concluded, according to the response of the East London group, that additional emphasis should be placed on financial management in future IECDM programmes.

7.5.2.2 Kokstad learning centre

Table 6: Tabular presentation of data collected through Emerging Contractors' evaluation of mentoring process, global average: Kokstad learning centre

Indicator	Score	August 2006 rating	Previous rating
Evaluation of relationship with mentor and quality of support provided to EC	75%	Very good	Very good
Evaluation of service levels and quality of interaction with ECDC (business advisor, accounting, reaction time, etc)	40%	Fair	Average
Evaluation of the training programme offered by the training service provider	91.7%	Excellent	Excellent
Development of EC's ability to deal independently with construction project professional team (architect, engineer, quantity surveyor, etc)	61.7%	Very good	Average
Development of financial stability of EC (improved cash flow, asset base, credit rating, etc)	38.3%	Fair	Fair
Management structure and quality of this development programme as introduced and operated by the Project	76.7%	Very good	Very good
Overall personal (EC) skills and knowledge development resulting from this ECDC development initiative	71.7%	Very good	Very good

Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

The Kokstad group demonstrated varying levels of satisfaction. A high degree of satisfaction was recorded for the training provider and a great degree of satisfaction with mentors and project team The ECs' rated the overall programme in terms of their own development at 71.7%. A major area of concern, as identified with the East London group, is a low rating for financial management, thus supporting the conclusion that further interventions are required in future IECDM programmes in order to address financial management by the ECs.

The ECs in Kokstad also indicated low satisfaction levels with services of the project client in terms of access to finance and accounting reaction times.

7.5.2.3 Mthatha learning centre

Table 7: Tabular presentation of data collected through the Emerging Contractors' evaluation of mentoring process, global average: Mthatha learning centre

Indicator	Score	August 2006 rating	Previous rating
Evaluation of relationship with mentor and quality of support provided to EC	80%	Very good	Very good
Evaluation of service levels and quality of interaction with ECDC (business advisor, accounting, reaction time, etc)	61.3%	Very good	Very good
Evaluation of the training programme offered by the training service provider	78.8%	Excellent	Excellent
Development of EC's ability to deal independently with construction project professional team (architect, engineer, quantity surveyor, etc)	70%	Very good	Average
Development of financial stability of EC (improved cash flow, asset base, credit rating, etc)	67%	Fair	Fair
Management structure and quality of this development programme as introduced and operated by the Project	67%	Very good	Very good
Overall personal (EC) skills and knowledge development resulting from this ECDC development initiative	68%	Very good	Very good

Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

The Mthatha group indicated a high degree of satisfaction with all elements. Contrary to East London and Kokstad groups, the Mthatha group was more satisfied with their ability in terms of the financial management of their construction companies. However, they scored themselves lower in the overall knowledge gained from the developmental initiatives versus those of the groups presented earlier.

7.5.2.4 Queenstown learning centre

Table 8: Tabular presentation of data collected through the Emerging Contractors' evaluation of mentoring process, global average: Queenstown learning centre

Indicator	**Score**	**August 2006 rating**	**Previous rating**
Evaluation of relationship with mentor and quality of support provided to EC	90%	Excellent	Excellent
Evaluation of service levels and quality of interaction with ECDC (business advisor, accounting, reaction tim	80%	Very good	Average
Evaluation of the training programme offered by the training service provider	83.3%	Excellent	Excellent
Development of EC's ability to deal independently with construction project professional team (architect, engineer, quantity surveyor, etc)	80%	Very good	Average
Development of financial stability of EC (improved cash flow, asset base, credit rating, etc)	83.3%	Excellent	Very good
Management structure and quality of this development programme as introduced and operated by the Project	80%	Very good	Excellent
Overall personal (EC) skills and knowledge developme resulting from this ECDC development initiative	86.7%	Excellent	Excellent

Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

The Queenstown group indicated a high degree of satisfaction with all elements and gave contractor satisfaction its highest rating of all the centres.

7.5.2.5 Port Elizabeth learning centre

Table 9: Tabular presentation of data collected through the Emerging Contractors' evaluation of mentoring process, global average: Port Elizabeth learning centre

Indicator	Score	August 2006 rating	Previous rating
Evaluation of relationship with mentor and quality of support provided to EC	80%	Very good	Very good
Evaluation of service levels and quality of interaction with ECDC (business advisor, accounting, reaction time, etc.)	80%	Very good	Very good
Evaluation of the training programme offered by the training service provider	50%	Excellent	Excellent
Development of EC's ability to deal independently with construction project professional team (architect, engineer, quantity surveyor, etc)	80%	Average	Average
Development of financial stability of EC (improved cash flow, asset base, credit rating, etc)	80%	Very good	Very good
Management structure and quality of this development programme as introduced and operated by the Project	80%	Very good	Very good
Overall personal (EC) skills and knowledge development resulting from this ECDC development initiative	90%	Excellent	Excellent

Source: Council for Scientific and Industrial Research (CSIR), 2007:3-18

The Port Elizabeth group indicated a high degree of satisfaction across all elements. However, this group scored the training provider low, contrary to the other groups. On investigation, it was found that the ECs were dissatisfied with the quality of presentation and presenter of the appointed training provider.

7.5.3 Total Quality Management assessments

The TQM process comprised two elements to be effective:

- Quarterly Indabas (workshop sessions) with all project stakeholders facilitated regular feedback on the programme, allowing all to share information on experiential learning and provide guidance in a unified fashion;

- During the last six months of the programme, from May 2006 to October 2006, the TQM team visited every mentor, with the contractors assigned to each mentor, in the offices of the mentor or on a construction project site of the contractor, in order to monitor the progress of each contractor. It also aimed to evaluate the interaction between mentor and contractors, in order to ensure that actual capacity building was taking place, seek agreement on corrective measures where deviations from stated objectives occurred and monitor and manage the programme towards achieving the standards set. These TQM visits were conducted in a structured fashion in order to obtain uniformity in the procedures and in the assessment of the outcomes.

Through the implementation of the TQM, it was found that:

- The mentor/emerging contractor relationship needed continuous guidance throughout the project period, from July 2005 to October 2006

- Prior to the implementation of the TQM process, the mentors' assessment of the emerging contractors' development averaged between 20% and 45% overall. Contrary to this, the emerging contractors' satisfaction levels remained consistently high as indicated in the findings above. The TQM, therefore, revealed that there was a misunderstanding between mentors and emerging contractors and in the implementation of the assessment tools which were introduced;

- The introduction of the TQM resulted in an increase in the emerging contractor's development. This finding was in accordance with the mentors assessment and is recorded in the above findings;

- The emerging contractors' satisfaction levels with the programme increased over the last six months of the programme, from May 2006 to October 2006, coinciding with the introduction of the TQM;

- The implementation of the *Manual for smaller construction contractors: guidelines for mentorship* proved to be effective as the guideline governed the relationship between mentor and emerging contractor and led to the development of the Management Development Programme which is described below.

7.5.4 Management Development Programme

According to the feedback obtained from the TQM sessions, it became evident that the formal training component presented by the training service providers was insufficient for creating contractors that were self-sustaining.

The deficiencies in assessing contractors were not revealed by the CETA procedures. Although the contractors were subjected to the normal CETA evaluation procedures, the mechanics for establishing the ability of contractors after completion of their formal training was suspect. Two important areas of weaknesses were identified, namely, tendering and financial management. Almost all contractors could not execute the relevant functions in practice, yet they had passed the evaluation procedures which had led a CETA qualification. This finding was supported by the Council for Scientific and Industrial Research (CSIR), 2007:1-18.

Although the mentors' primary task was to assist contractors with their businesses and business development in general, it became evident that they would need to assist in resolving the important knowledge gaps of the contractors. Of prime concern was that very few of the contractors could prepare and present a tender, nor were they able to follow through with the necessary cost control and financial management. Having clearly

established these shortcomings, the management team introduced a further development tool namely the Management Development Programme (MDP), *(See Annexure 8 - Management Development Programme, by Hauptfleisch, 2006).*

The MDP was structured as a simple bar chart for the remainder of the IECDM programme. As noted by Knoetze, Lazarus, Hauptfleisch and Liebenberg (2007:1-24), the underlying principle was to place each item contained in the mentor evaluation of the emerging contractor (Annexure 5) and the Manual for Smaller Construction Contractors; guidelines for mentorship (Annexure 7) in a bar chart. Each contractor's proficiency was evaluated in terms of each specific knowledge area, with the mentor and EC each signing off the knowledge area as being understood and with the EC having demonstrated the ability to execute this practically.

The results showed the following about MDP:

- This intervention had a dramatic affect on the level of proficiency achieved by the contractors over the latter part of the programme. As presented in Figures 7 to 10, the mentors' assessment of the emerging contractors increased significantly as the MDP complemented the manual in governing the mentor/emerging contractor relationship;

- The existence of the MDP created team work between the emerging contractors and their mentors by giving each other performance reviews. Problems with mentor/contractor relationships and those related to projects undertaken by the emerging contractors were resolved with the help of the TQM team;

- The MDP is a necessary tool in managing the implementation of the manual.

7.5.5 Close out questionnaire analysis

A close out questionnaire was forwarded to selected project stakeholders (mentors, contractors, service providers) three months after the IECDM's completion, in January 2007. Two reports were developed (*See Annexure 9 and 10 Stakeholders' questionnaire*). Annexure 9 refers to the IECDM mentors and training providers. Annexure 10 refers to the emerging contractors. The purpose of the feedback was to evaluate:

- The success of the IECDM as a developmental tool, per the experiences and reports of the mentors, training providers and emerging contractors;
- The benefit of the model as experienced by the emerging contractors in terms of business growth and knowledge gained;
- Input for future IECDM implementation;
- The success/failure of key IECDM elements, ie TQM, mentorship, CETA learnership and the *Manual for Smaller Construction Contractors*; and
- Elements of the model requiring corrective measures or improvement.

With reference to Annexure 9, the stakeholder's questionnaire (mentors and training providers) and based on a response rate of 55% (13 mentors and one training provider), the responses were:

Section 1 requested the respondents to rate the overall performance of the model. The scoring system utilised was based on a 1-10 rating with:

1-2 = poor, 3-4 = fair, 5-6 = average/good, 7-8 = very good, 9-10 = excellent

- **Question 1.1: Rate the overall IECDM programme in terms of delivering on the key objectives being enterprise development of emerging contractors.**

The average score was 7.5, thus falling into the range of "very good". General comments received ranged from "excellent programme" to "a very informative programme". Based on the received responses, the stakeholders (mentors, training providers) believed that overall, the IECDM was beneficial in developing emerging contractors.

- **Question 1.2: Rate the mentoring programme introduced by the project team in terms of value adding beneficiation of the emerging contractor.**

The average score was 8.3, thus falling into the range of "excellent". General comments ranged from "best model around" to "contractors gained confidence from the mentorship". Based on the received responses, the stakeholders (mentors, training providers) believed that the mentor programme, introduced by the project team, was a beneficial developmental tool in assisting emerging contractors.

- **Question 1.3: Rate the management of the IECDM by the ECDC appointed project team.**

The average score was 8.5, and fell into the range of "excellent" General comments received ranged from "the method of one-to-one interaction with mentors and emerging contractors is very effective" to "the team did their very best and achieved their objectives". The mentors and training providers indicated a high degree of satisfaction with the overall management of the IECDM by the project team.

- **Question 1.4: Has significant growth of the emerging contractor being noticed in terms of their sustainability and viability as a construction enterprise.**

The average score was 7.25, and fell into the range of "good". General comments received ranged from "contractors became independent" to "it became evident". The feedback received, therefore, indicated that the mentors and training providers, over the

project period, had identified a significant level of development by the emerging contractors.

- **Question 1.5: Rate the CETA learnership in terms of the value adding beneficiation.**

The average score was 6.63 and fell into the range of “average/good”. General comments received ranged from “the learnership provided the necessary background for the merging contractors” to “it added great value”. The mentors and training providers indicated an average to good level of satisfaction with the learnership. Key elements of the IECDM were rated with the CETA learnership scoring the lowest points by the respondents.

An important observation was that, on average, the mentors scored question 5 lower than the training providers. Some mentors identified that the learnership, on its own, was insufficient, because it only provided basic background information but lacked practical application. Emerging contractors were found to be competent in the various unit standards of the learnership by the training providers but found difficulty in implementing the activity on site.

- **Question 1.6: Rate the overall TQM process in terms of the value adding, providing corrective measures and to guide the mentor/emerging contractor/training provider relationship.**

The average score was 8.5 and fell into the range of “excellent”. General comments received ranged from “excellent programme” to “made a big difference”. Based on the received responses, the stakeholders (mentors, training providers) believed that the overall TQM process was an important component of the IECDM and, together with the overall management by the project team, scored the highest of the key IECDM components.

Section 2 gauged the perception regarding the IECDM by the mentors and training providers. The response requested was a "yes" or "no" answer to the question put forward.

- **Question 2.1: Asked whether the mentors/training provider would participate in future IECDMs:**

  - 100% responded with "yes"
  - 0% responded with "no"

General comments by the questionnaire participants ranged from "yes, it was very rewarding to "saw contractors grow" to "the programme was a learning experience for me as a mentor."

- **Question 2.2 asked whether the client ECDC should be the implementing agent for future IECDMs:**

  - 100% responded with "yes"
  - 0% responded with "no"

General comments by the questionnaire participants ranged from "yes, they played a huge role in guiding the contractors" to "yes they understand the conditions of the industry and have done a good job."

- **Question 2.3 asked whether the introduction of the Manual guideline document created a sound knowledge base for the mentor/contractor relationship:**

  - 100% responded with "yes"
  - 0% responded with "no"

General comments by the questionnaire participants ranged from "yes, it will serve as a bible for future projects" to "it has been a base of the training process."

Section 3 and addition requested the respondents to indicate those areas as listed below where improvement for future models was required or what corrective measures were required to improve the IECDM.

The following elements were listed for selection:

Selection of contractors:	63%
Mentorship:	13%
Workshops/Indabas:	0%
Project management:	13%
CETA NQF Level 2 learnership:	11%

Sixty three percent of the respondents indicated that the selection of contractors needed to be reviewed for future IECDM models. General comments by the questionnaire participants ranged from “choosing the wrong contractor can be detrimental” to “contractors selected must be committed to the industry.” Based on the respondent ratings any developmental programme with stringent TQM and project management can only be successful if the right people who have the determination and willingness to be contractors are selected as part of that programme.

Section 3 concluded by requesting the respondents to provide recommendations or additional comments on the IECDM and its future.

General comments by the questionnaire participants ranged from: “there is a future for IECDM” to “the programme has been a success”. The feedback presented indicated that the participating mentors and training providers found the IECDM to be an effective developmental tool and beneficial to the industry.

With reference to Annexure 10 stakeholders questionnaire (Emerging Contractors) and based on a response rate of 45% of the 54 contractors:

Section 1 requested the respondents to rate the overall performance of the model. The scoring system utilised was based on a 1-10 rating with:

1-2 = poor, 3-4 = fair, 5-6 = average/good, 7-8 = very good, 9-10 = excellent

- **Question 1.1: Rate the overall IECDM programme in terms of delivering on the key objectives being enterprise development of emerging contractors.**

The average score was 8 and fell into the range of "excellent". Based on the responses received, the emerging contractors found the overall IECDM to be beneficial for their development.

- **Question 1.2: Rate the mentoring programme introduced by the project team in terms of value adding beneficiation of the emerging contractor.**

The average score was 9.3 and fell into the range of "excellent". Based on the received responses, the emerging contractors found the mentor programme introduced by the project team as beneficial to their development.

- **Question 1.3: Rate the management of the IECDM by the ECDC appointed project team.**

The average score was 8.33 and fell into the range of "excellent". The emerging contractors indicated a high level of satisfaction with the programme management by the appointed project team.

- **Question 1.4: Have you as the emerging contractor noticed significant growth of your enterprise regarding sustainability and viability as a construction enterprise.**

The average score was 8.0 and fell into the range of “excellent”. The emerging contractors indicated a high level of satisfaction with the programme in terms of their self sustainability within the construction industry.

- **Question 1.5: Rate the CETA learnership in terms of the value adding beneficiation it has provided for the emerging contractor.**

The average score was 8.33 and fell into the range of “excellent”. The emerging contractors indicated a high level of satisfaction with the learnership qualification. This is in contradiction of the 6.33 scored for the same element by the mentors. Based on the scores and comments received, it can be deducted that while the emerging contractors felt they gained from the learnership, the mentors questioned the lack of practical on site application of the learnership modules.

- **Question 1.6: Rate the overall TQM process in terms of the value adding, providing corrective measures and to guide the mentor/emerging contractor/training provider relationship.**

The average score was 8.67 and fell into the range of “excellent”. Based on the received responses, the emerging contractors found the overall TQM process as an important component of the IECDM.

- **Question 1.7: Has the introduction of the Manual guideline document created a sound knowledge base for the mentor/contractor relationship:**

The average score was 9 and fell into the range of “excellent”. Based on the scores received, the emerging contractors found the overall manual an effective tool in managing the mentor/contractor relationship

Section 2 took into account the business development of the emerging contractors. The response requested was a "yes" or "no" answer to the question put forward.

- **Question 2.1: Asked whether the IECDM had improved the business skills of the emerging contractor to manage their enterprises effectively.**

  - 100% responded with "yes"
  - 0% responded with "no"

- **Question 2.2: Asked whether the emerging contractor was now in a position to execute projects of larger capacity as a result of the knowledge gained through the IECDM.**

  - 100% responded with "yes"
  - 0% responded with "no"

- **Question 2.3: Asked whether the emerging contractor was able to tender and compete more efficiently for construction projects post IECDM than prior to the IECDM.**

  - 100% responded with "yes"
  - 0% responded with "no"

- **Question 2.4: Asked whether the emerging contractor felt that their knowledge base regarding the construction industry had been enhanced as a result of their participation in the IECDM.**

  - 100% responded with "yes"
  - 0% responded with "no"

Section 3 and addition requested the respondents to indicate those areas as listed below where improvement for future models was required or what corrective measures were required to improve the IECDM.

The following elements were listed for selection:

Selection of contractors:	0%
Mentorship:	33%
Workshops/Indabas:	0%
Project management:	0%
CETA NQF Level 2 learnership:	67%

Sixty seven percent of the respondents believed that the learnership, although it provided a sound knowledge base and background information, required more practical components. A third of the group (33%) wanted the mentorship programme to be improved terms of more time to be spent with the mentors and for earlier implementation of TQM and MDP.

Section 3 concluded by requesting the respondents to provide recommendations or additional comments on the IECDM and its future.

General comments by the questionnaire participants ranged from “The project should include more industry stakeholders” to “great programme.” The feedback indicated that the participating emerging contractors found the IECDM to be an effective developmental tool and that it would be beneficial to the industry.

7.5.6 Comparison to control group 2

Running parallel to the pilot study was a group of 20 emerging contractors involved in various construction projects and linked to the client (ECDC) through a finance programme. The 20 emerging contractors, although not in a full developmental programme, had the services of a mentor to assist in their development. The introduction of the second group provided a comparison between the outcomes of a mentorship based only programme to an integrated development model.

The assessment of the second group, although over a shorter time frame, provides sufficient data for comparison of the results between the two groups.

The second group of 20 emerging contractors were:

- Assessed over an eight month period only, from March 2006 to October 2006, which ran parallel to the IECDM;
- Were not assigned to any learning centre; and
- Were not subjected to TQM, MDP or the CETA NQF level 2 learnership.

In addition:

- The same mentors were utilised for both groups, which ensured consistency in the assessments for the two groups;
- The second group was, therefore, subjected to the same assessment tools as described in 6.2.2.1 above, with only minor changes being implemented;
- The data gathered for the group of 20 emerging contractors, as for the IECDM, remains perspective in nature and is not triangulated. As for the IECDM, the consistency in information and trends identified renders the data sufficient for the purpose of comparison.

Table 10 summarises the elements to which the two groups were subjected as explained in 7.5.6. The table is significant in that it indicates the elements to which the two control groups were exposed to and the impact of these elements of the development of the participating contractors.

Table 10: IECDM versus second group: comparison

IECDM ELEMENTS	IECDM EMERGING CONTRACTORS	2ND GROUP OF 20 EMERGING CONTRACTORS
Mentorship	Yes	Yes
TQM	Yes	No
Project management	Yes	No
CETA NQF level 2	Yes	No

Figures 11 and 12 provide an overview of the first and final assessments conducted for the two groups. The intent was to test if an integrated development model leads to improved contractor development opposed to an ad-hoc approach, using mentorship only.

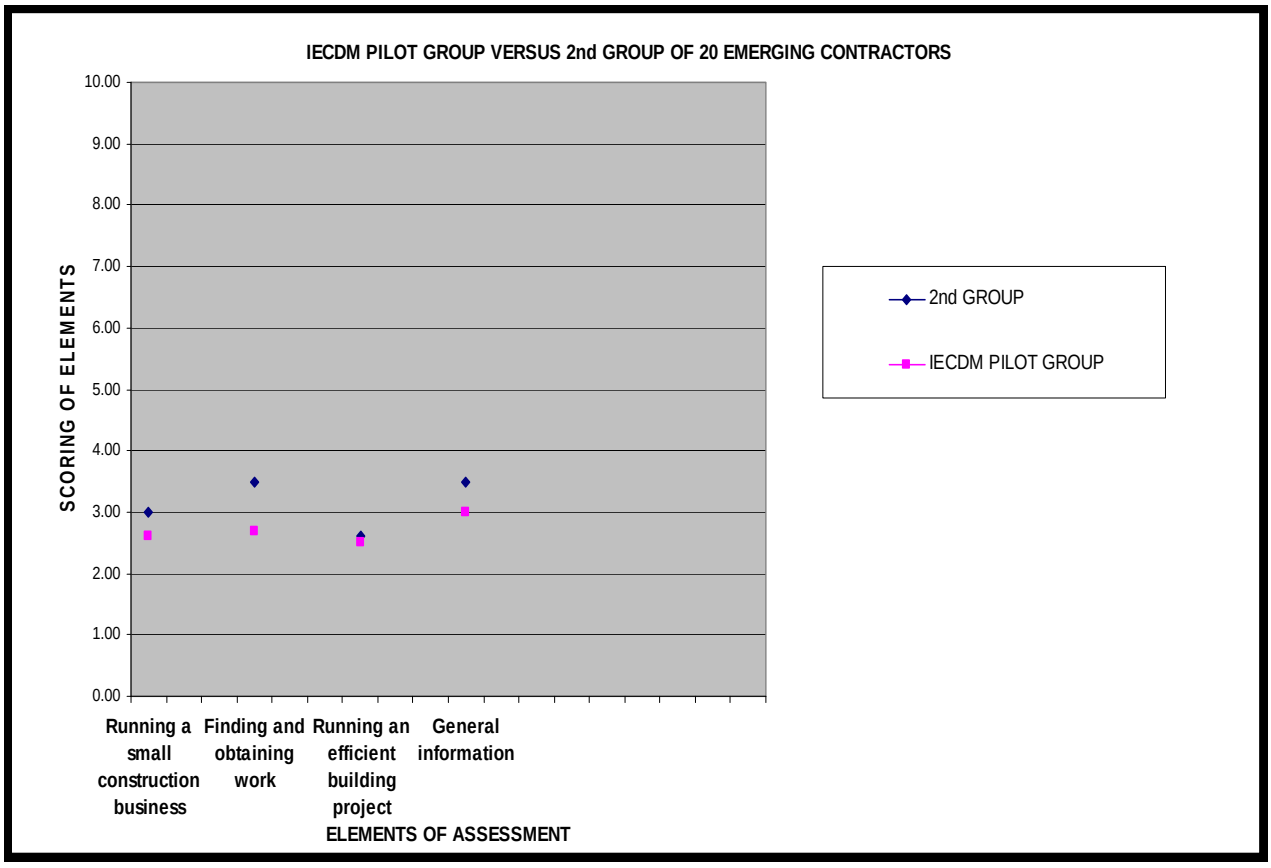

Figure 11: IECDM versus second group: first assessment

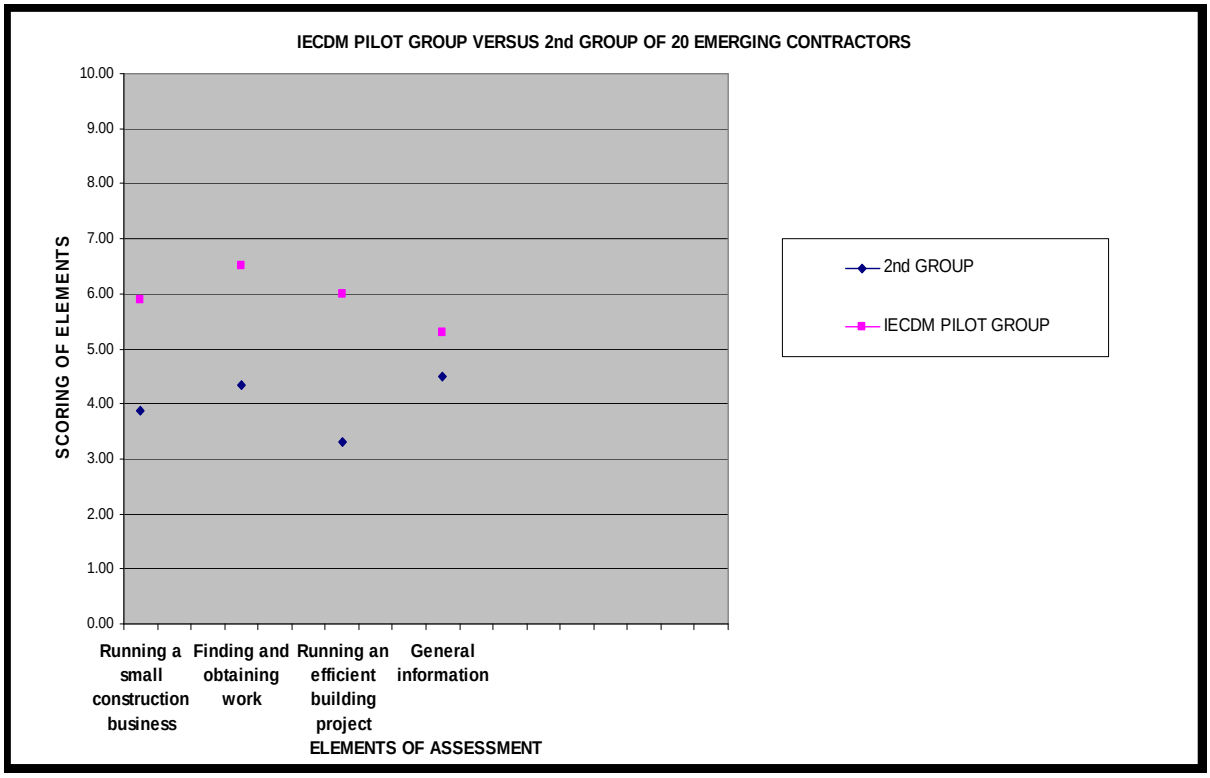

Figure 12: IECDM versus second group: final assessment

Figures 11 and 12 describe the results of the mentors' assessments of the two groups as tabled in table 11, over the specified timeframes. The assessment provided includes the first and final months of assessment, in March 2006 and October 2006 of the two groups.

The results indicated that:

- The initial assessments of the two groups, as described in figures 11 and 12, were similar with the same trends being identified in both groups;

- The final assessments differed completely, with the IECDM pilot group showing a higher level of improvement/performance across the elements assessed;

- The second group displayed a slight increase in improvement/performance over the assessed period, but not as dramatic as for the IECDM;

- As identified in 7.5.1.1 to 7.5.1.4, the trend over the first 10 months of assessment of the July 2005 to OCtber 2006 for the IECDM group followed the same trend as the second group over their eight month assessment period;

- With the introduction of TQM and MDP for the IECDM, a sudden upward trend in performance was noted. Since this was not present in the second group, TQM and MDP played a significant role in the development of the emerging contractors as it was during this period where the large variance between the two groups occurred This, therefore, supports the same conclusions as derived above with regard to the value adding of TQM and MDP. The quantum of this change as explained in 7.5.1 supports the above conclusion

7.6 Analysis of project successes and failures

The methodology which was followed included:

- A literature survey which analysed historical information and led to the development and implementation of the model;

- A statistical survey which analysed the quantitative information obtained from the model through the implementation of assessment tools and questionnaires;

- Reporting on data which was gathered through observations made on the models implementation and completion;

- Comparing data against that of other programmes; and

- Own experience.

These processes led to the identification of the various successes and failures of the overall programme. This resulted in the following observations:

7.6.1 Integrated Emerging Contractor Development Model (IECDM)

✓ **Successes:**

- The IECDM, as a developmental tool, has proven to be effective in developing emerging contractors as is indicated in the findings presented;

- The pilot programme achieved its objective of a more holistic approach for the integrated skills development of emerging construction contractors and resulted in a model that can be managed with quantitative and measurable outcomes;

- The introduction of TQM and MDP led to an improved performance by the emerging contractors as reflected in the findings above.

✗ **Failures:**

- It was evident that the lack of TQM and MDP during the first 12 months of the model was an oversight by the project team. Once implemented, there was a substantial increase in the ECs' performance, as indicated in figures 7-10. This further substantiates the need for this intervention.

- The process of selecting contractors should be reviewed as reflected in the results of the close out questionnaire with reference to Annexure 9.

7.6.2 Mentors

✓ **Successes:**

- TQM revealed that the mentors played a key role in the development of the emerging contractor;
- A fully fledged mentor programme has evolved out of the IECDM;
- The implementation of the mentor guideline document resulted in the mentor/contractor relationship improving as is reflected in the improved emerging contractors improved performances.

✗ **Failures:**

- The mentor/contractor relationships only improved as a result of the implementation of the TQM process. It was, therefore, a project oversight not to recognise the importance of a more effective orientation programme at the project start.
- TQM revealed that the mentors only fully understood their roles or application thereof during the TQM sessions. Therefore, it was a failure not to recognise that mentors should undergo training themselves prior to participating in future IECDMs.

7.6.3 Emerging Contractors

✓ **Successes:**

- The findings, based on the implementation of Annexures 9 and 10, indicate that the emerging contractors benefited from the participation in the IECDM programme;

- The findings, based on the implementation on Annexure 10, three months post IECDM completion indicated that the IECDM had achieved its objectives as the beneficiaries of the programme indicated a high degree of satisfaction with the IECDM as a result of improved business capacity and growth as well as a new found confidence in the construction industry.

✘ **Failures:**

- As per the results of Annexure 9 and as described above, the mentors and training providers indicated that the selection of contractors for the IECDM needed improvement. Although not regarded as a total failure, the IECDM client should review the selection process in accordance with the reasons raised by the mentors and training providers.

7.6.4 Training providers

✓ **Successes:**

- The training providers had varied success, with certain providers more efficient than others, although the emerging contractors scored them high as indicated under 7.5.2.

✘ **Failures:**

- The training providers selected were provided by CETA and listed as accredited training providers on the CETA database. The project team's oversight was to assume that the training providers had the proposed competencies to teach the NQF level 2 learnership effectively. Future tests may add to better selection;

- All three training providers used their own training material and methods. Hence there were three differing methodologies and contents and this proved unmanageable;

- It was taken for granted that CETA's internal quality assurance mechanisms would provide guidance in the training methodology of the training providers;

- Training providers are in a position to declare whether contractors are competent or not with regard to the various unit standards of the learnership. However, mentors found the emerging contractors still lacked the ability to perform these duties despite being declared competent by the training provider, when it came to application on site.

7.6.5 Total Quality Management (TQM) consultants

✓ **Successes:**

- The TQM consultants performed the duties effectively as reflected by the results of the implementation of Annexures 9 and 10;

- The experience of the TQM consultants allowed for effective management of the mentor/contractor relationships;

- The TQM consultants were able to resolve any conflicts during their sessions thus not prolonging any potential problems within the IECDM.

✘ **Failures:**

- TQM required early implementation during the IECDM and not recognising this was an oversight by the project team.

7.6.6 Construction Education and Training Authority (CETA) and National Qualifications Framework (NQF) level 2 learnership

✓ **Successes:**

- The learnership serves as an excellent theoretical base for the emerging contractors;
- The content and scope covers all basic elements of construction.

✘ **Failures:**

- The learnership requires improvement of the tendering modules. TQM revealed that emerging contractors required more detailed training in tendering as it remained an area of weakness on the programme.

7.7 Conclusion

The findings, as presented, provided insight into the purpose of developmental programmes and hence the following conclusions were made:

- The introduction of the assessment tools for mentors and emerging contractors and elements such as TQM and MDP provided important observations on the growth and developmental path of emerging contractors;

- The data allowed the identification of the key requirements in designing an integrated skills development model for emerging construction contractors;

- The assessments, together with the related findings and the original ECDM, presented a holistic approach towards sustainable emerging contractor development because a model provides a management framework with quantitative and measurable outcomes, thus addressing the problem statement as identified;

- The data gathered, therefore, provides sufficient information to create an integrated development model;

- The programme has to be rigorously project managed. This requires that a competent project manager and management team be appointed to manage the programme on a day-to-day basis;

- All elements of the programme have to be quality assured and each step has to be managed so that corrective action is taken timeously;

- Selection criteria should be further developed and applied to identify and select suitable contractors for entry into the programme.

Based on the findings and analysis of the data obtained the objectives of the integrated development model have been met. The original base model, the ECDM can, therefore, be enhanced to an IECDM as presented in chapter eight.

PART 4 CONCLUSION

CHAPTER 8: NEW MODEL DESIGN, RECOMMENDATIONS AND CONCLUDING COMMENTS

8.1 Introduction

As described in chapter one, the base model used by the Eastern Cape Development Corporation (ECDC) was the Emerging Contractor Development Model (ECDM), which was developed by the Council for Scientific and Industrial Research (CSIR) as documented by Dlungwana, Noyana and Oloo (2004:18-46). The ECDM, according to the CSIR, is a best practice tool, aimed at assisting implementing agents to facilitate the implementation of an emerging contractor development programme.

The implementation of the pilot project provides an opportunity to develop and use assessment tools, project management concepts, Total Quality Management (TQM) and the Management Development Programme (MDP). These tools, in conjunction with the ECDM, allow the model to evolve into the Integrated Emerging Contractor Development Model (IECDM). The pilot study also identified further elements identified as being necessary for an integrated skills development model.

The structure of the IECDM will follow on from the ECDM as presented in chapter five. The IECDM will, therefore, incorporate the basic concepts as presented in chapter five with the additions/revisions as identified in chapters six and the findings of the research as presented in chapter seven. The additions/revisions to various elements of the ECDM are presented in chapter eight to create the IECDM.

8.2 The structure and functioning of the IECDM

8.2.1 Works programme and timeframes

	Phase	First period Six-monthly			Second period Six-monthly			Third period Six-monthly			Fourth period Six-monthly		
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
1	**Project planning and setting up office (PRIOR TO FIRST PERIOD)**												
2	**Selection of emerging contractors, local service providers and a local coordinator (PRIOR TO FIRST PERIOD)**												
3	**Development needs analysis and identification of appropriate interventions (PRIOR TO FIRST PERIOD)**												
4	**Provision of training, mentorship and continuous performance improvement**												
5	**TQM and MDP implementation, monthly performance assessments**												
6	**Quarterly Indabas/ Performance reviews**												
7	**Final assessment of training and mentorship**												
8	**Compilation and presentation of a final report**												

Figure 13: Revised works programme and timeframes

Figure 13 proposes the revised works programme and timeframes for the implementation of the IECDM, incorporating the elements of TQM and MDP from the onset of the project implementation phase, with items 1-3 moved to prior the implementation phase. This is based on the increased performance of the ECs when the

TQM and MDP where implemented. Based on the research done, these two elements should be implemented from the start of the model.

8.2.2 Works programme and time frames description

Table 11 describes each phase as identified in the proposed revised works programme and time frames for the IECDM as presented in Figure 13.

Table 11: Description of works programme and time frames activities

Phase	Description of activity	Resources	Deliverables
Phase 1 Project planning, setting up office and ongoing creation of enabling environment (including securing of projects)	• This activity involves agreement on the project scope, methodology, project plan and development plan. The activity includes the preliminary planning to set up the office and the infrastructure, including programme management systems and procedures. The formation of the project team. • The project manager will assist the client, ensuring that an enabling environment is created. • The role of the project, for the purposes of the study, is to allow the project team to assess and evaluate the project with the intention of identifying the strengths and weaknesses of the project in order to develop a best practice emerging contractor development model.	• IECDM client • Project team	• Project plan • Training programme administration system
Phase 2 Selection of contractors and local service providers Matching of contractors to projects	• An operations office help desk will be set up to integrate all development activities and a local project coordinator will be trained to manage all activities. The project coordinator (CSIR) will ensure transfer of skills and knowledge to the local coordinator for the continuity of the project. • Emerging contractors will be selected, assessed and graded to determine key development needs (areas for improvement). • Local service providers will be selected for training and involvement in the project with the aim of transferring skills that are	• Training provider • IECDM client • Project team Project manager • Implementing agents (government departments)	• Database of selected contractors • Database of selected local service providers • Assessment frameworks for contractors and service providers

	necessary to sustain the project.		
Phase 3 Development of needs analysis and identification of appropriate interventions	• Identification and alignment of interventions required to develop the necessary capacity for contractors, including appropriate training courses and mentorship.	• IECDM client • Project team • Mentors	• Needs analysis report • Required training and mentorship interventions • Development plan
Phase 4 Provision of training, mentorship, continuous monitoring and performance improvement of the programme Train and monitor local mentors	• Accredited training service provider will conduct a training workshop with contractors, giving particular attention to identified improvement areas. • After covering theoretical training modules, mentors will provide practical on-site advice and guidance. • Training providers and mentors work in close cooperation so that theory and practical outcomes are complementary. • Mentors and individual contractors will formalise their professional relationship by signing a performance agreement. • The project manager (CSIR) will continually coordinate all training and mentorship activities and monitor overall performance to determine progress. Progress reports will be given to the client on a regular basis.	• Project team • Training provider • Mentors (CSIR partners) • Local mentors	• Training courses and programme • Mentorship programme • Skills transfer plan to local service providers • Programme monitoring and control framework (monthly reports)
Phase 5 TQM and MDP implementation, monthly performance assessments	• Monthly assessments of the EC/mentor and training provider relationship. • SWOT analysis of IECDM performance	• TQM consultants. • Project team • IECDM client	• Independent competency assessment report. • Performance tracking • Corrective measures. • Sustained growth
Phase 6 Quarterly indabas/ performance reviews	• Quarterly presentation of IECDM findings, using TQM and MDP process. • Feedback session by all project stakeholders. • Corrective measure/recommendation for following project phases	• TQM consultants. • Project team • IECDM client	• Continuous flow of project objectives

Phase 7 Final assessment of training and mentorship	• Assessment of competency will be conducted to test the learning. • CETA will be involved in the assessment to award successful contractors at an appropriate NQF level. • Re-grading of contractors will be conducted, where appropriate. Re-grading is important, as it ensures ongoing assessment of the contractor's capacity and contracting risk, hence the contract amount for which the contractor can tender.	•CETA •CIDB •TQM consultants. •Project team •IECDM client	• Independent competency assessment report • Performance tracking • Corrective measures
Phase 8 Final hand over, compilation and presentation of a final report	• The final report will address the impact of training and mentorship, promotion of contractors to higher grades, growth of contractors and the extent to which identified improvement areas have been addressed. • Final presentation of the report will be made to the ECDC and the parties deemed appropriate by the ECDC.	•CETA •CIDB •TQM consultants. •Project team	• Hand over of all appropriate material • Final progress report

8.2.3 Revised model structure

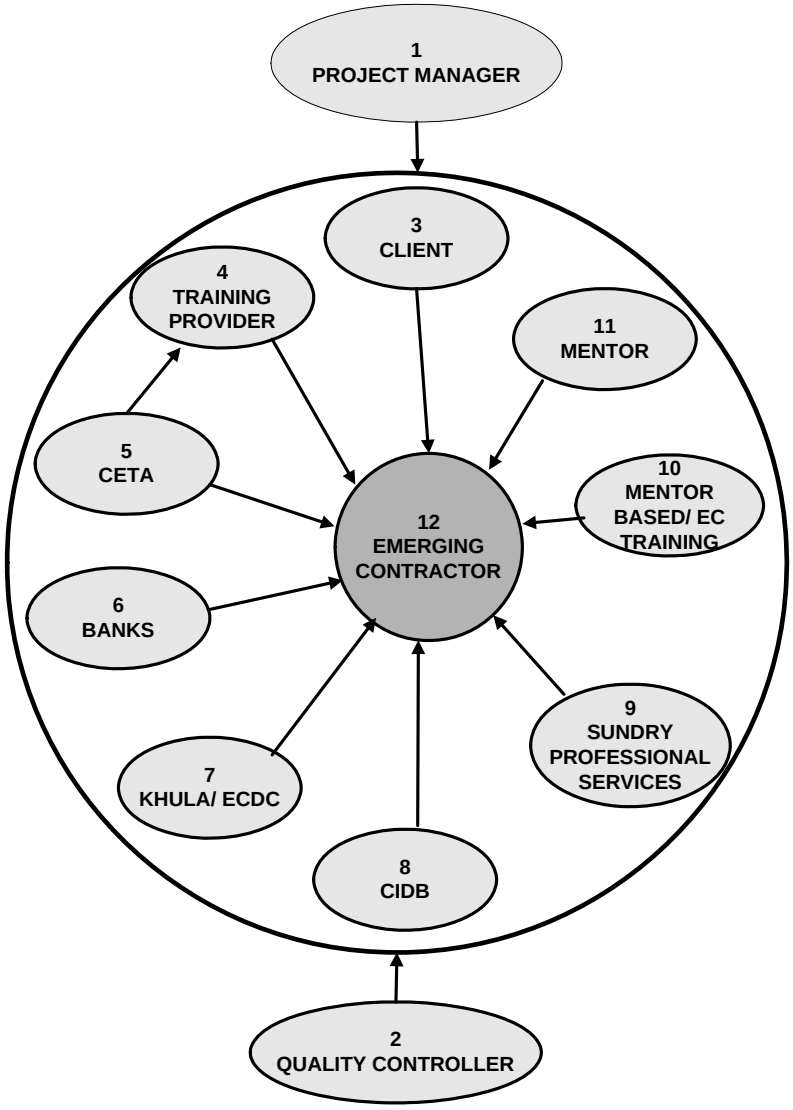

Figure 14: Revised model structure

Source: Hauptfleisch, 2006:5

Figure 14 illustrates the revised model structure as proposed by Hauptfleisch (2006:1-10). The structure ensures the contractor is the focal point of all developmental aspects. Construction stakeholders are encouraged to participate to create a holistic approach towards emerging contractor development. Stringent project and quality management encompass the model.

The research, findings of the study and own experience supports the revised structure by Hauptfleisch (2006:1-10) but recommends and proposes the following items be implemented:

- The link between the Construction Education and Training Authority (CETA) and the training provider be removed and the training provider to report directly to the project manager of the model;

- The selection of Emerging Contractors (EC) should include the CETA, Construction Industry Development Board (CIDB) and Total Quality Management (TQM) consultants opposed to only the CSIR as for the current model;

- CETA to create standardised learning material for all training providers and to enhance their internal Quality Assurance (QA) processes;

- The model is a series of projects within a programme and, therefore, may require an overall programme manager.

8.2.4 Process and outcomes of the IECDM

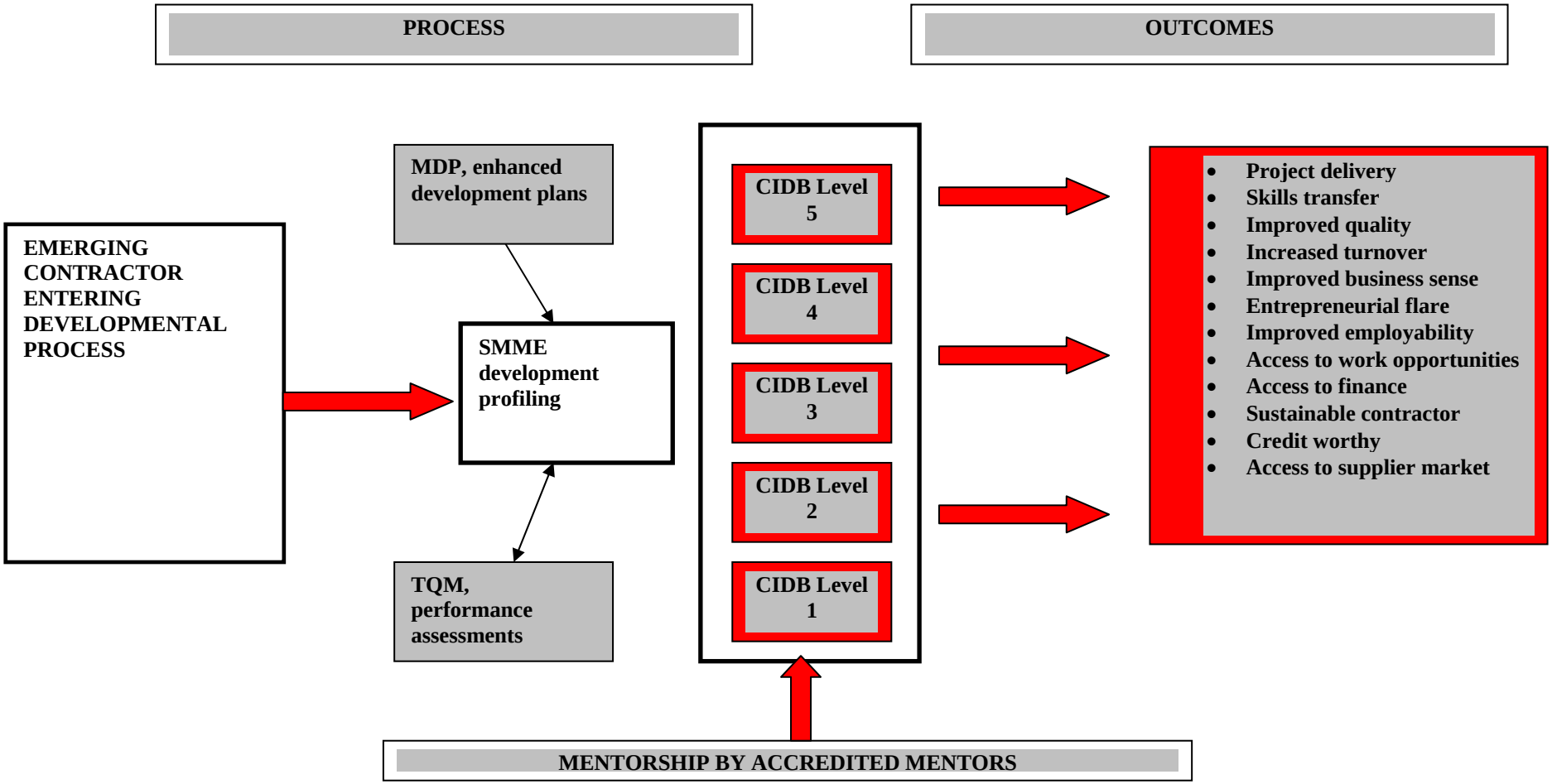

Figure 15: IECDM Process and Outcomes flow

Figure 15 based on the results and own experience of the model, describes the basic process and outcomes of the IECDM, and mentor based training which promotes the growth of the emerging contractors (EC). The processes comprise analysing and assessing each EC in order to create a developmental profile on which the mentor based training will be founded.

The processes include:

- Developmental profiling of the EC's to understand their individual developmental needs. Training and mentorship can then be individually packaged around the EC's specific needs requirements;

- Introduction of TQM and MDP from the onset and to be used in creating the SMME developmental profile;

- The mentoring process should there support the EC's development to ensure the EC can move up the CIDB registration database to higher levels to ensure continuity of work and access to projects of greater monetary value.

The outcomes include:

- A developed, sustainable contractor, who has a credit worthy record and who has developed a reputable business leading to employment generation and profitable growth.

8.2.5 Integrated training and mentorship of emerging contractors

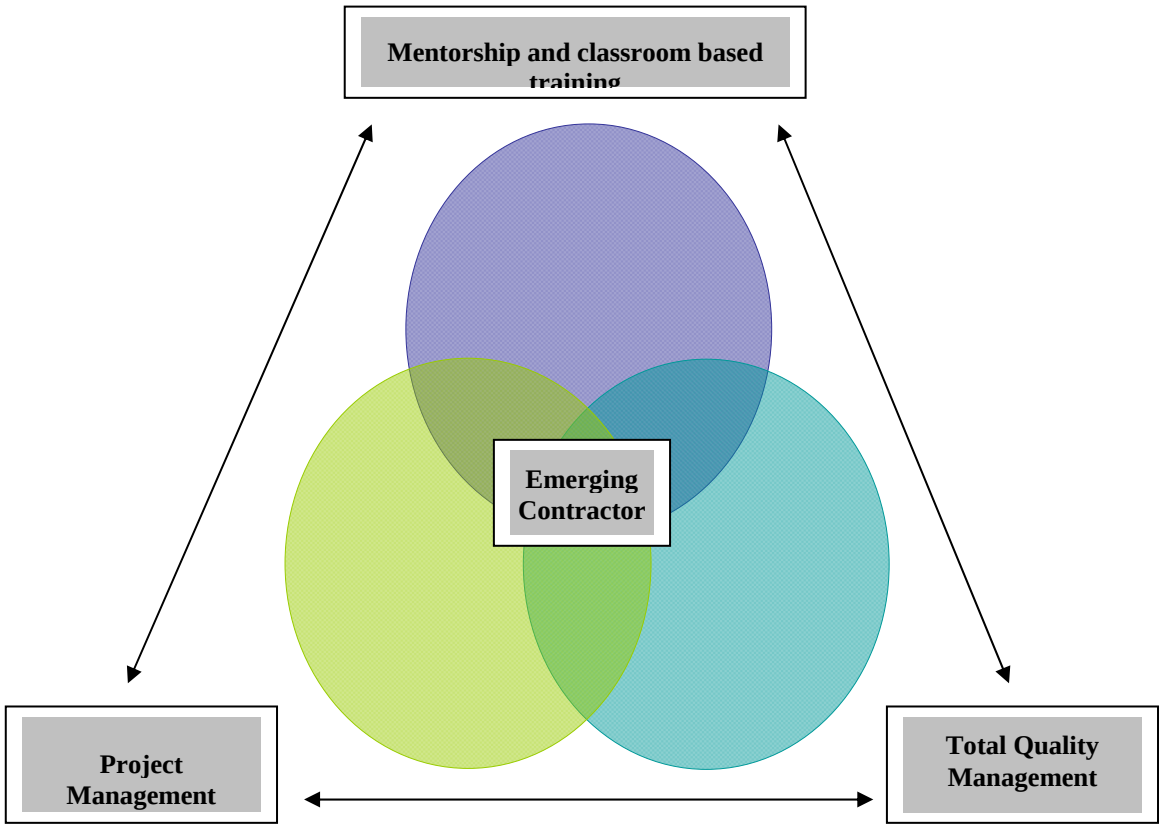

Figure 16: Integrated approach for the IECDM

Figure 16 based on the results of the research and own experience of the model, describes the integrated approach of the mentorship model. The diagram illustrates that:

- Mentorship cannot function on its own. It has to form part of a holistic programme that is managed as a project and quality assured. The focal point remains the EC on which the model is structured. The integrated development model should incorporate the three elements, namely project management, total quality management, and mentorship and classroom based training;

- Mentorship and training need to be brought closer and linked together, the mentor and training provider therefore need to create the EC's developmental programme together with the TQM consultants;

- Based on the findings of the research TQM and Project Management are key elements towards the development of the EC's and can therefore be concluded as being an integral part of EC development;

- The NQF level 2 National Certificate in Construction Contracting and the Manual for Manual for Smaller Construction Contractors; guidelines for mentorship should be aligned in order to bring training, mentoring, TQM and the MDP exactly in line with each other.

8.3 Recommendations

In order to create an enabling environment for contractor development, the IECDM should contain elements, which are essential for sustainable contractor development and follow a holistic integrated approach which includes the implementing agents and programme stakeholders. Furthermore,

- It is proposed that the IECDM requires that a local, regional or national body, with sufficient muscle, undertake the programme. Economy of scale is achieved by implementing a comprehensive programme across a region such as a province. Integrated programmes are remarkably cost effective when conducted on a fairly big scale. Typically organisations such as government departments (Department of Public Works and Housing), metros, and development corporations are ideal promoters for the model;

- An important principle of the model is recognition that it is a training programme with the objective of creating a sustainable construction business. Training has a price tag and satisfactory results are achieved more effectively and efficiently when programmes has the necessary financial resources and the full commitment of all stakeholders;

- It is proposed that all participating contractors have to undergo a CETA accredited learnership such as the NQF Level 2: Construction Contractor. Where appropriate, implementing authorities, in conjunction with CETA, may wish to adjust certain aspects of the learnership agreement;

- It is further proposed that a Recognition of Prior Learning (RPL) intervention may also be required. It is important to select training providers who have experience in the construction industry and are prepared to commit wholeheartedly to the integrated programme, becoming team members and not only training providers;

- The appointment of an accredited mentor (based on construction knowledge and aptitude) is central to the success of the programme. The University of the Free State has such an accreditation programme. However, it is recommended that this programme take cognisance of some elements of the results and recommendations of this study;

- Contractors are developed successfully when they have continuous construction work. If possible, contractors on the programme should be provided with term contracts for a minimum period of 24 months. This time scale also synchronises with the CETA learnership requirements;

- It is also proposed that financial packages should be obtained from financial institutions that are committed to the programme and the development of contractors. The nature of the programme offers security to a bank that it cannot normally obtain from a contractor. Although commercial banks were not formally introduced as direct stakeholders, many contractors have secured facilities and cheque accounts from them;

- It is also proposed that the Construction Industry Development Board (CIDB) should assess and consider inclusion of the programme in as a determinant in their register of contractors. It also has merit to be considered as a best practice model. The IECDM places contractors on a formal development path and increased competency;

- The IECDM consists mainly of generic components that are adaptable to other industries.

8.4 Concluding comments

The methodology applied entails that all possible role players/agencies that could contribute to the development/empowerment of EC are identified and their probable contributions assessed.

The development model is a holistic tool and with the proposed changes, based on the results and recommendations of the study, should afford integration to all identified possible contributory role players/stakeholders. Project managed as a programme, with strong emphases on project management and TQM through the application of assessment tools as presented in chapter six, the original ECDM may be enhanced to the integrated development model.

An IECDM was created to address the problems experienced in developing self-sustaining construction contractors for the construction industry. The industry suffers from a lack of capacity, whilst previously disadvantaged persons are in need of support to improve their entrepreneurial development, managerial and technical skills, in order to become self reliant.

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ANNEXURE 1: MENTOR ACCREDITATION EXAMINATION PAPER

UNIVERSITY OF THE FREE STATE

CENTRE FOR CONSTRUCTION ENTREPRENEURS

MENTORSHIP PROGRAMME FOR

EMERGING CONSTRUCTION CONTRACTORS

CONSTRUCTION MENTOR EXAMINATION

Examiners: **Prof. AC Hauptfleisch** **Date: 2005-06-08**

Mr. HJ van Vuuren **Time: 3 Hours**

Marks: 140

PLEASE ANSWER ALL THE QUESTIONS (READ ALL THE QUESTIONS BEFORE WRITING). EACH QUESTION CARRIES 10 MARKS AND MAY BE ANSWERED IN ENGLISH OR AFRIKAANS

A GENERAL MANAGEMENT

Question 1

Emerging contractors (E C's) usually lack managerial knowledge, which adversely affects their businesses. How will you assist your EC client regarding the following?

1.1 Evaluation of his internal business strong points and weaknesses, as well as assessing the external opportunities and threats for the emerging enterprise

1.2 Development of a business plan from the information obtained from 1.1

1.3 Structuring of the day-to-day management procedures to ensure sustainable development of the EC.

Question 2

Discuss how you would advise an emerging contractor regarding medium-term planning and business growth strategies.

B CONSTRUCTION TECHNOLOGY

Question 3

Concrete technology knowledge is usually superficial, neglecting the key principles, which will ensure quality work. Name the four most important principles, which you will insist that an EC adheres to and briefly describe how you will assist him in achieving the desired outcome.

Question 4

There is an apparent lack of scientific technology knowledge amongst emerging contractors. How can this be rectified?

Question 5

How would you ensure that the drawings, bills of quantities, specifications, VO's etc. are all integrated into a project to ensure that often conflicting information is condensed in such a way on site that construction mistakes are not made?

C SITE ACTIVITY AND MATERIAL MANAGEMENT, PLANNING AND PROCUREMENT

Question 6

Material management as part of site activity management is an integral requirement for project profitability. How would you implement a material management system to ensure that an emerging contractor does not suffer losses as a result of poor material management?

Question 7

How would you advise an emerging contractor on the importance of regular site progress meetings?

D FINANCE, ACCOUNTING AND ADMINISTRATION

Question 8

Discuss the accounting procedures that you regard necessary for an emerging contractor. Make special reference as to how this information could be utilized to give feedback to the contractor's bank and other possible financial backers.

Question 9

A simple filing system can make administration for the emerging contractor much easier. What would you advise him in this regard?

E HUMAN RESOURCE AND STAKEHOLDER MANAGEMENT

Question 10

Learning and skills transfer are part of mentoring on site. How would you implement it on site?

Question 11

Community involvement and participation can make or break any new project, especially in a rural area. How would you advise an emerging contractor on this issue?

Question 12

There are a number of regulatory acts that govern the construction industry, which the emerging contractor must be aware of. Name them and comment on the importance of adopting a culture of legal conformation.

F LEGAL AND CONTRACTS

Question 13

How would you assist an emerging contractor to develop his interpretation and application of the conditions of contract on a construction project?

Question 14

What is arbitration? How would you advise an emerging contractor in the event of a contract reaching the point where disputes have to be settled in a judicial manner?

ANNEXURE 2: MENTOR INTERVIEW AND ASSESSMENT TOOL KIT

APPLICATION FOR APPOINTMENT AS CONSTRUCTION MENTOR

PLEASE COMPLETE THIS FORM AND HAND IT TO THE INTERVIEWERS

NAME		
SURNAME		
ID		
ORGANISATION		
POSITION IN ORGANISATION		
DEPARTMENT		
TELEPHONE		
FAX		
CELL		
EMAIL		
POSTAL ADDRESS		
		CODE:

BRIEFLY DESCRIBE THE ***FORMAL JOB DESCRIPTION FOR YOUR POSITION*** IN THE ORGANISATION

PROSPECTIVE MENTOR INTERVIEWS:
PRESENTATION BY CANDIDATE:
CONSTRUCTION MENTOR

Thank you for applying to be a mentor on our exciting development programme for emerging construction contractors

In the interest of effective time utilisation (we only have 30 minutes maximum per interview), please prepare a presentation to inform the interviewing panel regarding the following aspects, but not necessarily limited to those only, during a 15 – 20 minute period.

1. Your education, career path and experience which equip you to practice as a mentor
2. Discussion of the role that you see for yourself as a mentor. Inter alia consider aspects in relation to psychological needs, facilitating, interventions, sponsoring, leadership, resources, processes, etc.
3. Your geographical or other constraints
4. The perceived short comings and expectations of this programme as you see it
5. Others

The panel is looking forward to meet you for a valued discussion. Interview Assessment Grids will be used by panel members to ensure objectivity and consensus on outcomes

ANNEXURE 3: CONSTRUCTION MENTOR SCHEDULE OF KNOWLEDGE AREAS

CONSTRUCTION MENTOR SCHEDULE OF KNOWLEDGE AREAS

A GENERAL MANAGEMENT

Question 1

Emerging contractors (E C's) usually lack managerial knowledge, which adversely affects their businesses. How will you assist your EC client regarding the following:

1.4 Evaluation of his internal business strong points and weaknesses, as well as assessing the external opportunities and threats for the emerging enterprise

1.5 Development of a business plan from the information obtained from 1.1

1.6 Structuring of the day to day management procedures to ensure sustainable development

Question 2

Discuss how you would advise an emerging contractor regarding medium-term planning and business growth strategies.

Question 3

The lack of productivity on site usually leads to poor performance and target shortfalls. What would you suggest to an emerging contractor regarding this important issue of productivity improvement.

Question 4

Discuss how you will assist an emerging contractor in developing a general management plan for the day-to-day management of his business.

Question 5

Strategic management inter alia entails that a long-term vision and development strategies are put in place. Name and discuss the three most important aspects in this regard for an emerging contractor.

Question 6

A “mentor is a mentor” and not a foreman or project manager for an emerging contractor. How will you ensure the successful establishment of this principle?

B CONSTRUCTION TECHNOLOGY

Question 1

What role do you see for a mentor regarding the following aspects when advising an EC?:

- Setting out and leveling
- Excavations, layered filling and compaction

Question 2

Concrete technology knowledge is usually superficial, neglecting the key principles, which will ensure quality work. Name the four most important principles, which you will insist that an EC adheres to and briefly describe how you will assist him in achieving the desired outcome

Question 3

There is an apparent lack of scientific technology knowledge amongst emerging contractors. How can this be rectified?

Question 4

Soil conditions are often inadequately explored for minor construction works. Discuss the responsibility of contractors in this regard in order to prevent future structural problems.

Question 5

How would you ensure that the drawings, bills of quantities, specifications, VO’s etc. are all integrated into a project to ensure that often conflicting information is condensed in such a way on site that construction mistakes are not made.

Question 6

Sound construction work requires that information obtained from drawings, specifications and bills of quantities be translated on site to a high quality structure. How will you ensure that the emerging contractor succeeds in producing quality work from the above, which sometimes even contradicts each other as information sources?

C SITE ACTIVITY AND MATERIAL MANAGEMENT, PLANNING AND PROCUREMENT

Question 1

Describe the planning and organizing of a construction site, as you will advise an EC to execute it

Question 2

Discuss general material handling and control on a construction site

Question 3

Material management as part of site activity management is an integral requirement for project profitability. How would you implement a material management programme or system to ensure that an emerging contractor does not suffer losses as a result of poor material management.

Question 4

How would you advise the emerging contractor on the importance of regular site progress meetings?

Question 5

Discuss occupational health and safety management as part of the process to effectively manage a building site.

Question 6

Various project programming and scheduling techniques are available for construction projects. Explain which techniques you will recommend for various types of projects and how you will sensitize an emerging contractor to manage projects to satisfy project time constraints.

Question 7

Discuss material management procedures for a construction project from the point of procurement/buying through site distribution, safekeeping and accounting verification.

Question 8

Health and safety have entered a new phase with the promulgation of revised regulations for construction during 2003. Of particular interest is also the fact that many serious accidents and health fatalities take place on lowrise projects and in earth works. How will you structure a site health and safety plan with an emerging contractor?

Question 9

Discuss which planning techniques and programming you will assist an EC in using on a construction project. Indicate how you will engender a culture of conformation to time schedules.

Question 10

How do you propose to create a knowledge base for EC's regarding quantity surveying, bills of quantities, price (rate) determination and cost control during construction?

Question 11

Procurement of materials and subcontractors implies disciplined procedures. Which procedures will you assist an EC in introducing as minimum requirements?

D FINANCE, ACCOUNTING AND ADMINISTRATION

Question 1

Discuss simple but effective accounting procedures to be introduced by an EC.

Question 2

Bridging finance (overdraft facility) is usually a major problem to EC's. How will you assist in this regard?

Question 3

The lack of cost control and/or poor company cash flow management are the main reasons why building projects do not show profits. Discuss how you will advise an emerging contractor on this important issue.

Question 4

Name the basic requirements for internal revenue tax and other levies that the emerging contractor must be aware of.

Question 5

A simple filing system can make administration for the emerging contractor much easier. What would you advise him in this regard?

Question 6

Discuss how to develop financial management procedures for an emerging contractor. Make particular reference to budgeting, cash flows and capital expenditure.

Question 7

Discuss the practical elements/aspects that you will introduce in order to establish suitable administrative processes for an emerging contractor.

E HUMAN RESOURCES

Question 1

An integrated development process, which inter alia includes training and mentoring as two components, is advised. How will you assist in integrating these components in practice?

Question 2

Learning and skills transfer are part of mentoring on site. How will you implement it on site?

Question 3

Community involvement and participation can make or break any new project, especially in a rural area. How would you advise an emerging contractor on this issue?

Question 4

There is a dire need in SA to develop human resources on all levels. What would your responsibilities towards an emerging contractor entail, and what would the responsibilities of an emerging contractor towards his sub-contractors and employees entail?

Question 5

What are the general stakeholder interfaces on construction projects that have to be managed and how will you ensure that it takes place?

F LEGAL

Question 1

Commercial law and contract law are very important if successful contracting is to be undertaken. How will you ensure that an EC develops the necessary knowledge base therefore?

Question 2

Discuss the practical implementation of construction agreements and other contractual arrangements by an emerging contractor.

Question 3

Name and comment on the primary acts which are of particular importance for construction contractors and how to satisfy the requirements of those acts in practice.

Question 4

There are a number of regulatory acts that govern the construction industry, which the emerging contractor must be aware of. Name them and comment on the importance of adopting a culture of legal conformation.

Question 5

What is arbitration? How will you advise an emerging contractor in the event of a contract reaching the point where disputes have to be settled in a judicial manner?

INTERVIEW ASSESSMENT GRID: CONSTRUCTION MENTORS

NAME OF CANDIDATE: .....

VENUE: ..... DATE: .....

DESCRIPTION	WEIGHT	ASSESSMENT
A PRESENTATION BY APPLICANT		
ITEM 1		
Education, career path and experience	40	
Comments:		
ITEM 2		
The role envisaged by candidate for himself	20	
Comments:		
ITEM 3		
Geographical or other constraints	10	
Comments:		
ITEM 4		
Discussion of perceived shortcomings and expectations of the programme	10	
Comments:		

ITEM 5	10	
General discussion		
Comments:		
B SCHEDULE OF KNOWLEDGE AREAS	10	
ITEM A: Q		
General Management		
Comments:		
ITEM B: Q	10	
Construction technology		
Comments:		
ITEM C: Q	10	
Site activity and material management, planning and procurement		
Comments:		
ITEM D: Q	10	
Finance, accounting and administration		
Comments:		
ITEM E: Q	10	
Human resources		
Comments:		
ITEM F: Q	10	
Legal		
Comments:		
TOTAL SCORE		
SCORE OUT OF NUMBER OF POINTS		
FINAL SCORE AS PERCENTAGE		

COMMENTS:
RECOMMENDATION:

_____

INTERVIEWER NAME (PRINT)

_____

INTERVIEWER SIGNATURE

UNIVERSITY OF THE FREE STATE
CENTRE FOR CONSTRUCTION ENTREPRENEURS

MENTOR'S GUIDELINES: CONSTRUCTION

The provision of Mentorship Services is a resourceful way to empower Emerging Contractors. The intention is to unlock the knowledge of a Mentor by providing assistance and knowledge transfer to an Emerging Contractor.

By entering into an agreement with a Mentor, an Emerging Contractor obtains the assistance which will make it possible for him to compete with established building contractors in future.

In order to ensure that prospective Mentors are equipped to provide adequate services to Emerging Contractors, Mentors have to be accredited by way of certification. The University of the Free State offers such an accreditation process leading to successful candidates becoming "Certified Accredited Mentors". The accreditation process takes place in two steps:

1. Evaluation of Mentor's knowledge areas

This takes place by way of a professional examination in order to evaluate existing qualifications, prior learning and practical experience. The evaluation will typically be done by way of a professional interview or written examination.

The knowledge areas and source documents outlined here-in do not indicate rigidly demarcated knowledge requirements, but rather serve as broad outlines supported by reference information in order to assist prospective mentors in preparing for evaluation. Any suitable topical study material will suffice. Prospective mentors test their existing knowledge base against the contents contained in Appendix A and enhance areas of concern through self study.

2. Psychometric evaluation of mentors

As in all forms of professional service the provider of the service should possess a suitable aptitude profile. As part of the accreditation process the prospective mentor will undergo a psychometric evaluation to ensure to his benefit, as well as that of prospective clients, that he has an acceptable profile.

3. The accreditation process will involve the following estimated time and is conducted in various centres in South Africa, depending on the number of candidates that enrol in a particular region:

Evaluation	Time
1. Knowledge area examination	1 - 3 hours
2. Psychometric evaluation	± 45 minutes

Successful candidates will receive a Certificate of Accreditation and will be placed on a National Register at the University of the Free State for reference purposes.

It is important to note that entering into a Mentor Agreement, often facilitates an Emerging Contractor to obtain financial assistance from the banking sector, which supports this process. It is also most valuable for the Mentor and Emerging Contractor to assess the knowledge base of the Emerging Contractor by utilizing the CIDB Register of Contractors.

This mentorship programme has a win-win basis. Emerging Contractors can access reliable assistance by using it correctly, whilst adequately qualified people can create a service career opportunity by assisting in the much needed empowerment process in the construction industry.

In order to arrange for accreditation in your geographical area please register as required in the relevant documentation.

A. GENERAL MANAGEMENT

1. GENERAL MANAGEMENT AND BUSINESS PLANS

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding general management and the drawing-up of a basic business plan in order to be able to assist an emerging contractor.
The required knowledge areas are the following:

1.1 Planning

- Guidelines for drawing up a basic business plan.
- Planning as a general tool to determine future outcomes.

1.2 Organising

- Site organisation such as storekeeping, tools and equipment, security, materials handling and movement on site, documentation procedures, communication, and filing of documents.
- Manpower and sub-contractor management.

1.3 Leading

- Development of skills to motivate project participants to build and secure a team spirit.
- Conflict resolution procedures.

1.4 Control

- Standards setting before any task are performed.
- Procedures to establish if standards are met.
- Corrective action where deviation from standards is experienced.

1.5 Decision making

- Scientific decision making skills.

RECOMMENDED READING FOR KNOWLEDGE AREA: GENERAL MANAGEMENT AND BUSINESS PLANS

1. Kroon, J. (Ed). 1997. General management. Pretoria: Kagiso Tertiary.

2. Liebenberg, S. and Stewart, P. 1997. Participatory development Management and the RDP. Cape Town: Juta.

2. ENTREPRENEURSHIP DEVELOPMENT

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor can stimulate entrepreneurship and has the knowledge to translate entrepreneurship to marketing success.

RECOMMENDED READING FOR KNOWLEDGE AREA: ENTREPRENEURSHIP DEVELOPMENT

1. Jacobs, H., Le Roux, E.E. and Niewenhuizen, C. 1997. **to establish your own business (3rd ed)**. Cape Town: Juta.

3. MARKETING AND PUBLIC RELATIONS

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding marketing and public relations in order to be able to assist an emerging contractor. The required knowledge areas are the following:

3.1 Marketing

- Understanding the nature of strategic marketing planning.
- Analysing market opportunities and assessing company capability.
- Evaluate market attractiveness and business position assessment.
- Basic guidelines to ensure visibility in the market place.
- Analysing environmental trends.
- Know where to get access to small builder advertising mediums and how to deal with problems regarding advertising and marketing.

3.2 Public Relations

- The importance of the external environment and its impact on the company.
- Planning efforts for sustained understanding between the company and its public.
- Designing basic tasks for managers and individuals to promote better public relations through deliberate actions.

RECOMMENDED READING FOR KNOWLEDGE AREAS: MARKETING AND PUBLIC RELATIONS

1. Strydom, J.W. 1998. **Introduction to marketing**. Cape Town: Juta.

2. Skinner, C and Von Esson, L. 1998. **The handbook of public relations** 4th ed. Johannesburg: Thomson Publishing.

4. STRATEGIC MANAGEMENT

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding strategic management in order to be able to assist an emerging contractor. The required knowledge areas are the following:

4.1 Mission statement

- Develop a mission for the enterprise for long term positioning.

4.2 Environmental analysis

- Creation of the ability to evaluate the external and internal environment and to forecast the environment in which the enterprise will find itself.

4.3 Strategy formulation and implementation

- Formulation of short and long term objectives for the enterprise and to implement it.

4.4 Evaluation and control

- Introduce an evaluation and control system to ensure that the business succeeds in its strategic objectives.

RECOMMENDED READING FOR KNOWLEDGE AREA: STRATEGIC MANAGEMENT

1. Pearce, J.A. and Robinson, B.R. 1997. **Strategic management: Formulation, implementation and control.** 6th ed. Burr Ridge: Irwin.

5. PROJECT MANAGEMENT

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has an acceptable understanding of the body of knowledge that supports project management application in practice. The required knowledge areas are the following:

5.1 The nine universally accepted knowledge areas of project management in context of the construction industry

5.2 The practical application of project management principles in practice (construction).

RECOMMENDED READING FOR KNOWLEDGE AREA: PROJECT MANAGEMENT

1. The Project Management Institute (USA) 2004. **A guide to the project Management body of knowledge (3rd edition).** Pennsylvania, USA. PMI

2. Knipe, A. van der Waldt, G. van Niekerk, D. Burger, D. and Nell, K. 2002 **Project management for success.** Sandown, Johannesburg. Heinemann

B. CONSTRUCTION TECHNOLOGY

1. CONSTRUCTION TECHNOLOGY

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding construction technology in order to be able to assist an emerging contractor. The required knowledge areas are the following:

1.1 The construction process

- Construction principles and methods.
- Converting information contained on drawings, bills of quantities and in specifications to site activities such as setting out, etc.

1.2 Construction technology

- Site types
- Setting out and leveling
- Compacting
- Foundations and brickwork
- Superstructure
- Roofing and roof coverings
- Plastering and screeding
- Windows and doors
- Painting, glazing and flooring
- Electrical work and plumbing
- Civil engineering construction

1.3 Specialist building trades

- Bulk excavations and basements
- Formwork systems and reinforcement
- Lifts
- Fire reticulation and sprinkler systems
- Specialist trades
- General construction trades

1.4 Safety regulations

- Occupational Health and Safety Act 85 of 1993, incorporating the revised Construction Regulations, 2003
- Loss control

RECOMMENDED READING FOR KNOWLEDGE AREA: CONSTRUCTION TECHNOLOGY

1. Nunnally, S.W. 1998. **Construction methods and management.** 4th ed. New York: Prentice Hall, Inc.

2. Addis, B. 1997. **Cement, concrete and mortar**. Cement and Concrete Institute: Midrand, South Africa.

3. Calvert, R.E. 1986. **Introduction to building management.** 5th ed. London: Butterworths.

4. Hauptfleisch, A.C. 1999. **Building Practice**. National Property Education Committee (SAPOA): Johannesburg.

2. SITE ACTIVITY AND MATERIAL MANAGEMENT

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding site activities and material management in order to be able to assist an emerging contractor. The required knowledge areas are the following:

2.1 Site activity management

- The planning and organising of a building site.

- The management of productivity, plant and equipment, capital and other resources.

- Inspection procedures to maintain the required standard of workmanship.
- Co-ordination and controlling the work of domestic and nominated sub-contractors.
- Site progress meetings and workmanship evaluation.
- Co-ordination inspections by local authorities, government bodies and the professional/client team.
- SABS standards and National Building Regulations.

2.2 Material management

- Ordering of and arranging timeous delivery of materials.
- Correct and safe storage of materials on site.
- Implementation of a material-on-site booking system.
- Waste control.
- Implementing a supplier/contractor interaction programme.
- Material handling and flow charting.

RECOMMENDED READING FOR KNOWLEDGE AREAS: SITE ACTIVITY AND MATERIAL MANAGEMENT

1. Badenhorst, J.A., Hugo, W.M.J. and Van Rooyen, D.C. 1997**. Purchasing and materials management**. Pretoria: J.L. van Schaik Academic.

2. Halse, F. and Humphrey, J. 1990. **Profit from productivity**. Cape Town: Juta.

3. SABS. 1990. **SABS 0400 - 1990: South African Standard Code of Practice for the application of the National Building Regulations**. Pretoria: The Council of the South African Bureau of Standards.

4. BIFSA. 1997. **BIFSA Manual for small builders**. Midrand: Building Industry Federation South Africa. (Revised as the “Manual for Small Contractors” by A.C. Hauptfleisch, 2005)

3. PLANNING TECHNIQUES AND PROGRAMMING

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding planning techniques and programming in order to be able to assist an emerging contractor. The required knowledge areas are the following:

- Bar chart programming
- Network fundamentals including advantages and disadvantages of scheduling programs such as the critical path method (CPM) and the Program Evaluation and Review Technique (PERT).
- Estimating of activity duration.
- Programming of resources and equipment with the help of bar charts and histograms.
- Monitoring progress, including subcontractors and suppliers.
- Implementing of a historical database for future purposes.

RECOMMENDED READING FOR KNOWLEDGE AREAS: PLANNING TECHNIQUES AND PROGRAMMING

1. Cook, B. and Williams, P. 1998. **Construction planning, programming and control**. London: MacMillan Press Ltd.

2. Lockyer, K.G. 1985. **An introduction to critical path analysis**. Marshfield, Massachusetts: Pitman Publishing.

4. PLANT PROCUREMENT AND MAINTENANCE

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient Knowledge regarding plant procurement and maintenance in order to be able To assist an emerging contractor. The required knowledge areas are the following:

- Maintenance programs and preventive maintenance.
- Inspection personnel and maintenance reports.
- Establishing on-site service facilities.
- Critical items monitoring including an equipment failure and repair data retrieval system.
- Decision making guidelines on buy or rent with specific reference to cost affecting ownership and terms and conditions of leases.
- Steps to ensure machine availability.

RECOMMENDED READING FOR KNOWLEDGE AREAS: PLANT PROCUREMENT AND MAINTENANCE

1. Harris, F. & McCaffer, R. 1982. **Construction plant: Management and investment decisions**. UK: Granada Publishers.

2. Nunnally, S.W. 1977. **Managing construction equipment**. Englewood Cliffs, New Jersey: Prentice-Hall.

C. FINANCE AND ADMINISTRATION

1. QUANTITY SURVEYING AND COST CONTROL

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding quantity surveying and cost control in order to be able to assist an emerging contractor. The required knowledge areas are the following:

1.1 Quantity Surveying

- The standard system of measuring builders work.
- The role of the QS on site.
- Interpreting the Bill of Quantities and extracting allowables.
- Calculation of material on site.
- The build-up and structure of claims for monthly payment certificates.
- Guidelines as to how to request extension of contract time.
- Negotiating with the QS on rates in the event of variation orders.
- Principles of measurement of drawings for basic construction elements.

1.2 Cost Control

- Project and company cash flow.
- Budget evaluation and re-estimation.
- Allowables as the guide for ordering and payments.
- Management of material and waste control.
- Controlling budget, actual and planned expenses.
- Improving cost budgets.

RECOMMENDED READING FOR KNOWLEDGE AREAS: QUANTITY SURVEYING AND COST CONTROL

1. Bowles, J. and Le Roux, G.K. 1990. **Quantity surveying: an introduction**. Port Elizabeth: QS Publications.

2. PROCUREMENT

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding procurement in order to be able to assist an emerging contractor. The required knowledge areas are the following:

2.1 Tendering

- Build-up of prices per item of building work for inclusion in a tender.
- Estimation of provisional and general expenses (P & G's) for a building project and how to include it in tender documentation.
- Estimation of business overheads (not directly job related) to be included in tender price.
- Compilation of all inputs for tendering, assessment of project risk, tender competitiveness, profit requirement assessment and overall tender strategy.
- Preparation and submission of tender documents.

2.2 Finance

- *Bank facilities:*
  - Sources of finance available to contractors.
  - Accessing finance and provision of guarantees for facilities.
  - Management of bank account.
  - Bank reconciliation statement.
  - Building sustainable relations with a bank.
  - Security measures, inter alia signing powers on cheques.

- *Supplier credit:*

- Strategy to build up a sound credit rating with suppliers.
- Credit application procedures.
- Monitoring of credit level and managing of account.
- Importance of punctual settlement.
- Securing maximum settlement discounts.

- *Sub-contractor credit:*

- Credit/payment arrangements with sub-contractors.
- Importance of punctual settlement.
- Securing maximum settlement discounts.

2.3 Materials and sub-contractors

- Obtaining prices from (a minimum of three) suppliers of materials and from prospective sub-contractors.

- Written agreements with suppliers and sub-contractors per standard order form.

- Obtain comparable prices for comparable quality. Compare apples with apples.

- Alphabetic filing system per suppliers' and sub-contractors' names, and safekeeping of quotations in chronological order for future reference.

RECOMMENDED READING FOR KNOWLEDGE AREA: PROCUREMENT

1. Franks, J. 1984. **Building procurement systems: a guide to building project management**. Ascot: Chartered Institute of Building.

2. Smith, A.J. 1995. **Estimating, tendering and bidding for construction: theory and practice**. London: MacMillan.

3. FINANCE AND ACCOUNTING

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has Sufficient knowledge regarding finance and accounting in order to be able to assist an emerging contractor.
The required knowledge areas are the following:

3.1 Pricing

- Measurement, item price build-up, tendering and cost control as a normal working procedure.

3.2 Payment procedures

- Accounting procedures which ensure the comparison of orders, delivery notes and invoices for payment.

3.3 Allowables (budgeting)

- Allowables allocated towards every trade (and sub-trades) of the building project, constant controlling of the resources applied to ensure early detection of deviations and corrective actions.

3.4 Bookkeeping

- Simple bookkeeping, kept up to date, is used as management information.

3.5 Internal Revenue Tax and other levies requirements

- Income tax
- Value Added Tax (VAT)
- PAYE/SITE tax on employees
- Workman's compensation
- Regional Services Council
- Unemployment Insurance Fund
- Skills Development Levies

RECOMMENDED READING FOR KNOWLEDGE AREAS: FINANCE AND ACCOUNTING

1. Kleynhans, J.E. *et al*. 1997. **Accounting 123 (4th Impression)**. Cape Town: Juta.

2. Faul, M.A. *et al*. 1997. **Accounting: An introduction**. Durban: Butterworths.

3. Bosman, W.S. *et al*. 1996. **Basic financial accounting**. Cape Town: Juta.

4. CIR. **Building and construction industries and VAT**. Pretoria: Internal Revenue.

5. Koen, M., Oberholster, J. and Van der Laan, H. 1994. **Analysis and interpretation of financial statements**. Cape Town: Juta.

4. BASIC COMPUTER APPLICATIONS

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge
regarding basic computer applications in order to be able to assist an emerging contractor. The required knowledge areas are the following:

4.1 Understanding project management software

- Choosing project software.
- Training courses and aids available.
- Project data summary: expenditure, timing and activity data.
- Project management and business graphics capabilities.

- Data management and reporting capabilities.
- Customised, as well as standard reporting formats.
- Resource planning and analysis.
- Cost and variance analysis.

RECOMMENDED READING FOR KNOWLEDGE AREA: BASIC COMPUTER APPLICATIONS

1. Beekman, G. 1994. **Computer currents: navigating tomorrow's technology**. Redwood City: Benjamin Cummings Publishers.

2. Erwin, G.J. *et al*. 1996. **Business computing: An African perspective**. Cape Town: Juta.

5. ADMINISTRATION

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding contract administration in order to be able to assist an emerging contractor.
The required knowledge areas are the following:

5.1 Systems

- *Office:*

- General office layout and equipment must be established with special reference to shelving, types of files, handling of correspondence, retention of important information, communication methods, general security of documentation and other assets.

- *Correspondence and records:*

- Development of a culture of record keeping and build-up of correspondence to support the actions and claims of the business in terms of the contractual position of the business.

- Support in the development of communication skills.

- *The procedures to be followed to introduce a simple filing system which will include:*

- Standard filing system for every project for project related documentation.

- Filing system for financial information, general correspondence, technical information, human resources information, vehicle and other capital equipment records, financial institution documentation and local authority documentation for the business as a whole.

RECOMMENDED READING FOR KNOWLEDGE AREA: ADMINISTRATION

1. Harrison, J. 1996. **Practical office procedures**. New York: Longman.

2. Harrison, J. 1993. **Office procedures**. Marshfield, Massachusetts: Pitman Publishing.

D. HUMAN RESOURCES AND SOCIAL INTERACTION

1. HUMAN RESOURCES

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding human resources in order to be able to assist an emerging contractor. The required knowledge areas are the following:

1.1 Legislation

- A basic knowledge of the salient features of applicable manpower legislation.

1.2 Recruitment

- Recruitment procedures to be followed which will ensure that the best employee is found for every position in the enterprise.

1.3 Placement

- Induction of new employees to achieve maximum effectiveness in the shortest possible time, and retention of loyal personnel.

1.4 Development

- In-service training to improve skills and personal growth in ability.

1.5 Health and safety

- Creating a healthy and hygienic environment.
- Safe work practices to obviate injuries on site.

1.6 Records

- Creating personal files for personal information, work records and all related information regarding every employee.

1.7 Social interaction

- Understanding that values, beliefs and norms of people differ and that it will

influence the behaviour of individuals and groups within a company.

- Know that people are influenced by other people and situations as well as past experiences.
- Understand the nature of motivation, and the needs of workers and subordinates.
- Healthy social interaction for better achievement.
- Community involvement and influence on projects.

RECOMMENDED READING FOR KNOWLEDGE AREA: HUMAN RESOURCES

1. Gerber, P.P., Nel, P. and Van Dyk, P.S. 1998. **Human resources management.** 4th ed. Johannesburg: Thomson Publishing.

2. Slabbert, Prinsloo and Swanepoel. 1998. **Managing employment relations in South Africa**.

2. NEGOTIATIONS

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding negotiations in order to be able to assist an emerging contractor. The required knowledge areas are the following:

- The communication process in general.
- Developing the right attitude.
- Basic steps in the negotiation process.
- Types of negotiation.
- Preparing for negotiation.
- Strategic positioning for negotiations.

- Theories and principles of negotiation and bargaining.
- Perception and understanding of the specific community and supplier involved with the business.

RECOMMENDED READING FOR THE KNOWLEDGE AREA: NEGOTIATIONS

1. Anstey, M. 1991. **Negotiating conflict. (Reprinted 1998)**. Cape Town: Juta.
2. Spoelstra, H.I.J. *et al*. 1996. **Negotiation theories, strategies and skills**. Cape Town: Juta.

3. RISK AND CRISIS MANAGEMENT

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding risk and crisis management in order to be able to assist an emerging contractor. The required knowledge areas are the following:

- Creating a culture or attitude amongst emerging contractors to manage risks.
- Developing mechanisms of coping with potential risks.
- Contingency plans to reduce the impact of a crisis.
- Feedback procedures into planning to minimise future risks.
- Management skills to make decisions when undesired events are detected.

RECOMMENDED READING FOR KNOWLEDGE AREAS: RISK AND CRISIS MANAGEMENT

1. Jorion, P. and Khourg, J. 1996. **Financial risk management: Domestic and international dimensions**. Cambridge, Massachusetts: Blackwell Business.

2. Falkena, H.B. *et al*. 1991. **Financial risk management**. Halfway House: Southern Book Publishers.

E. LEGAL MANAGEMENT

1. LAW OF CONTRACTS

LEARNING OBJECTIVE

The objective is to ascertain whether the prospective mentor has sufficient knowledge regarding the law of contracts in order to be able to assist an emerging contractor. The required knowledge areas are the following:

1.1 Commercial law

- Laws of contract, common law and making of laws.

1.2 Local authority by-laws

- The jurisdiction, by-laws of local authorities and their powers.

1.3 Building contracts

- The principles underlying building contracts, the necessity for written contracts, the inclusion of specifications, drawings and bills of quantities as part of a normal contractual relationship must be understood.

- Responsibilities of contracting parties, the regulation of payment, penalties and arbitration.

1.4 Sub-contracting

- The implications of sub-contracting and the legal basis thereof in practice.

RECOMMENDED READING FOR KNOWLEDGE AREAS: LAW OF CONTRACTS

1. Lotz, J.G. *et al*. 1998. **Contract: General principles.** 4th ed. Cape Town: Juta.

2. JBCC. 1998. **Principle building agreement (with quantities): JBCC 2000**. Johannesburg: Joint Building Contracts Committee.

3. McKennzie, H.S. 1994. **The law of building contracts and arbitration in South Africa.** 5th ed. Cape Town: Juta.

F. PSYCHOMETRIC EVALUATION MENTORS

1. INTRODUCTION

Any person who wishes to act as a mentor should have a suitable aptitude profile to do so. An evaluation of the psychological functioning of applicants will give an indication of their ability to act in a mentoring capacity. Screening the psychological profile of future mentors is crucial for the success of a mentorship programme.

2. OBJECTIVES

The following objectives are set:

- aptitude testing
- to evaluate the personality functioning of applicants; and
- to evaluate the interpersonal relationships of applicants; in an endeavour to ascertain whether their personalities fit the profile necessary to act as mentors.

3. PSYCHOLOGICAL INSTRUMENTS

The following three psychological instruments (See Annexure A) could best be used for the evaluation:

16 Personality Factor Test (16 PF): The 16 PF consists of 16 sub-scales that measure various aspects of personality. These sub-scales are based on the basic concepts in general psychology. The 16 PF is one of the most useful personality assessment instruments behavioural science professions make use of today. This significance is clear from the fact that it is used throughout the world. The construct validity as well as its suitability for different cultures has been established over many years.

The Personal, Home and Social Functioning Questionnaire (PHSF) (Desirability sub-scale): The desirability sub-scale will give an indication of the honesty with which the applicant answered the 16 PF Test.

The Thematic Apperceptic Test (TAT): The TAT is a projective test and consists of cards depicting various situations. This test measures people's unconscious motives. This test will make it more difficult for applicants to give socially desirable answers.

Table: Aspects measured by the three psychological instruments

Psychological instrument	Aspects measured
16 PF	Warm heartedness Intelligence Emotional stability Assertiveness Enthusiasm Conscientiousness Venturesomeness Self-reliance Suspiciousness Imaginativeness Shrewdness Guilt proneness Radicalism Self-sufficiency Self-discipline Stress
PHSF (Social desirability)	Social desirability
TAT (Cards 8BM, 14, 17BM & 17GF)	Interpersonal relationships Handling of stress Aspirations and motivation Emotional functioning

ANNEXURE 4: PROGRAMME APPLICATION PACKAGE

EASTERN CAPE CONTRACTOR DEVELOPMENT PROGRAMME

APPLICATION PACKAGE

Guide for completing submissions

Submission on construction industry experience

On the form provided, provide details of construction experience (work at any level in the construction industry and qualifications related to the construction industry) of your enterprise's key staff (management and supervisory staff).

Use one form per key staff member (photocopies or reasonable copies are acceptable).

Submission on construction management experience

On the form provided, provide details of the experience of your enterprise's key staff (management and supervisory staff) in the following areas:

1) Experience in construction contract management

2) Experience in construction project management

3) Experience in construction site management

Use one form per key staff member (photocopies or reasonable copies are acceptable).

Submission on the contractor's level of development

On the form provided, briefly supply the information required for each question about your enterprise. Be as brief as possible in your answers. If additional space is required the responses may be continued on blank paper and included behind the relevant sheet.

Submission on access to a skilled resource base

On the form provided, (photocopies or reasonable copies are acceptable) provide details of:

- the enterprise's access to skills (skills and number of people with that skill) among its own staff;
- the enterprise's access to additional skills through short-term contracts, subcontracting or other means (skills and method of accessing additional skills).

Submission on Enterprise Profile

This submission consists of three sections, viz. **Section A:** Enterprise Particulars, **Section B:** Works Capability of Enterprise, **Section C:** Financial Capability of Enterprise and **Section D:** Principal and Ownership in Enterprise. Provide the information requested in the spaces provided, all forms must be fully completed. Reference to any attachments is not acceptable; information must be supplied in the prescribed format.

3.1 Instructions to Applicants

3.1.1 What to submit

Please complete and submit the documents listed below. All pages of the submission must be initialled, and signed in the relevant places, by the person authorised by the enterprise to make the application for registration.

1. Submission on Enterprise profile

- Please complete the attached ENTERPRISE PROFILE SUBMISSION

- Ensure that the required supporting documents are attached in the LIST OF ATTACHMENTS

2. Submission on the Contractor's Construction experience

   Please complete the attached SUBMISSION ON THE CONTRACTOR'S KEY STAFF CONSTRUCTION INDUSTRY EXPERIENCE form.

3. Submission on the Contractor's Construction management experience

   Please complete the attached SUBMISSION ON THE CONTRACTOR'S KEY STAFF CONSTRUCTION MANAGEMENT EXPERIENCE form.

4. Submission on the Contractor's level of development

   Please complete the attached SUBMISSION ON CONTRACTOR'S LEVEL OF DEVELOPMENT form.

5. Submission on the Contractor's access to skilled resources

   Please complete the attached SUBMISSION ON THE CONTRACTOR'S ACCESS TO A SKILLED RESOURCE BASE form.

6. Submission of the List of Attachments

   Please provide the reference documents as requested under SUBMISSION ON LIST OF ATTACHMENTS.

3.1.2 How to submit

The submission must be returned in a sealed envelope clearly marked; "Eastern Cape Contractor Development Programme Application. The submission must be returned by (time & date) or earlier. The submission must be returned to any of the ECDC Offices mentioned below and a receipt must be requested.

1.1 Invitation to Applicants

The Eastern Cape Development Corporation invites applications from construction contractors, for entering a Contractor Development Programme. The Contractor Development Programme is an initiative by the Eastern Cape Development Corporation to promote the sustainable development of medium-sized contractors that can demonstrate the potential to perform contracts in the R200k to R5 million range in the Eastern Cape province. It aims to develop small to medium-sized contractors through mentorship, training and support to become sustainable. Contractors owned and controlled by Historically Disadvantaged Individuals will receive preference.

The following criteria must be met for consideration for admission into the Contractor Development Programme:

- Contractors must have a proven track record of managing and delivering construction projects within the building construction sector, civil engineering construction sector or construction-related electrical and mechanical sector. Contractors should have had a minimum annual turnover of R780 000.00 per year over the past two years of operation and should have successfully completed at least one contract of more than R260 000.00 during the past two years. Only in exceptional circumstances of proven financial capacity and technical and managerial competence will contractors that do not satisfy these criteria be admitted into the programme. Contractors that have undertaken projects above the value of R5 million are not eligible.
- Contractors should be incorporated as a business entity and a valid tax clearance certificate will be required to be submitted.
- Contractors must be prepared to enter into a management support contract with mentors and undertake prescribed training with relevant training providers assigned by the programme.

The evaluation committee of the Contractor Development Programme will evaluate the Contractors' experience, level of development and access to skilled staff against a submission in a prescribed format to arrive at a functionality score. The evaluation of short-listed contractors will include verification of the submission during an interview with the evaluation committee. Only those contractors that can demonstrate potential for sustainable development by achieving a score which places them amongst the top 60 contractors will qualify for entry to the programme.

1.2 Contents

The Application Package contains the following documents:

No	Title	Purpose
1	Invitation to Applicants	Information
2	Notes to Applicants	Information
3	Instructions to Applicants	Information
4	Guide for completing submissions	Information
5	Submission on Enterprise Profile	To be completed and returned
6	Submission on the contractor's construction industry experience	To be completed and returned
7	Submission on the contractor's management experience	To be completed and returned

8	Submission on the contractor's level of development	To be completed and returned
9	Submission on the contractor's access to skilled resources	To be completed and returned

SUBMISSION ON CONTRACTOR'S CONSTRUCTION INDUSTRY EXPERIENCE

INDUSTRY EXPERIENCE OF KEY STAFF MEMBER

Title: _____ **Initials:**_____ **Surname:** _____

Current position in enterprise: _____ **Construction related qualification:** _____

Employment History

Employer 1 (*previous*):

Name of employer: _____

Type of work engaged in (e.g. Project Management): _____

Position held: (Director)_____

Start date: _____ End date: _____

Employer 2 (*previous*):

Name of employer: _____

Type of work engaged in: _____

Position held: _____

Start date: _____ End date: _____

Employer 3 (*previous*):

Name of employer: _____

Type of work engaged in: _____

Position held: _____

Start date: _____ End date: _____

Employer 4 (*previous*):

Name of employer: _____

Type of work engaged in: _____

Position held: _____

Start date: _____ End date: _____

Employer 5 (*previous*):

Name of employer: _____

Type of work engaged in: _____

Position held: _____

Start date: _____ End date: _____

Employer 6 (*previous*):

Name of employer: _____

Type of work engaged in: _____

Position held: _____

Start date: _____ End date: _____

SUBMISSION ON CONSTRUCTION MANAGEMENT EXPERIENCE

CONSTRUCTION MANAGEMENT EXPERIENCE OF KEY STAFF MEMBER

Title: _____ **Initials:**_____ **Surname:** _____

Current position in enterprise: _____ **Construction related qualification:** _____

No.	Site Management Experience (provide areas of involvement in this field)	Months of Experience	Project Management Experience (provide areas of involvement in this field)	Months of Experience	Contract Management Experience (provide areas of involvement in this field)	Months of Experience
1						
2						
3						
4						
5						
6						
7						
8						

SUBMISSSION ON ACCESS TO SKILLED RESOURCE BASE

CONTRACTOR'S ACCESS TO SKILLED RESOURCE BASE

No.	Description of skill available amongst own staff	
	Type of Skills	Number
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Description of skills availability through short-term contracts, subcontracting, etc..

10.1 LIST OF ATTACHMENTS

1. Certified copies of Identity documents for all principals
2. Tax Clearance Certificate (original copy)
3. Financial Statements for the past 2 financial year (if available)
4. Company Profile (if available)
5. Certified Copy of Electrical Contractors (if applicable)
6. Certified copy of NHBRC registration certificate (if applicable)
7. Certified Copy of emerging contractor development scheme registration

QUESTIONNAIRE: EMERGING CONTRACTOR DEVELOPMENT MODEL (ECDM)

For evaluating key performance criteria and competencies to determine contractor sustainability.

What is the ECDM questionnaire?

The Emerging Contractor Development Model (ECDM) Questionnaire is a simple, research-based tool for evaluating the level of performance as well as business sustainability of a contractor. The tool forms a critical part of the emerging contractor development programme.

How to complete the questionnaire?

- Key management staff who have the knowledge of the business must first read through the questionnaire and understand the questions asked in the whole questionnaire.
- Management then completes, in clear black ink, full and accurate information in response to the questions outlined under each performance criterion below.
- The completed questionnaire should be included in the rest of the application package and returned to the ECDC.

What happens to your completed questionnaire?

- The Evaluation Team receives your questionnaire with the application package and score your business enterprise organisation as per the answers provided. All answers provided will be scored and the total weighted out of 100%. The scores will be **used in the selection process** for the development programme which includes other selection criteria (as explained in the application package) as well as to determine the training and mentorship requirements. The scores will be allocated as outlined below:

- NO EVIDENCE (score=0): There is NO EVIDENCE of existing systems, methods and processes to meet the assessed performance criterion. There is NO EVIDENCE of performance results.

- SOME EVIDENCE (score=1): There is SOME EVIDENCE of basic systems, methods and processes to meet the assessed performance criterion. There is SOME EVIDENCE of performance results exist.

- GOOD EVIDENCE (score=2): There is GOOD EVIDENCE of basic systems, methods and processes to meet the performance criterion. There is consistency in meeting assessed performance criterion throughout the organisation. Many performance results are being met.

What is the Evaluation Team looking for from your response?

The Evaluation Team wants to have a clear picture of how your enterprise conducts its business. What systems, methods, processes and activities are currently in place to plan, implement and improve your **overall business performance** (office, construction site and general management processes)? The Evaluation Team is also looking for results that have been achieved as a result of these systems, methods and processes. All these aspects should contribute to the overall business improvement in terms of quality, profitability, growth, productivity and sustainability. The contractor is therefore requested to complete this questionnaire in a manner that will enable the Assessment Team to get the true picture of what development/ improvement activities the contractor is doing. Contractors with higher overall score (including other scoring criteria) will be seen as having a potential for business sustainability and short-listed for the ECDC contractor development programme. Interviews will be held to check information provided. Incorrect information may jeopardise future business opportunities of a contractor.

<u>Example of a response for question 5, bullet 4)</u>

"Our contractor uses a mix of two types of administration systems. One type is a computer-based system which handles HR matters, including payroll and staff records. The rest of systems are paper-based systems which uses paper files to file supplier documents such as invoices and material specifications as well as customer-related documentation such as contracts.

The office staff holds regular meetings every monthly to discuss administration issues. The meetings are chaired by the Managing Director. Site meetings are held every 2 weeks between the client, Managing Director, Foreman, Quantity Surveyor and Site clerk. All the meetings are recorded in the minutes. The minutes of the site meetings are kept as part of the site diary by the clerk.

As part of our commitment to reduce administration paperwork within two years, we have begun to computerise all paper-based systems. The challenge we face is that most of the staff do not have computer skills and they need training."

For contractor development to happen, individual contractors must show some effort and commitment. Completing this questionnaire is the beginning of such commitment!!

1. Leadership

The Leadership criterion ensures that the contracting firm is properly constituted in terms of the law and is a good corporate citizen. Leaders ensure that a contractor is appropriately structured and effective use of the resources to develop and enrich the contractor's culture of excellence.

The organization and its people adopt ethical and environmentally-responsible approach to all operations and strive to exceed the regulatory and legal requirements in every aspect of the organisation.

- **Describe the legal establishment of your contractor in terms of the various government legislation (e.g. registered as a cc, partnership, company, income tax; VAT; workman's compensation, UIF, etc) as well as registration with other organisations (e.g. registered with Master Builders Association, CIDB NHBRC etc)**

Describe how leadership (owners, managers and supervisors) promote the culture of learning and overall communication across the organisation

Describe the leadership's (owners, managers and supervisors) understanding and experience of the construction industry and contracting business.

2. Strategy & planning Policies and strategies are deployed in a structured and systematic manner across all the contractor's activities are thus aligned to ensure that the behaviour of the organisation's people is consistent.
Does the contractor have a business plan that serves as a planning framework for the contractor's strategic direction? If so, describe the business' strategic planning processes, including the contractor's mission, objectives and strategies.

Describe how your contractor is structured in order to take advantage of construction opportunities?

3. Market and client focus This performance criterion refers to how a client is defined as the immediate client for the contractor and all other clients in the chain of distribution of its products and services through to the final client. The client is the final arbiter of the product and service quality. Client needs and expectations and how to deliver value are deeply understood. Client satisfaction is measured and analysed, as are the issues that influence loyalty.
How does the contractor conduct marketing and client focus, including client identification, access to work and improvement of existing systems.

How does the contractor satisfy clients in terms of time, quality & cost?

4. People management This criterion refers to the management of staff employed by the contractor, including full time, part time, temporary and contract workers. The full potential of the people is released through shared values and a culture of trust and empowerment. There is widespread involvement and communication and this is supported by opportunities to learn and develop skills. Satisfaction of people is monitored and continually improved.
To what extent does the contractor employ skilled staff to carry out work? (Describe in terms of development of staff in all categories of work)?

How does staff participate in improving of the contractor's systems, methods and processes?

5. Information & resource management The management of information and other resources, such as plant, equipment, material and funds, is critical to the overall performance of an organisation. Contractor suppliers and partners are also considered part of this criterion. Supplier partnerships are built on trust and long-term relationships.
How does the contractor access bridging finance, loans and credit with the financial institutions and suppliers of materials, plant and equipment?
To what extent does the contractor use accounting and finance systems to manage business for sustainability (e.g. financial budgeting, income statement, balance sheet, cash flow, book keeping system, payment procedures, control systems)?

How does the contractor manage materials purchasing and usage (e.g. ordering, inspection, material handling and storage, waste control etc)?
How does the contractor manage meetings and office administration activities (Meeting procedures, chairing of meetings, information storing, filing & processing, administration systems, etc)?

6. Core Processes & Quantity surveying A Process is defined as a sequence of steps, which add value by providing required outputs from a variety of inputs. Processes have owners, are understood and there are prevention-based improvement activities within the daily work of everyone. Information based on measures is the basis for maintaining and improving process standards.
Describe your contractor's technical core competence in terms of the chosen area of work. How is this technical competence improved? (e.g. bulk excavations, concrete, reinforcing, shuttering, brickwork, plastering, tiling roofing, ceilings, partitioning, plumbing, sprinkler systems, paving, electrical, fire reticulation, carpentry, vinyl flooring, lifts and escalators, glazing, repairs and renovations, air conditioning, etc)
Describe your contractor's use of systems and techniques for job estimation and costing?

Describe how your contractor uses the principles of project management to plan and control projects, including programming, handling of variation orders, invoicing and payment certificates?
Describe how your contractor manages site layout and site management issues including supervision and site administration)

Describe the contractor's system for managing Quality, Health, Safety & Environment.

7. Business results: Financial and non-financial results Sustainable success depends on balance and satisfaction of the interests of stakeholders, customers, and suppliers, the people employed those with a financial or other interest in the organization, as well as society generally.
Has the contractor been making profit over the last 3 years?

Does the contractor have ability to maintain positive cash flows? Describe your contractor's cash flow management.
What are the contractor's improvement trends for the following non-financial indicators: • productivity; • quality; • safety;

For office use only:
SUMMARISE OVERALL ASSESSMENT:

Section A	ABOUT YOUR ENTERPRISE

Enterprise Particulars:

Name of Enterprise: _____

Trading as : _____

Type of Enterprise (please indicate with "X") Public Company ☐ Private Company ☐ Close Corporation ☐

Sole Proprietor ☐ Partnership ☐ Section 21 Company ☐ Other ☐ (Please specify): _____

Date Registered (dd/mm/yy): _____ Date operations started (dd/mm/yy): _____

Head Office Physical Address:

_____

_____

_____ Code: _____

Head Office Postal Address:

_____

_____

_____ Code: _____

Contact Person:

Title: _____ Initials: _____ Surname: _____

Telephone: ( ) _____ Cell: _____

Number of braches per Province:

Eastern Cape ☐ Free State: ☐ Gauteng: ☐ Kwazulu-Natal ☐ Limpopo: ☐ Mpumalanga: ☐

Full Time Employees:

Total number of full time employees _____

Section B	PRINCIPAL OWNERSHIP & HDI STATUS

a) Complete details for each Principal(e.g.Director in company, member of CC) in the Enterprise and **attach a certified copy of Identity Document for each member listed**.
b) Black includes Africans, Indians and Coloureds

Initials and Surname	Identity number	RSA Citizen		Black		Gender		% of work time devoted to this enterprise	% of shares or interest held	% voting rights
		Y	N	Y	N	M	F			

Section C	**FINANCIAL CAPABILITY OF ENTERPRISE** (*notes for completion)*

a) Provide information on the Annual Turnover (Revenue) for the past 2 financial years of your business operation

b) Attach Financial Statements for the past 2 financial years *(if available)*

c) Attach a valid Tax Clearance Certificate (original copy)

Annual Average Turnover *(Gross Income)*

Financial Year Ending *(Most recent: month&year)* : _____ Total Turnover *(most recent)* : *including VAT* ***R*** _____

Previous Financial Year *(Previous financial year:month&year):* _____ Total Turnover *(previous year)* : *including VAT* ***R*** _____

Section D	WORK'S CAPABILITY (Largest Contract)

a) Provide contract details of the largest **construction work undertaken by your enterprise**

b) Provide also information on the employer for whom the contract is performed. Use the spaces provided

Employer: _____

Employer's Contact Person: Title: _____ Initials: _____ Surname: _____

Telephone: ( ) _____ Cell: _____

Description of Contract: _____

Indicate (below) the class of works to which the contract is applicable: *Please indicate with an "X"*

General Building….. ☐ Civil Engineering….. ☐ Electrical Engineering.. ☐ Mechanical Engineering ☐

Specialist Works…… ☐ Specify which class of special works: _____

Were you involved as: Main Contractor….. ☐ Sub Contractor….. ☐ Joint Venture Partner ☐

Total share of the contract, including VAT **R** _____

Contract Award Date (dd/mm/yy): _____ Practical Completion Date (dd/mm/yy): _____

Province: _____ Municipality: _____

Section D	WORK'S CAPABILITY (Current Contract)

a) Provide contract details of the **current construction work undertaken by your enterprise**

b) Provide also information on the employer for whom the contract is performed. Use the spaces provided

Employer: _____

Employer's Contact Person: Title: _____ Initials: _____ Surname: _____

Telephone: ( ) _____ Cell: _____

Description of Contract: _____

Indicate (below) the class of works to which the contract is applicable: *Please indicate with an "X"*

General Building….. ☐ Civil Engineering….. ☐ Electrical Engineering.. ☐ Mechanical Engineering ☐

Specialist Works…… ☐ Specify which class of special works: _____

Were you involved as: Main Contractor….. ☐ Sub Contractor….. ☐ Joint Venture Partner ☐

Total share of the contract, including VAT **R** _____

Contract Award Date (dd/mm/yy): _____ Practical Completion Date (dd/mm/yy): _____

Province: _____ Municipality: _____

ANNEXURE 5: MENTOR'S MONTHLY PROGRESS EVALUATION OF EMERGING CONTRACTOR

MENTOR'S MONTHLY PROGRESS EVALUATION OF EMERGING CONTRACTOR

NAME OF EC:_____

NAME OF MENTOR:_____

REGION:_____

DESCRIPTION OF PROJECTS:_____

_____

DATE OF EVALUATION:_____

PROGRESS EVALUATION: NQF LEVEL 2

The progress evaluation is based on a 10-point scale for which minimum standards to be achieved are determined by the Mentor and Emerging Construction Contractor Programme: Setting of Minimum Standards for Quality Assurance of Integrated ECDP. Progress evaluation is also required regarding a number of items not contained in the above programme, i.e. technical advancement (See item 4)

The 10-point tick box scale to be utilized as follows (benchmarks only provided, use entire scale for evaluation).

1	=	The EC is not capable at all to execute this activity independently
5	=	EC is capable to execute this function with assistance
10	=	EC is capable to execute this function independently on a sustainable basis

ASPECTS TO BE EVALUATED: DEVELOPMENT OF BUSINESS

SECTION 1: RUNNING A SMALL BUSINESS

A. ADMINISTRATION:

1. The Business plan: Development achieved

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Meeting the legal requirements: Conformation, business registration

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

3. Running an efficient office: Level achieved

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

4. Joining the local Builder's Association: Benefits obtained

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

5. Insurance matters: Obtained as relevant

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

B FINANCIAL MANAGEMENT

1. The principles of cash flow: Understanding

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Drawing up cash flow statement: Ability to execute

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

---

3. Principles of bookkeeping: Understanding

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

4. Bookkeeping 2 – Double entry system: Ability to execute

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

CONTRACTUAL OBLIGATIONS

Types of contracts: Understanding and application

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. National Building Regulations: Understanding and application

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

SECTION 2: FINDING AND OBTAINING WORK

A. FINDING AND KEEPING CUSTOMERS

1. Creating the right image: Practical application

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Quality workmanship: Level of achievement

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

3. Marketing the business: Practical application

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

4. **Joint ventures: Preparedness to undertake**

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

B. ESTIMATING AND TENDERING

1. Basic principles of estimating: Understanding price analysis

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Basic principles of tendering: Understand tendering procedures

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

3. Putting together a tender: Ability to prepare tenders

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

4. Budgets and cost control: Calculation of allowables and site control

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

5. Variation orders and final accounts: Obtain, management and settle

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

SECTION 3: RUNNING AN EFFICIENT BUILDING PROJECT

A. PLANNING AND PROGRESSING

1. Types of programmes and their uses: Understanding

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. How to draw up a bar chart: Execution

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

3. Line of balance programming: Execution

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

B. CONTROL AND PROGRESSING

1. Monitoring progress: Execution and corrective action

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Working with subcontractors: Orders, contracts, quality management

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

3. Certificates and progress payments: Ability to lodge

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

4. Effective site meetings: Participation and results

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

C. WORK ON SITE

1. Planning a building construction site: Execution ability

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Setting out a building: Practical application

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

3. Plant and equipment: Utilization, hire and buy decision making and application

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

SECTION 4: GENERAL INFORMATION

A. MANAGEMENT OF STAFF

1. Principles of human behaviour: Understanding

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Motivation and incentive schemes: Application

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

B. SAFETY, LABOUR RELATIONS AND OTHER LEGISLATION

1. Implications of the Occupational Health and Safety Act: Understanding

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Running a safe site: Application of OH&S Act

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

3. Applying the Labour Relations Act, Compensation for Occupational Injuries and Diseases Act, Skills Development Act, Skill Development Levy Act, Unemployment Equity Act: Application of legislation

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

C. TRAINING PROVIDERS:

1. Training Providers (CETA Accredited): Participation, general contribution

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Study material: Quality of study material

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

3. Teaching methodology: Evaluation of methodology

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

4. Knowledge transfer: Overall knowledge base growth

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

D. MANAGEMENT TEAM

1. Structure and management of programme: Roll-out and management effectiveness (CSIR and Quality Assurors)

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. ECDC management: Programme support (ECDC Business Advisor, etc)

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

3. Programme Quality Management: Feedback and usefulness (CSIR and Quality Assurors)

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

E. PROFESSIONAL CONSULTANTS AND OTHERS

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

F. BUILDING PRACTICE BASIC TECHNOLOGY

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

G. CIVIL PRACTICE BASIC TECHNOLOGY

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

_____ _____

SIGNATURE MENTOR DATE

PROF DRIES HAUPTFLEISCH
APRIL 2005

ANNEXURE 6: EMERGING CONTRACTOR'S MONTHLY PROGRESS EVALUATION OF MENTORING PROCESS

EMERGING CONTRACTOR'S MONTHLY PROGRESS EVALUATION OF MENTORING PROCESS

NAME OF EC:_____

NAME OF MENTOR:_____

REGION:_____

DESCRIPTION OF PROJECTS:_____

DATE OF EVALUATION:_____

PROGRESS EVALUATION: NQF LEVEL 2

The progress evaluation is based on a 10-point scale for which minimum standards to be achieved are set against the Mentor and Emerging Construction Contractor Programme: Setting of Minimum Standards for Quality Assurance of Integrated ECDP.

The 10-point tick box scale to be utilized as follows (benchmarks only provided, use entire scale for

1 = Poor
5 = Average
10 = Excellent

1. Evaluation of relationship with mentor and quality of support provided to EC

1	2	3	4	5	6	7	8	9	10

Comments:_____

_____

_____

2. Evaluation of service levels and quality of interaction with ECDC (business advisor, accounting, reaction time, etc.)

1	2	3	4	5	6	7	8	9	10

Comments:_____

3. Evaluation of the training programme offered by the training service provider

1	2	3	4	5	6	7	8	9	10

Comments:_____

4. Development of EC's ability to deal independently with construction project professional team (architect, engineers, quantity surveyor, etc.)

1	2	3	4	5	6	7	8	9	10

Comments:_____

5. Development of financial stability of EC (improved cash flow, asset base, credit rating, etc.)

1	2	3	4	5	6	7	8	9	10

Comments:_____

6. Management structure and quality of this development programme as introduced and operated by the Project Management Team (CSIR and Quality Assurers)

1	2	3	4	5	6	7	8	9	10

Comments:_____

7. Overall personal (EC) skills and knowledge development resulting from this ECDC development initiative

1	2	3	4	5	6	7	8	9	10

Comments:_____

SIGNATURE: CONTRACTOR

DATE
PROF DRIES HAUPTFLEISCH
NOVEMBER 2004

ANNEXURE 7: MANUAL FOR SMALLER CONSTRUCTION CONTRACTORS, TABLE OF CONTENTS

SECTION 1: RUNNING A SMALL CONSTRUCTION BUSINESS
A. ADMINISTRATION 1. The Business Plan 2. Meeting the legal requirements 3. Running an efficient office 4. Joining the local builders association 5. Insurance Matters
B. FINANCIAL MANAGEMENT 1. The principles of cash flow 2. Drawing up a cash flow statement 3. Principles of bookkeeping 4. Bookkeeping, double entry systems
C. CONTRACTUAL OBLIGATIONS 1. Types of contracts 2. National Building regulations
SECTION 2: FINDING AND OBTAINING WORK
D. FINDING AND KEEPING CUSTOMERS 1. Creating the right image 2. Quality workmanship 3. Marketing the business 4. Joint ventures
E. ESTIMATING AND TENDERING 1. Basic principles of estimating 2. Basic principles of tendering 3. Putting together a tender 4. Budgets and cost control 5. Variation orders, interim certificates and final accounts
SECTION 3: RUNNING AND EFFICIENT BUILDING PROJECT
F. PLANNING AND PROGRAMMING 1. Types of programmes and there uses 2. How to draw up a bar chart 3. Line and balancing programmes
G. CONTROL AND PROGRESSING 1. Monitoring progress 2. Working with subcontractors 3. Certificates and progress payments 4. Effective site meetings
H. WORK ON SITE 1. Planning a building site 2. Setting out a building 3. Plant and equipment
SECTION 4: GENERAL INFORMATION
I. MANAGEMENT OF STAFF 1. Principles of human behavior 2. Motivation and incentive schemes
J. SAFETY, LABOUR RELATIONS, AND OTHER LEGISLATION 1. Implications of the Occupational Health and Safety Act 2. Running a safe site 3. General legislation applicable to a construction business, applying the Labour Relations Act, Compensation for Occupational Injuries and Diseases Act, Skills Development Act, Skills Levy Act, Unemployment Insurance Act. 4. Motivation and incentive schemes
K. TRAINING PROVIDERS 1. Training Providers (CETA Accredited) 2. Study Material 3. Teaching Methodology 4. Knowledge transfer

L.	**MANAGEMENT TEAM** 1. Structure and Management of the programme 2. ECDC Management 3. Programme Quality Management
M.	**PROFESSIONAL CONSULTANTS AND OTHERS**
N.	**BUILDING PRACTICE: BASIC TECHNOLOGY**
O.	**CIVIL ENGINEERING PRACTICE: BASIC TECHNOLOGY**
P.	**STANDARDS SOUTH AFRICA (SABS)**

ANNEXURE 8: MANAGEMENT DEVELOPMENT PROGRAMME

IECDM: BUSINESS DEVELOPMENT PROGRAMME

Mentor:		**Contractor:**																													**Date:**
No	**Activity**	**January**				**February**				**March**				**April**					**May**				**June**				**July**				
Section 1 Running a Small Business			14	21	28	4	11	18	25	1	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	1	8	15	22	29
A	**Administration**																														
1	The business plan																														
2	Meeting the legal requirements																														
3	Running an efficient office																														
4	Joining the Local Builder's Association																														
5	Insurance matters																														
B	**Financial Management**																														
1	The principles of cash flow																														
2	Drawing up a cash flow statement																														
3	Principles of bookkeeping																														
4	Bookkeeping 2 - Double entry system																														
C	**Contractual Obligations**																														
1	Types of contracts																														
2	National Building Regulations																														
Section 2: Finding and Obtaining Work																															
A	**Finding and Keeping Customers**																														
1	Creating the right image																														
2	Quality workmanship																														
3	Marketing the business																														
4	Joint Ventures																														
B	**Estimating and Tendering**																														
1	Basic principles of estimating																														
2	Basic Principles of tendering																														
3	Putting together a tender																														
4	Budgets and cost control																														
5	Variation orders, interim certificates and final accounts																														
Section 3: Running an Efficient Building Project																															
A	**Planning and Programming**																														
1	Types of programmes and their uses																														
2	How to draw up a bar chart																														
3	Line of balance programming																														
B	**Control and Progressing**																														
1	Monitoring progress																														
2	Working with subcontractors																														
3	Certificates and progress payments																														
4	Effective site meetings																														
C	**Work on Site**																														
1	Planning a building site																														
2	Setting out a building																														
3	Plant and equipment																														
Section 4: General Information																															
A	**Management of Staff**																														
1	Principles of human behaviour																														
2	Motivation and incentive schemes																														
B	**Safety, Labour Relations, and other Legislation**																														
1	Implications of the Occupational Health and Safety Act																														
2	Running a safe site																														

3	General Legislation applicable to a Construction Business: Applying																														
	the Labour Relations Act, Basic Condition for Employment Act,																														
	Compensation for Occupational Injuries and Diseases Act, Skills																														
	Development Levy Act, Unemployment Insurance Act																														
F	**Building Practice**																														
1	Basic Technology																														
G	**Civil Engineering Practice**																														
1	Basic Technology																														

ANNEXURE 9: STAKEHOLDERS QUESTIONAIRE 1

Integrated Emerging Contractor Development Model

Questionnaire to: IECDM Stakeholder, TQM Consultants and Service Providers

Name:	
Company:	
Contact No:	
Fax:	
Email:	

Objective of Questionnaire

As a stakeholder participating in the IECDM we require you opinion and assessment of the various aspects of the model with the intention of identifying strengths and weaknesses of the model in order to further enhance the IECDM for future implementation.

SECTION 1. THE IECDM MODEL PERFORMANCE(1 - 10 Scoring system)
Method of Scoring

The scoring system follows a tick box covering a range of 1-10.

1	2	3	4	5	6	7	8	9	10

Rating		
	1 to 2	poor
	2 to 4	fair
	4 to 6	average/good
	6 to 8	very good
	8 to 10	excellent

1.1 Rate the overall IECDM programme in terms of delivering on the key objectives being enterprise development of emerging contractors

1	2	3	4	5	6	7	8	9	10

Comments:

1.2 Rate the mentoring programme introduced by the project team in terms the value adding beneficiation of the emerging contractors

1	2	3	4	5	6	7	8	9	10

Comments:

1.3 Rate the management of the IECDM by the ECDC appointed Project Team

1	2	3	4	5	6	7	8	9	10

Comments:

1.4 Has significant growth of the Emerging Contractors been noticed in terms of there sustainability and viability as a construction enterprise

1	2	3	4	5	6	7	8	9	10

Comments:

1.5 Rate the CETA learnership in terms of the value adding beneficiation it has provided for the Emerging Contractor

1	2	3	4	5	6	7	8	9	10

Comments:

1.6 Rate the TQM process introduced in terms of the value adding to introduce corrective and to guide the mentor/contractor/service provider relationship

1	2	3	4	5	6	7	8	9	10

Comments:

SECTION 2. THE IECDM MODEL PERCEPTION (YES/NO Rating system)

Method of Scoring

Yes	
No	

2.1 Would you participate in future IECDM programmes

Yes	
No	

Comments:

2.2 Should the ECDC be the implementing agent for future IECDM, please provide reasons for the answer chosen.

Yes	
No	

Comments:

2.3 Has the introduction of the Manual: Mentor Guideline Document created a sound Knowledge base for the mentor/contractor relationship

Yes	
No	

Comments:

SECTION 3. THE IECDM MODEL CORRECTIVE MEASURES

Method of Scoring

Mentorship	
TQM	
Learnership	

3.1 What aspects of the IECDM require review in terms of implementation and scope

Selection of contractors	
Mentorship	
TQM	
Project Management	
CETA NQF level 2 learnership	

3.2 Provide comments for the items you selected above

3.3 Provide comments or suggestions for the ECDC regarding the future of the IECDM

Thank you for your time and participation in assisting us with the questionnaire, the information gathered will contribute towards the future role out of the IECDM

Spencer Lazarus
Nov-06

ANNEXURE 10: STAKEHOLDERS QUESTIONAIRE 2

Integrated Emerging Contractor Development Model

Questionnaire to: IECDM Emerging Contractors

Name:	
Company:	
Contact No:	
Fax:	
Email:	

Objective of Questionnaire

As a stakeholder participating in the IECDM we require you opinion and assessment of the various aspects of the model with the intention of identifying strengths and weaknesses of the model in order to further enhance the IECDM for future implementation.

SECTION 1. THE IECDM MODEL PERFORMANCE(1 - 10 Scoring system)
Method of Scoring

The scoring system follows a tick box covering a range of 1-10.

1	2	3	4	5	6	7	8	9	10

Rating		
	1 to 2	poor
	2 to 4	fair
	4 to 6	average/good
	6 to 8	very good
	8 to 10	excellent

1.1 Rate the overall IECDM programme in terms of delivering on the key objectives being enterprise development of emerging contractors

1	2	3	4	5	6	7	8	9	10

Comments:

1.2 Rate the mentoring programme introduced by the project team in terms the value adding beneficiation of the emerging contractors

1	2	3	4	5	6	7	8	9	10

Comments:

1.3 Rate the management of the IECDM by the ECDC appointed Project Team

1	2	3	4	5	6	7	8	9	10

Comments:

1.4 Have you as the Emerging Contractors noticed significant growth of your enterprise regarding sustainability and viability as a construction enterprise. Score yourself in terms of the category you feel you fall into.

1	2	3	4	5	6	7	8	9	10

Comments:

1.5 Rate the CETA learnership in terms of the value adding beneficiation it has provided for the Emerging Contractor

1	2	3	4	5	6	7	8	9	10

Comments:

1.6 Rate the TQM process introduced in terms of the value adding to introduce corrective and to guide the mentor/contractor/service provider relationship

1	2	3	4	5	6	7	8	9	10

Comments:

1.7 Has the introduction of the Manual: Mentor Guideline Document created a sound Knowledge base for the mentor/contractor relationship

1	2	3	4	5	6	7	8	9	10

Comments:

SECTION 2. BUSINESS DEVELOPMENT OF THE EMERGING CONTRACTOR (YES/NO Rating system)

Method of Scoring

Yes	
No	

2.1 Has the IECDM improved your business skills to manage your enterprise effectively

Yes	
No	

Comments:

2.2 Are you able to execute projects of larger capacity as a result of your participation in the IECDM

Yes	☐
No	☐

Comments:

2.3 Are you able to tender and compete more efficiently for construction projects post IECDM than prior to the IECDM

Yes	☐
No	☐

Comments:

2.4 Has your knowledge base regarding the construction industry been enhance through your participation in the IECDM

Yes	
No	

Comments:

SECTION 3. THE IECDM MODEL CORRECTIVE MEASURES

Method of Scoring

Mentorship	
TQM	
Learnership	

3.1 What aspects of the IECDM require review in terms of implementation and scope

Selection of contractors	
Mentorship	
TQM	
Project Management	
CETA NQF level 2 leanership	

3.2 Provide comments for the items you selected above

3.3 Provide comments or suggestions for the ECDC regarding the future of the IECDM

Thank you for your time and participation in assisting us with the questionnaire, the information gathered will contribute towards the future role out of the IECDM

Spencer Lazarus
Nov-06

ANNEXURE 11: QUARTERLY WORKSHOP AGENDA

QUARTERLY
WORKSHOP/INDABA

AGENDA

No	Description	Presenter	Time
1	Introduction and Welcome	Programme Manager: Spencer Lazarus	8:00am to 8:15am
2	Presentation of post three months quantitative data	Programme Manager: Spencer Lazarus	8:15am to 9:15am
3	TQM feedback session	TQM consultants	9:15am to 10:15am
4	Mentor feedback	Mentors	10:15am to 10:45am
Break			
5	Contractors feedback	Contractors	11:15am to 12:00pm
6	Training Providers feedback	Training providers	12:00pm to 12:45pm
7	CETA feedback	CETA regional Manager	12:45pm to 13:15pm
Break			
8	Discussion session	All	14:00pm to 14:30pm
9	Way forward and corrective measures	All	14:30pm to 15:00pm
Closure			

ANNEXURE 12: DIAGRAMMATIC PRESENTATION OF QUANTITATIVE DATA, CSIR

Diagrammatic presentation of quantitative data

Emerging Contractor Development Programme (ECDC)

This document was compiled by the CSIR for the Eastern Cape Development Corporation

INTRODUCTION AND BACKGROUND

1. In line with the contract between the Council for Scientific and Industrial Research (CSIR) and the Eastern Cape Development Corporation (ECDC), the purpose of this report is to document the overall performance of the Emerging Contractor Development Programme (ECDP) for the period covering July 2005 to October 2006. The recorded data contained in this report has been scored and ranked as per the criteria set-out in the table 1 below:

Table 1: Scoring and ranking

Score	Performance
0-20%	Poor performance (contractor is not capable to execute an activity independently
21-40%	Fair performance
41-60%	Average/good performance (contractor is capable to execute and activity with assistance)
61%-80%	Very good performance
81-100%	Excellent performance (contractor is capable to execute activities independently and in a sustainable manner)

2. The report will provide a macro-level overview of the performance of the programme as per the agreed format. Due to the high volumes of data collected, it is very difficult to report on all aspects of the data. Accordingly, an electronic copy of the database is provided as an annexure to this report, thus enabling ECDC official to access more detailed levels of data, if required.

3. From a purely methodological perspective, it is important to note that the data contained in this report represent the *perspectives* of mentors and contractors. The data contained was not tri-angulated, in so far as such an intervention falls outside the scope of the contract.

4. The report has been structured to provide an overview and analysis of the following key components of the programme:

- Running a small business;
- Finding and obtaining work;
- Running an efficient building project;
- General;
- Building practice technology; and
- Civil practice basic technology

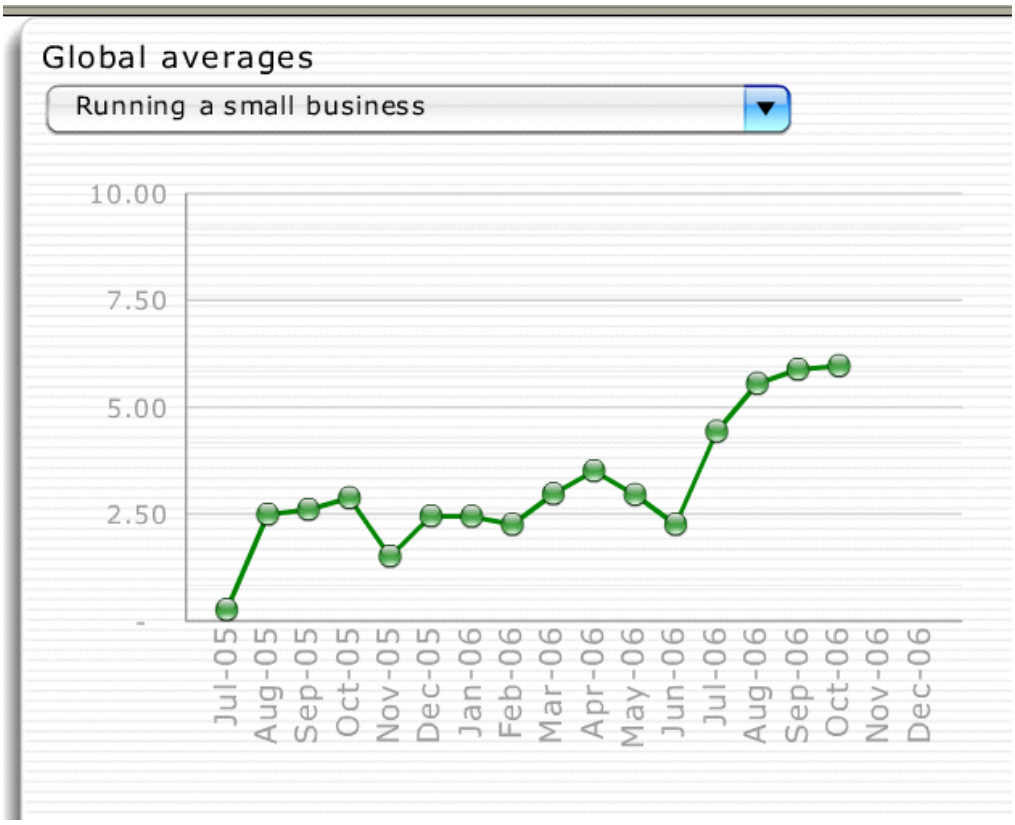
5. In the analysis of each component, the sub-sections – which constituted the cumulative score for each component – has been analysed in detail. The report's conclusion contains a number of recommendations for future interventions.

RUNNING A SMALL BUSINESS

Global overview

6. When viewed across the overall performance for the time under review (see Figure 1), October represents the highest rating for this indicator at 59.7%. When compared to the 24.9% recorded in August 2005 the perception of the performance regarding this indicator has increased by 34% since the inception of the project.

Figure 1: Running a small business – global averages



7. This represents a substantial increase in the ability of contractors to run a small business. In this regard, the August 2005 rating represented a "fair" performance which has increased through the intervention to an "average to good" performance level. This implies that contractors in general are able to execute related activities with some level of assistance.

8. The data also seems to indicate a trend in terms of the ability of contractors to absorb knowledge. It would appear that performance increases in cycle of about three months (August-October 2005, February to April 2006). These periods are generally followed by two to three months of declined performance. The declines are generally followed by increased performance which tends to pass previous levels of performance. So, whilst the performance seems to stagnate or reduce for short time periods it does seem to increase to higher levels after about 3 months. This could be an indication of the time it takes contactors to absorb or internalise data or new learning.

9. The above-mentioned trend has however not been replicated after June 2006, where the stagnation or internalisation period appears to have only lasted one month. The stagnation period was followed by five consecutive months of increased performance, with each month achieving new high levels of performance compared to the preceding months.

10. No written explanation has been provided to explain this phenomenon, but anecdotal information seems to point to an increase in interventions by the project team.

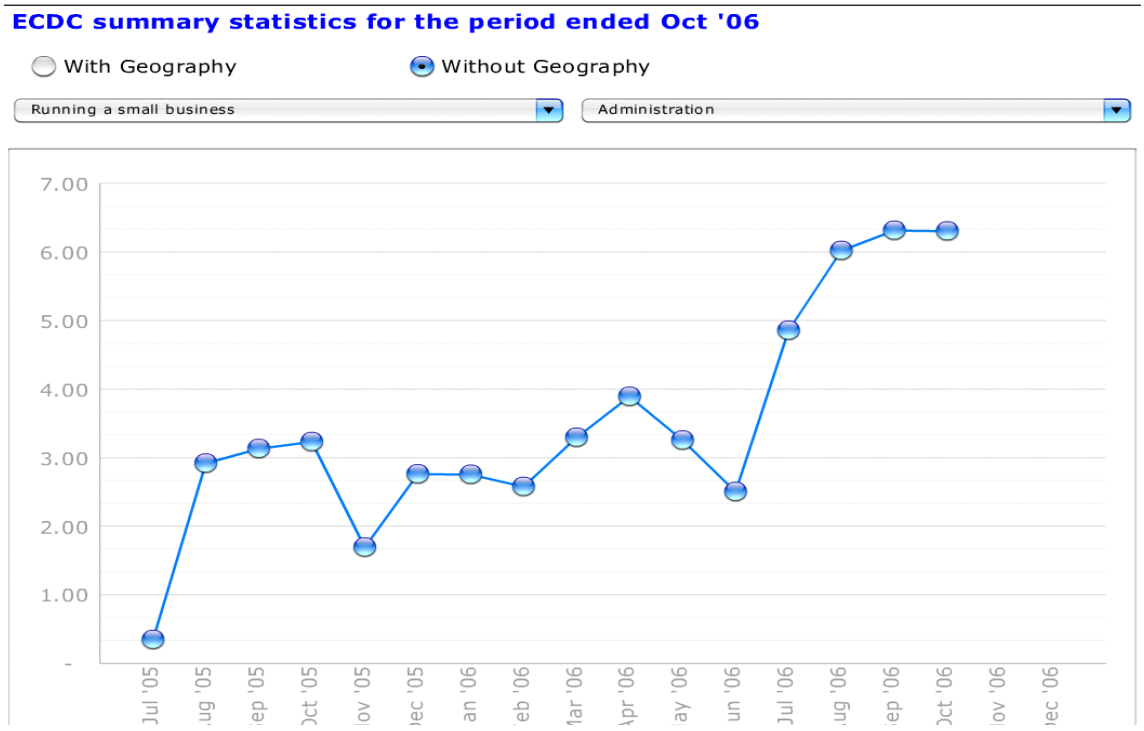
Sub-components of running a small business

11. The indicator running a small business consisted of data gathered from three sub-sets of indicators. They were: administration; financial management; and contractual obligations. Each of which will be discussed individually in the next sections.

Administration

12. As shown in figure 2 below, this indicator started at a level of 29.2% in August 2005 with a rating of "fair." It achieved a 63.1% high in September 2006 with a rating of "very good." The largest increase took place in July 2006 from a base of 25% in July 2006, which is slightly lower than the level recorded in August 2006.

Figure 2: Administration



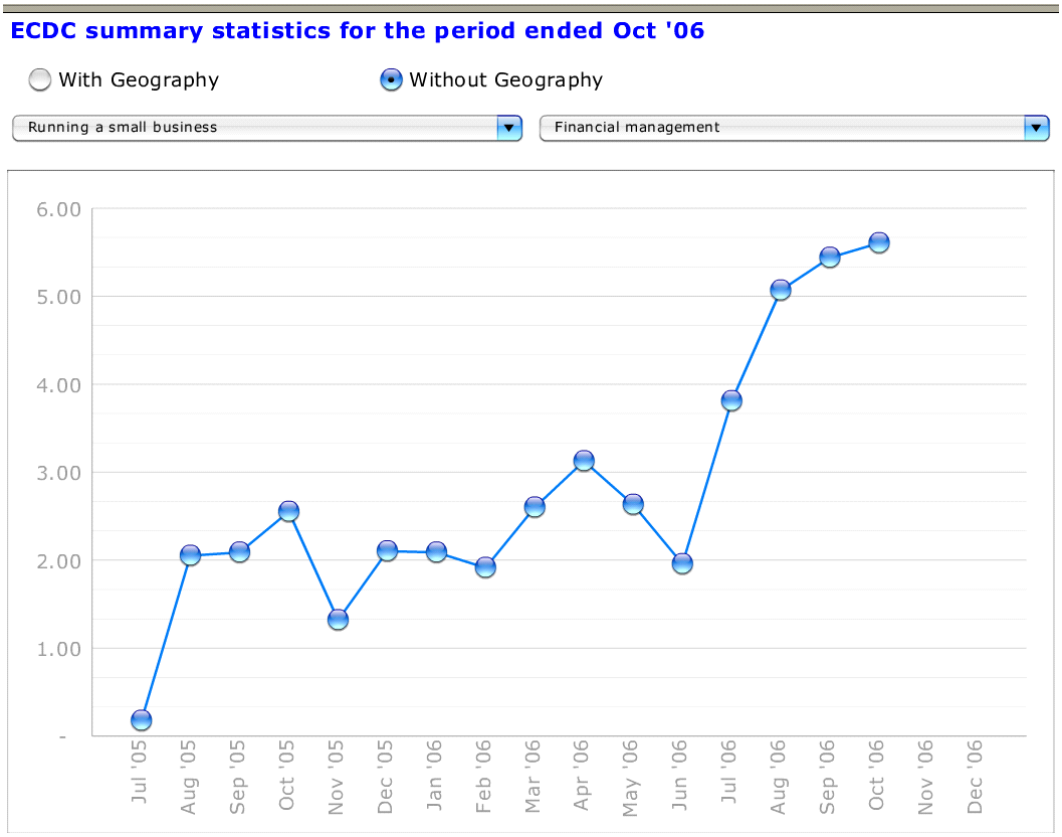
13. The July increase resulted in a consistent increase over a period of four months, and ultimately stabilising at the current highest levels (this is in spite of a slight decline in October 2006).

14. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 33.9% increase in perceived performance since the start of the intervention.

Financial management

15. As shown in figure 3 below, this indicator started at a level of 20.5% in August 2005 with a rating of "poor." It achieved a 56.1% high in October 2006 with a rating of "average to good." The largest increase took place in July 2006 from a base of 19% in July 2006, which is slightly lower than the level recorded in August 2006.

Figure 3: Financial management

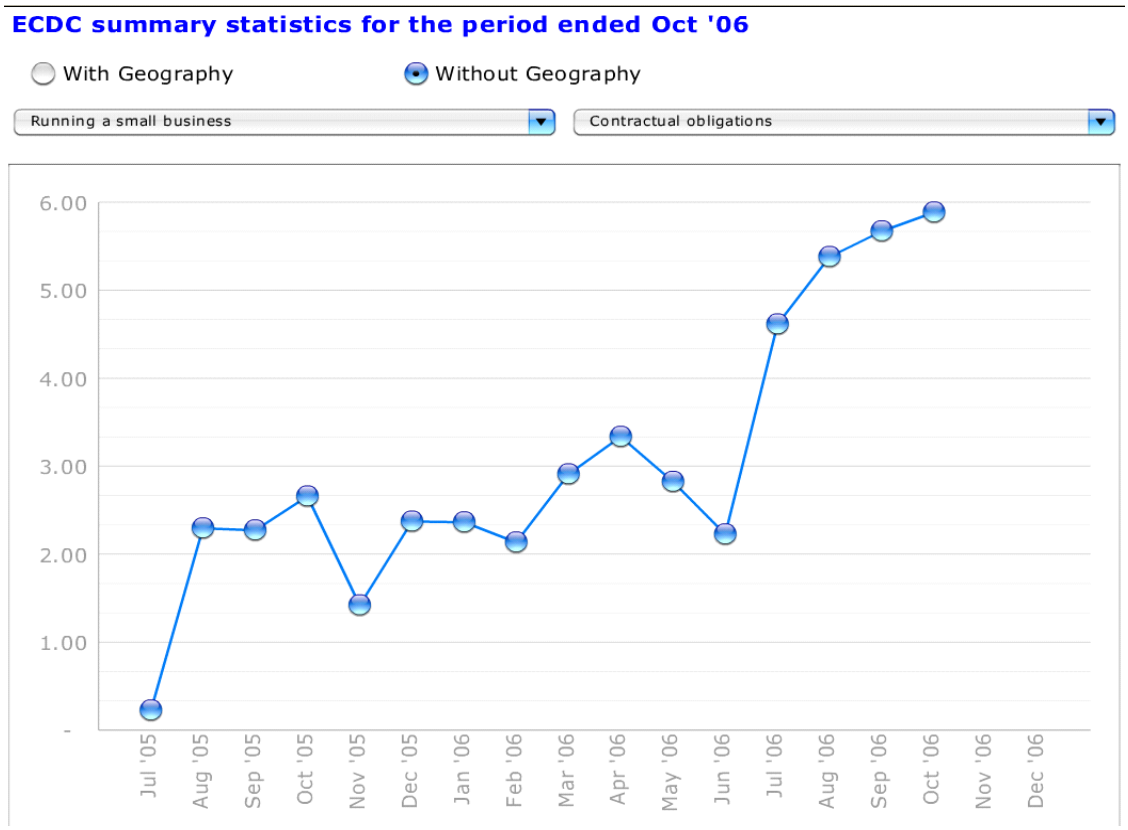


16. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 35.6% increase in perceived performance since the start of the intervention.

Contractual obligations

17. As seem in figure 4 below, this indicator started at a level of 23% in August 2005 with a rating of "fair." It achieved a 58.8% high in October 2006 with a rating of "average to good." The largest increase took place in July 2006 from a base of 22.3% in July 2006, which is slightly lower than the level recorded in August 2006.

Figure 4: Contractual obligations



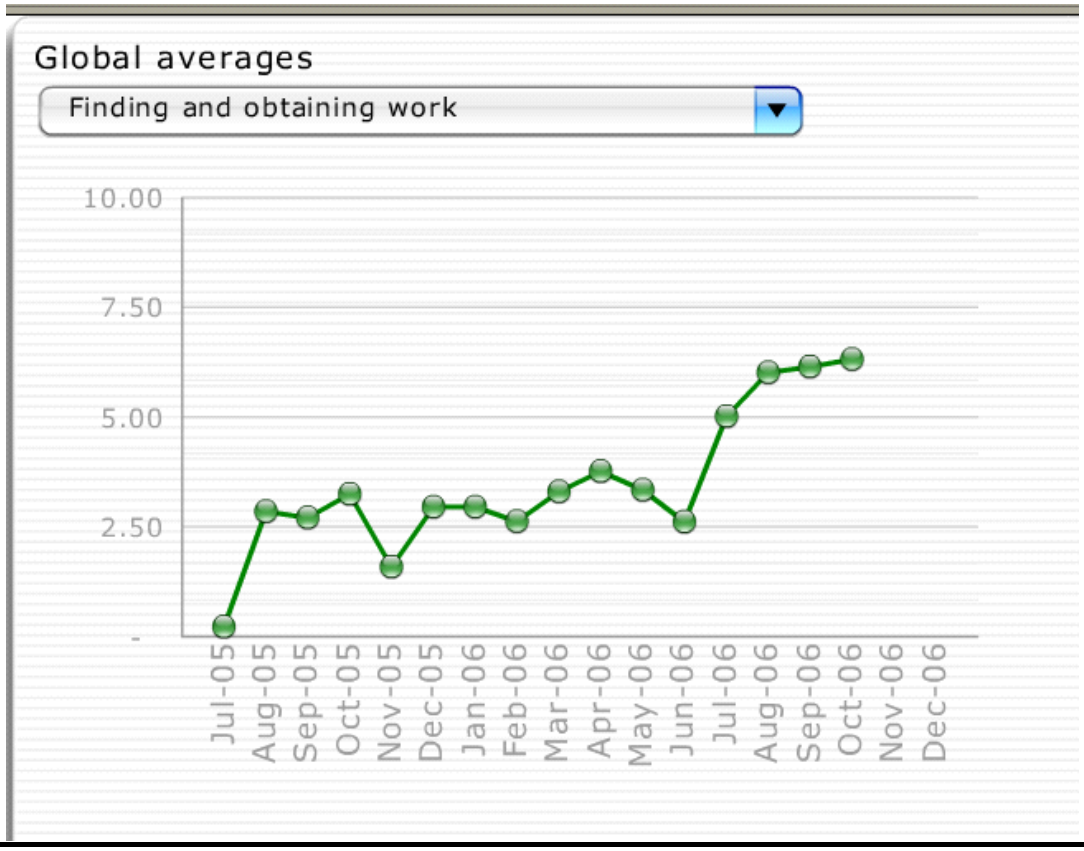
18. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 35.8% increase in perceived performance since the start of the intervention.

FINDING AND OBTAINING WORK

Global overview

19. The average rating 63.2% scored respectively in October 2006 represents a "very good" performance and constitutes the highest ratings by the contractors as assessed by the mentors (see figure 5 below).

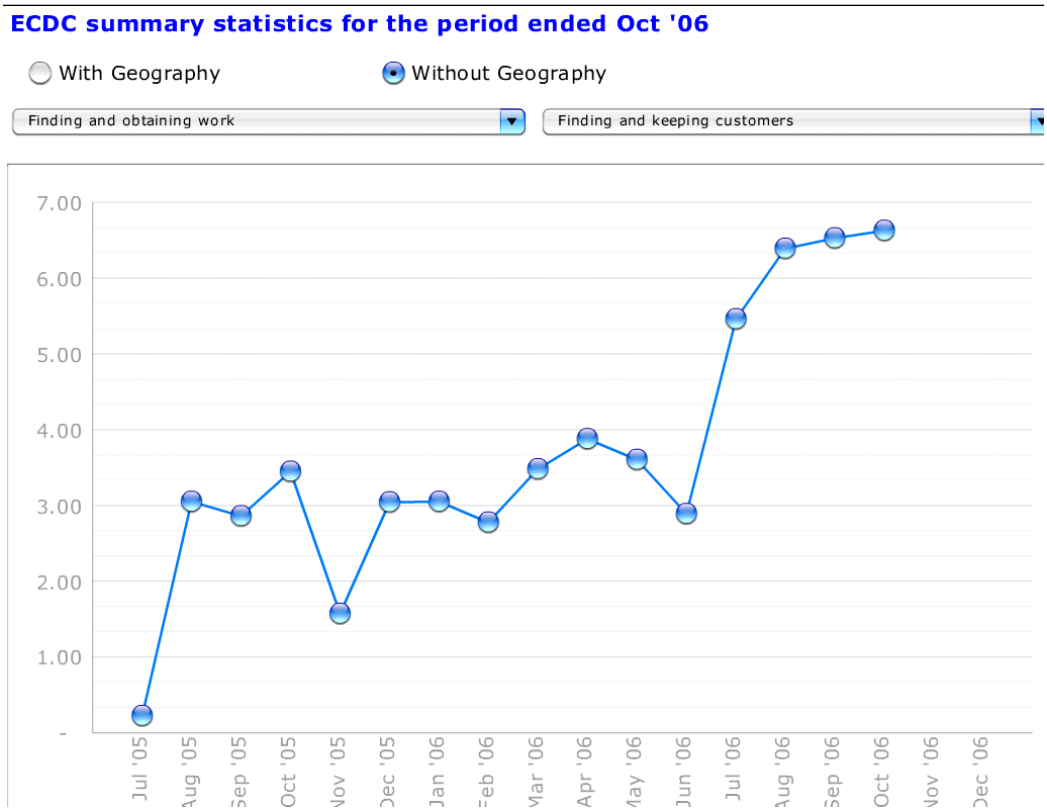
Figure 5: Finding and obtaining work – global averages



FINDING AND KEEPING CUSTOMERS

23. Figure 6 below shows that this indicator started at a level of 30.5% in August 2005 with a rating of "fair." It achieved a 66.3% high in October 2006 with a rating of "very good." The largest increase took place in July 2006 from a base of 28.9% in July 2006, which is slightly lower than the level recorded in August 2006.

Figure 6: finding and keeping customers

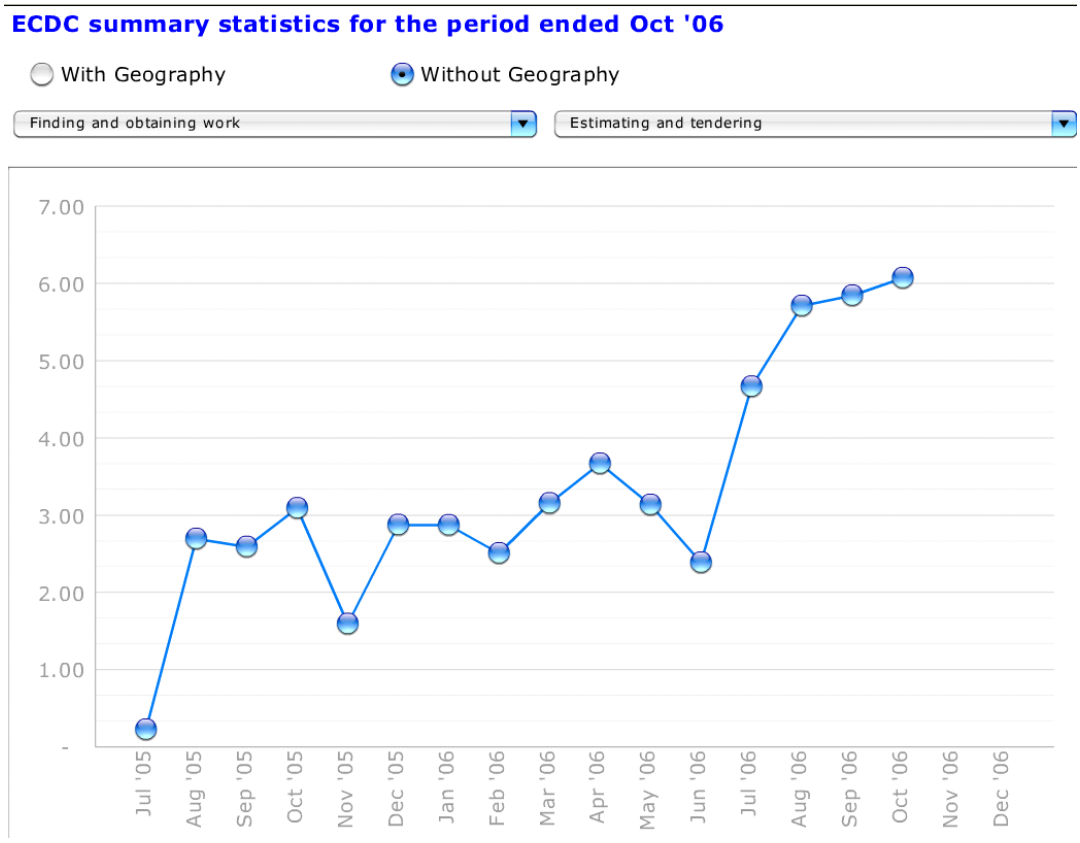


24. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 35.8% increase in perceived performance since the start of the intervention.

Estimating and tendering

25. Figure 7 below reveals that this indicator started at a level of 27% in August 2005 with a rating of "fair." It achieved a 60.7% high in October 2006 with a rating of "average to good." The largest increase took place in July 2006 from a base of 23.9% in July 2006, which is significantly lower than the level recorded in August 2006.

Figure 7: estimating and tendering



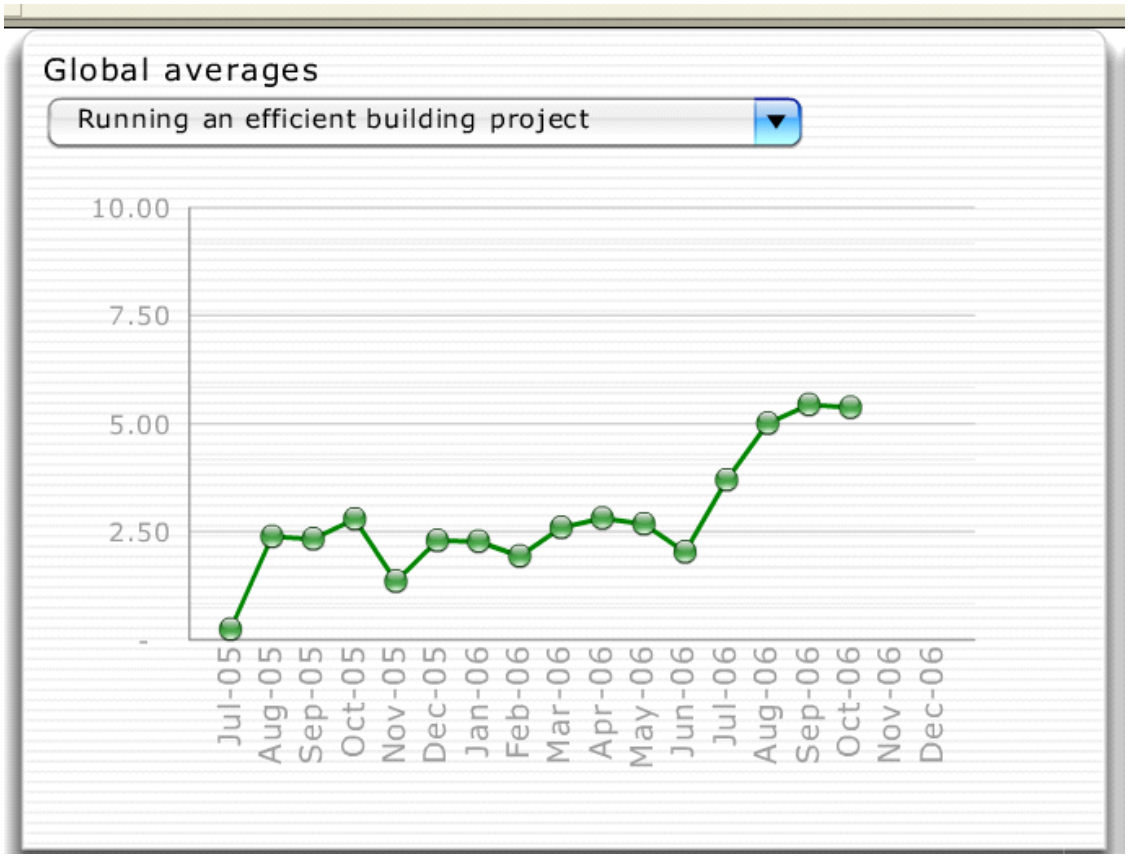
26. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 33.7% increase in perceived performance since the start of the intervention.

RUNNING AN EFFICIENT BUILDING PROJECT

Global overview

27. As indicated in figure 8 below, the average rating of 54.4% in September represents the highest rating for this indicator resulting in a rating of “average to good”. The October score also reflects a slight downward movement in the measurement of this indicator, which could point to a possible decline, or stabilisation in the performance of this indicator.

Figure 8: running a building project – global overview



28. When compared against the 23.9% recorded in August 2005 the October 2006 score represents a 29.9% increase in the performance perceptions of the mentors over the duration of the project.

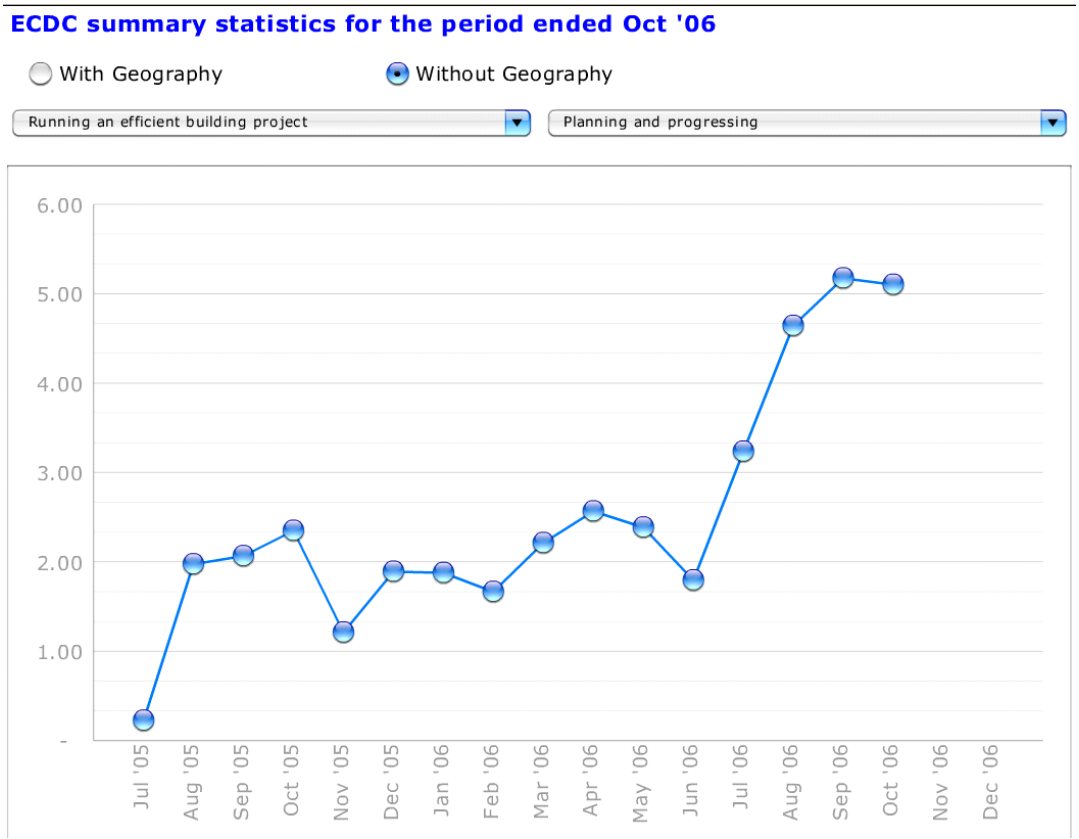
Sub-components of running an efficient building project

29. The indicator comprised of the following sub-sets of indicators. They were: planning and progressing; control and progressing; and work on site. Each of which will be discussed individually in the next sections.

Planning and progressing

30. According to figure 9 below, this indicator started at a level of 19.8% in August 2005 with a rating of "poor." It achieved a 51.7% high in September 2006 with a rating of "average to good." The largest increase took place in July 2006 from a base of 183% in July 2006, which is slightly lower than the level recorded in August 2006.

Figure 9: planning and progressing

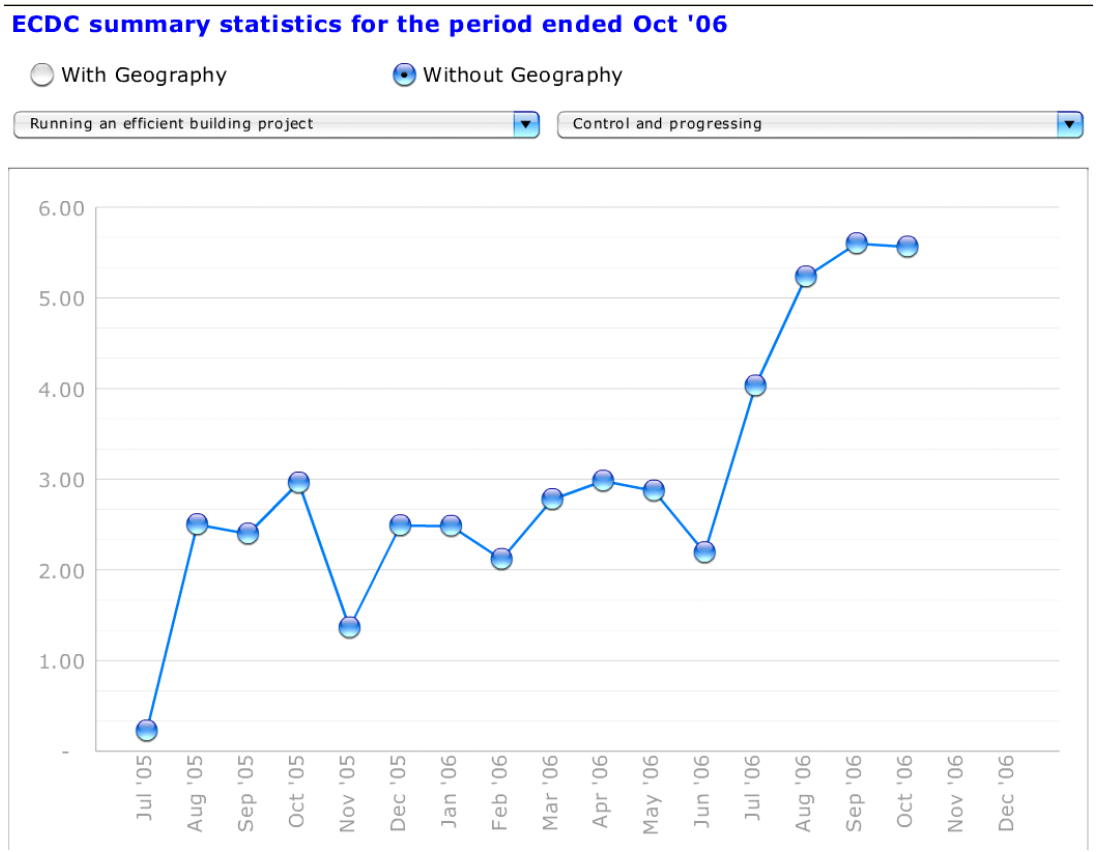


31. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. Based on the October data it would appear that the indicator has lost some of its upward momentum as reflected by the slight decline. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 31.9% increase in perceived performance since the start of the intervention.

Control and progressing

32. Figure 10 shows that this indicator started at a level of 25% in August 2005 with a rating of "fair." It achieved a 56% high in September 2006 with a rating of "average to good." The largest increase took place in July 2006 from a base of 21.9% in July 2006, which is significantly lower than the level recorded in August 2006.

Figure 10: control and progressing

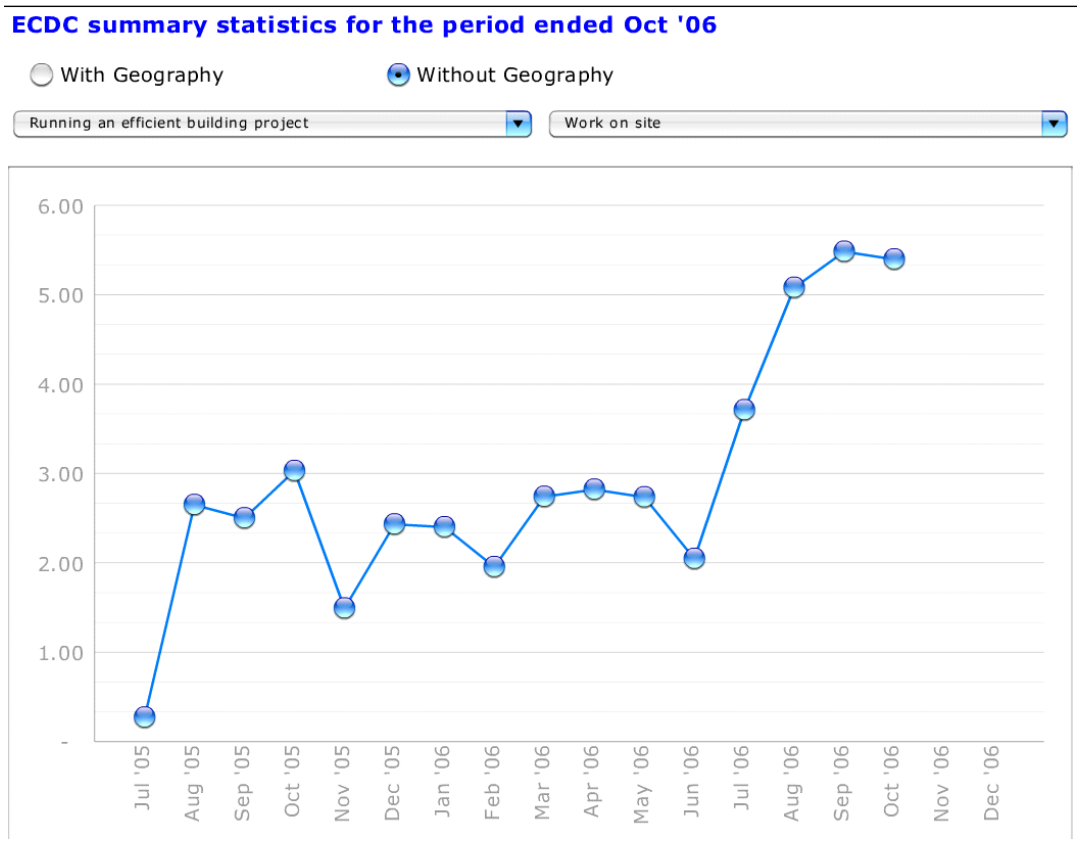


33. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent, and significant gains were achieved resulting in a 30.6% increase in perceived performance since the start of the intervention.

Work on site

34. Figure 11 reveals that this indicator started at a level of 26.5% in August 2005 with a rating of "fair." It achieved a 54.8% high in September 2006 with a rating of "average to good." The largest increase took place in July 2006 from a base of 20.5% in July 2006 (a "poor" rating"), which is lower than the level recorded in August 2006.

Figure 11: work on site



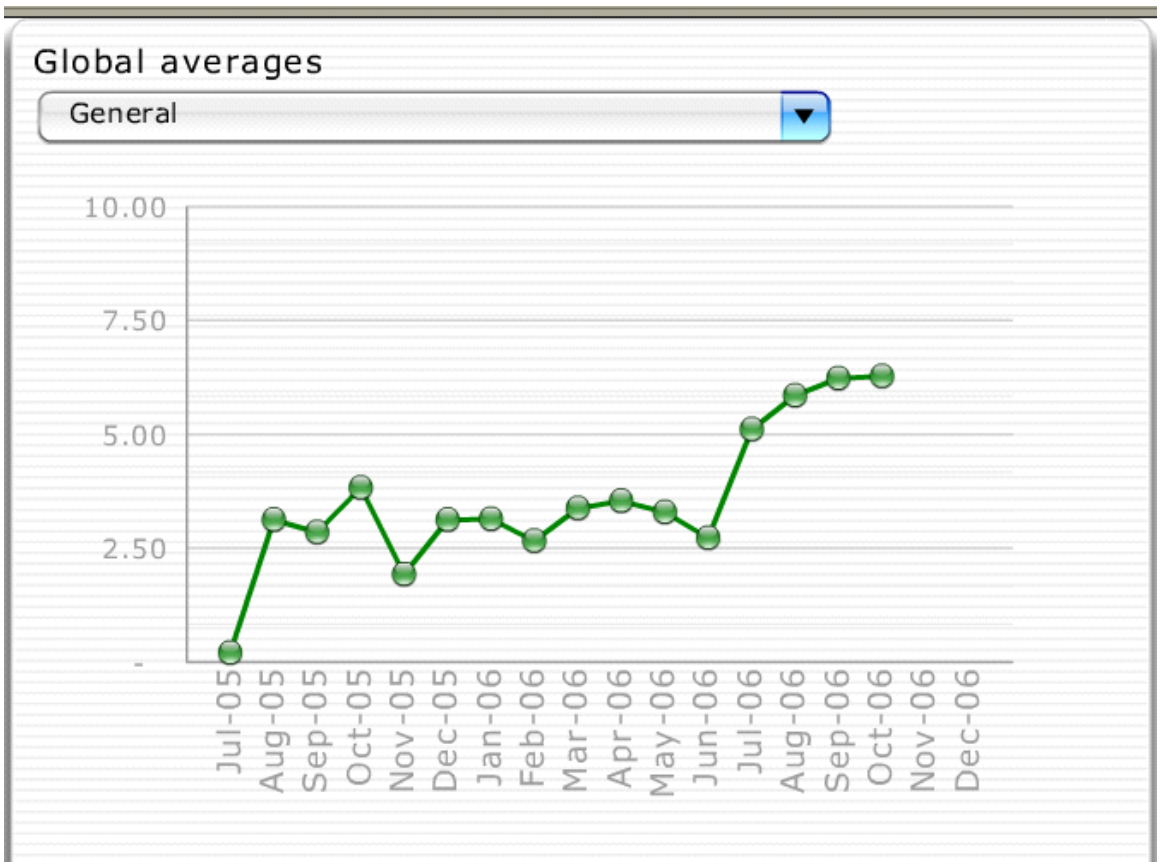
35. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 27.5% increase in perceived performance since the start of the intervention.

GENERAL

Global overview

36. The average rating for running an efficient building project is recorded in figure 12 below. The September and October figures have shown a slight increase from 62.4% to 62.8% respectively. The October rating of 62.8% ensures a "very good" rating. The October rating represents the highest rating to date for this indicator.

Figure 12: General – global overview



37. When compared against the 31.2% recorded in August 2005 the October 2006 score represents a 31.6% increase in the performance perceptions of the mentors over the duration of the project.

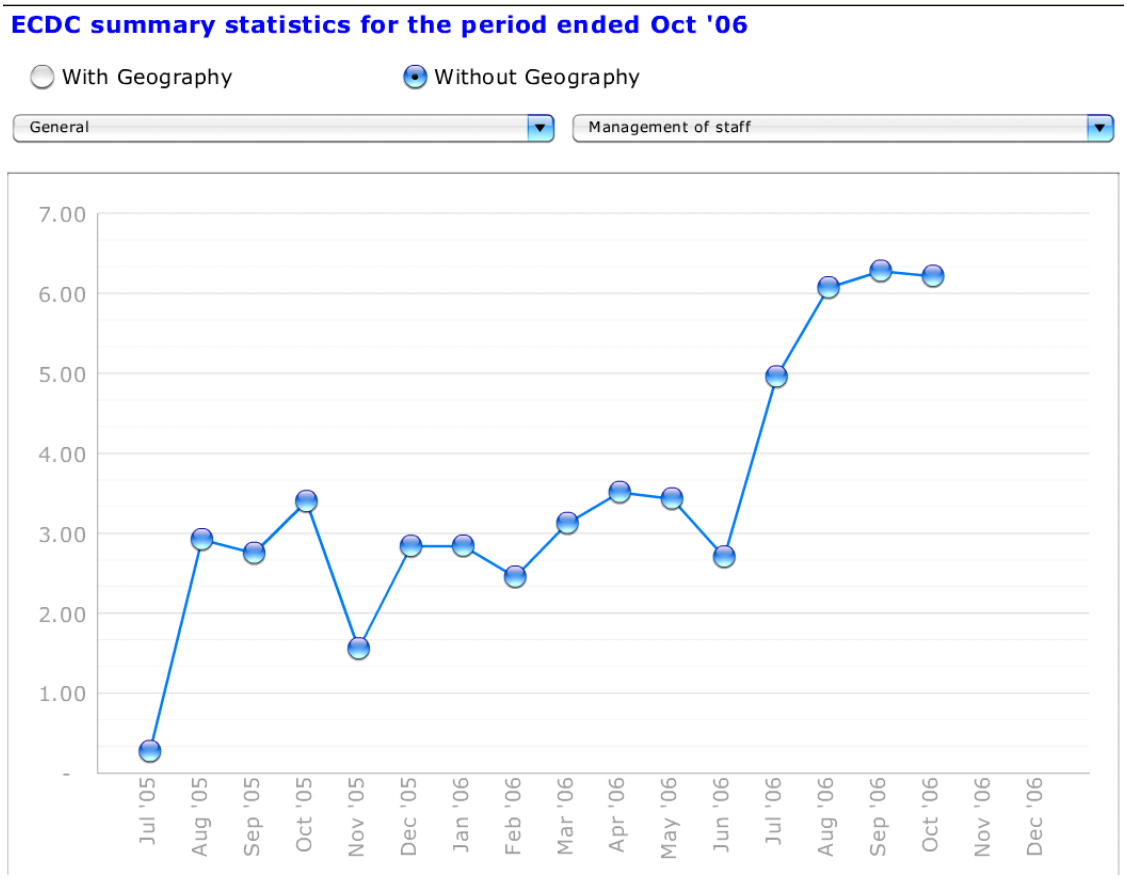
Sub-components of general aspects

38. The indicator comprised of the following sub-sets of indicators. They were: management of staff; safety, labour relations and other legislation; training providers; management team; building practice technology; civil practice basic technology; and professional consultants and others. Each of which will be discussed individually in the next sections.

Management of staff

39. This indicator started at a level of 29.2% in August 2005 with a rating of "fair." It achieved a 62.8.8% high in September 2006 with a rating of "very good." The largest increase took place in July 2006 from a base of 27% in July 2006, which is slightly lower than the level recorded in August 2006.

Figure 13: management of staff

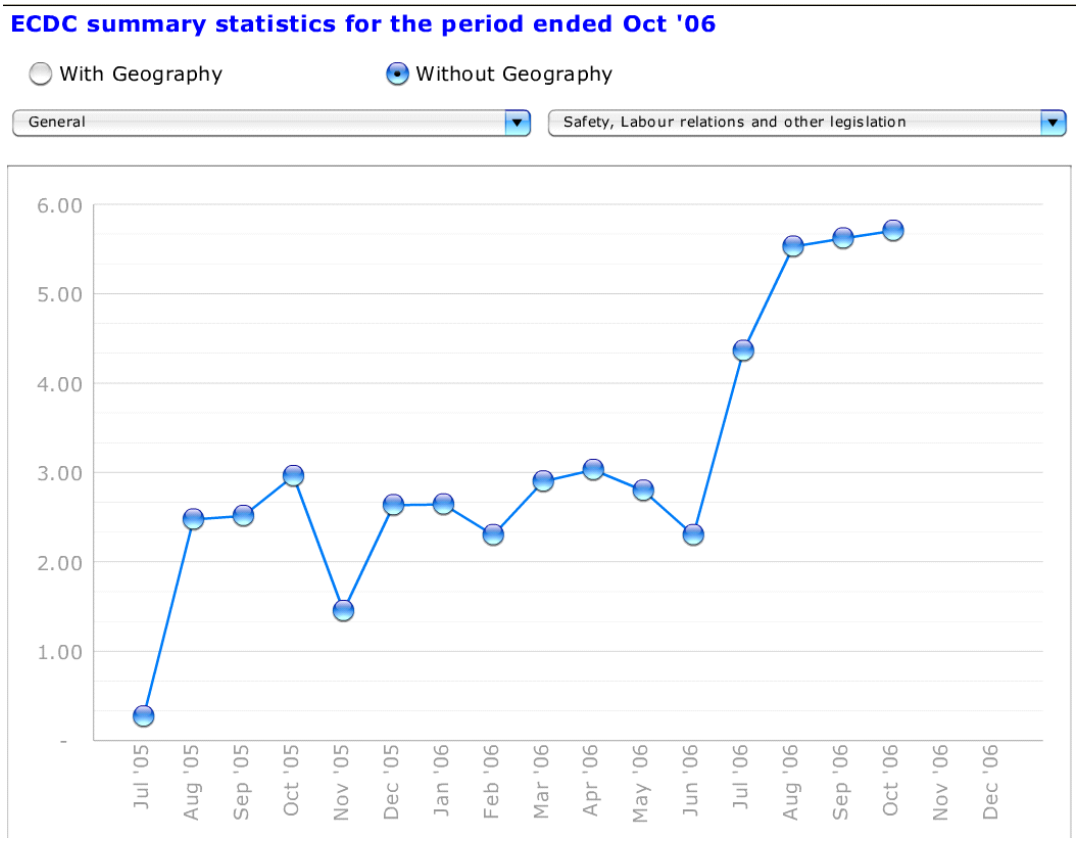


40. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 32.9% increase in perceived performance since the start of the intervention.

Safety, labour relations and other legislation

41. According to figure 14 below, this indicator started at a level of 24.8% in August 2005 with a rating of "fair." It achieved a 57.1% high in October 2006 with a rating of "average to good." The largest increase took place in July 2006 from a base of 23% in July 2006, which is slightly lower than the level recorded in August 2006.

Figure 14: safety, labour relations, and other legislation

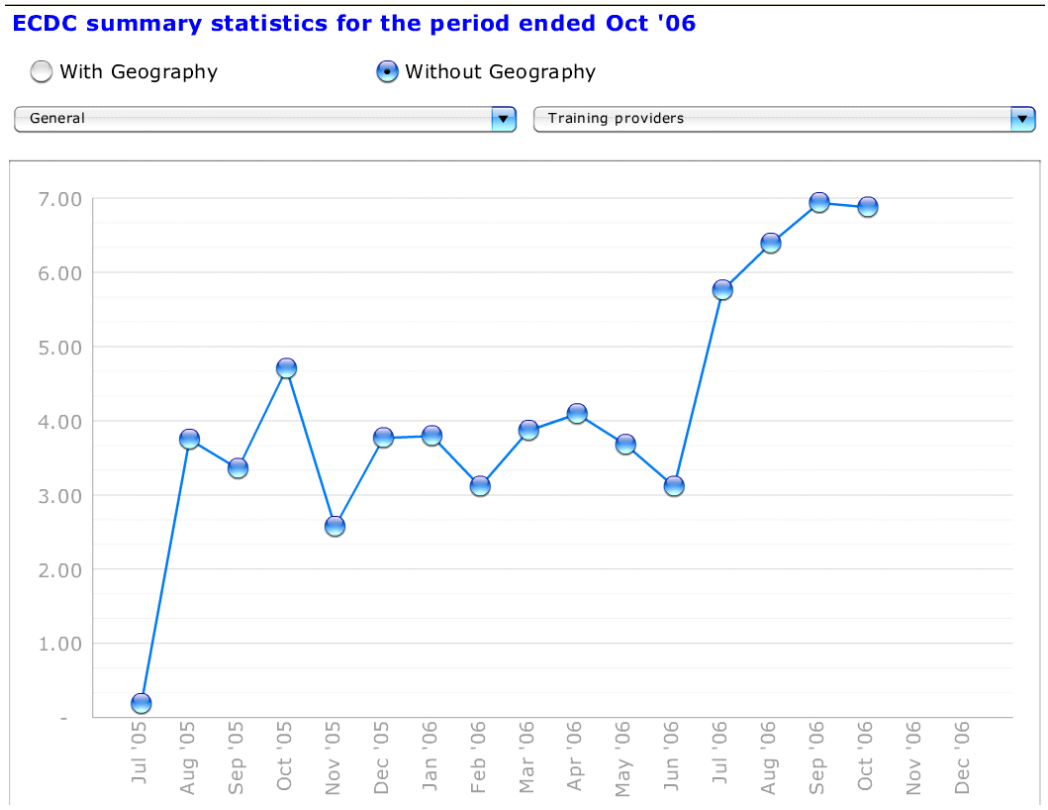


42. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 32.3% increase in perceived performance since the start of the intervention.

Training providers

43. Figure 15 below reveals that this indicator started at a level of 31.2% in August 2005 with a rating of "fair." It achieved a 69.4% high in September 2006 with a rating of "very good." The largest increase took place in July 2006 from a base of 31.2% in July 2006, which is substantially lower than the level recorded in August 2006.

Figure 15: training providers

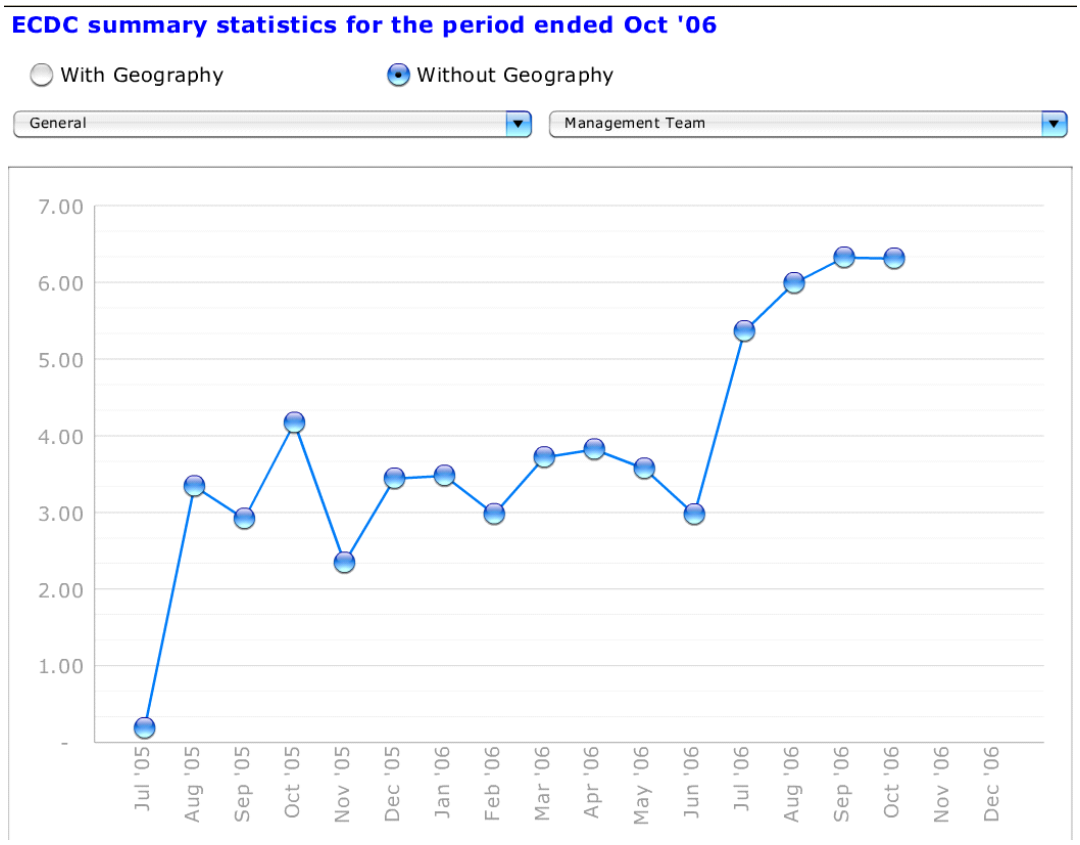


44. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 31.3% increase in perceived performance since the start of the intervention.

Management team

45. Figure 16 shows that this indicator started at a level of 334.4% in August 2005 with a rating of "fair." It achieved a 63.2% high in September 2006 with a rating of "very good." The largest increase took place in July 2006 from a base of 29.8% in July 2006, which is lower than the level recorded in August 2006.

Figure 16: management team

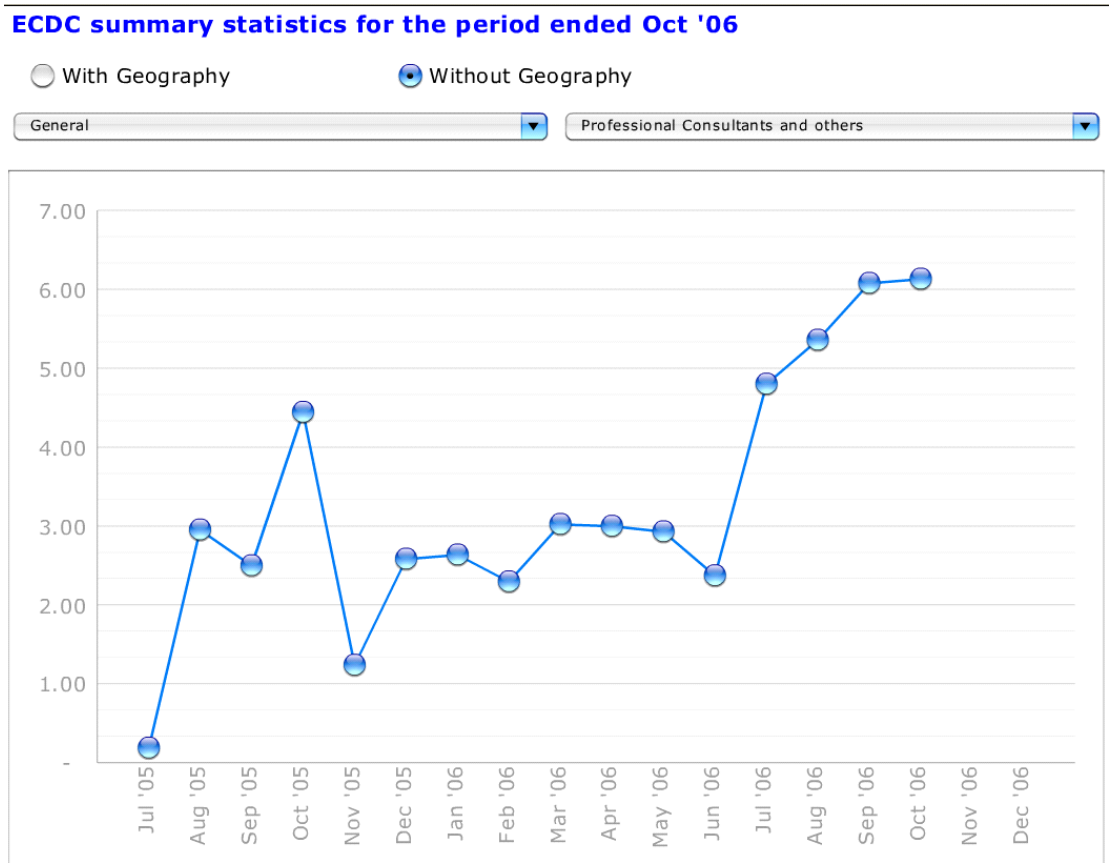


46. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 29.7% increase in perceived performance since the start of the intervention.

Professional consultants and others

47. Figure 17 shows that this indicator started at a level of 29.5% in August 2005 with a rating of "fair." It achieved a 61.3% high in October 2006 with a rating of "very good." The largest increase took place in July 2006 from a base of 22.7% in July 2006, which is slightly lower than the level recorded in August 2006.

Figure 17: professional consultants and others

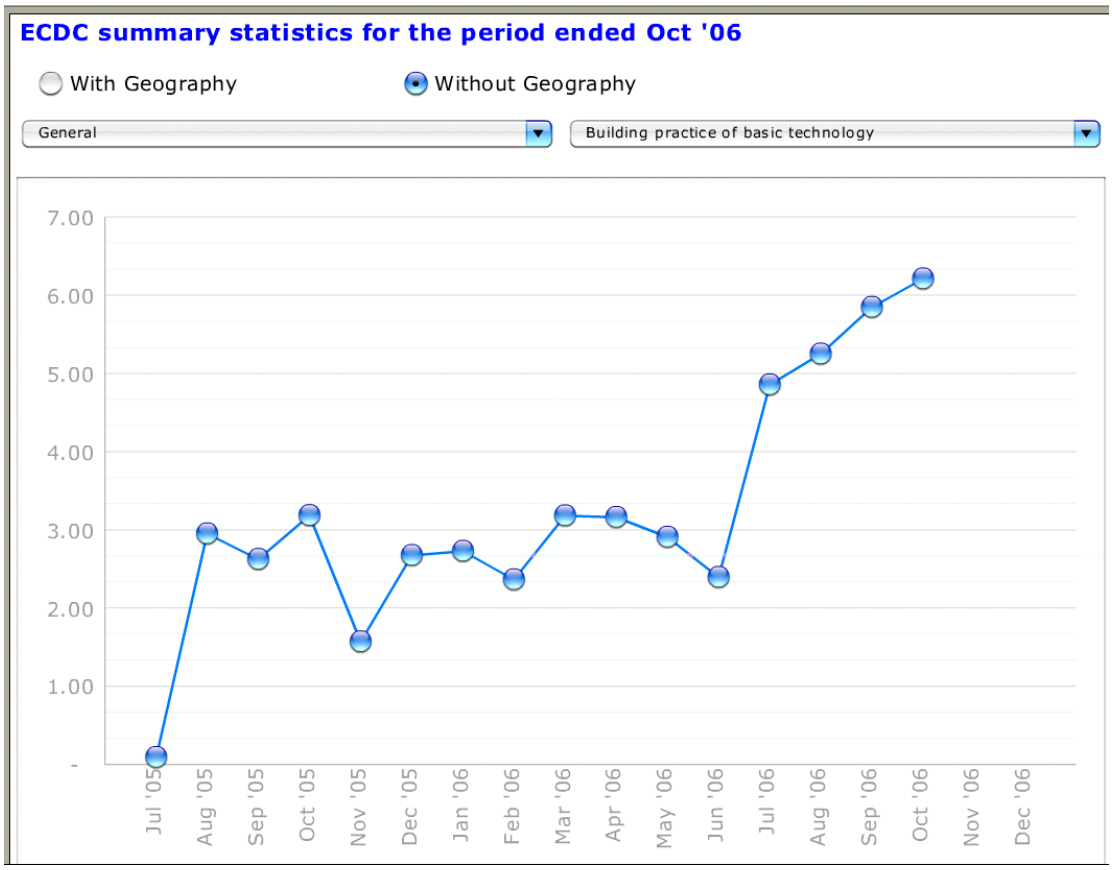


48. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 31.8% increase in perceived performance since the start of the intervention.

Building practice technology

49. Figure 18 reveals that this indicator started at a level of 29.5% in August 2005 with a rating of "fair." It achieved a 62.1% high in October 2006 with a rating of "very good." The largest increase took place in July 2006 from a base of 24% in July 2006, which is significantly lower than the level recorded in August 2006.

Figure 18: building practice technology

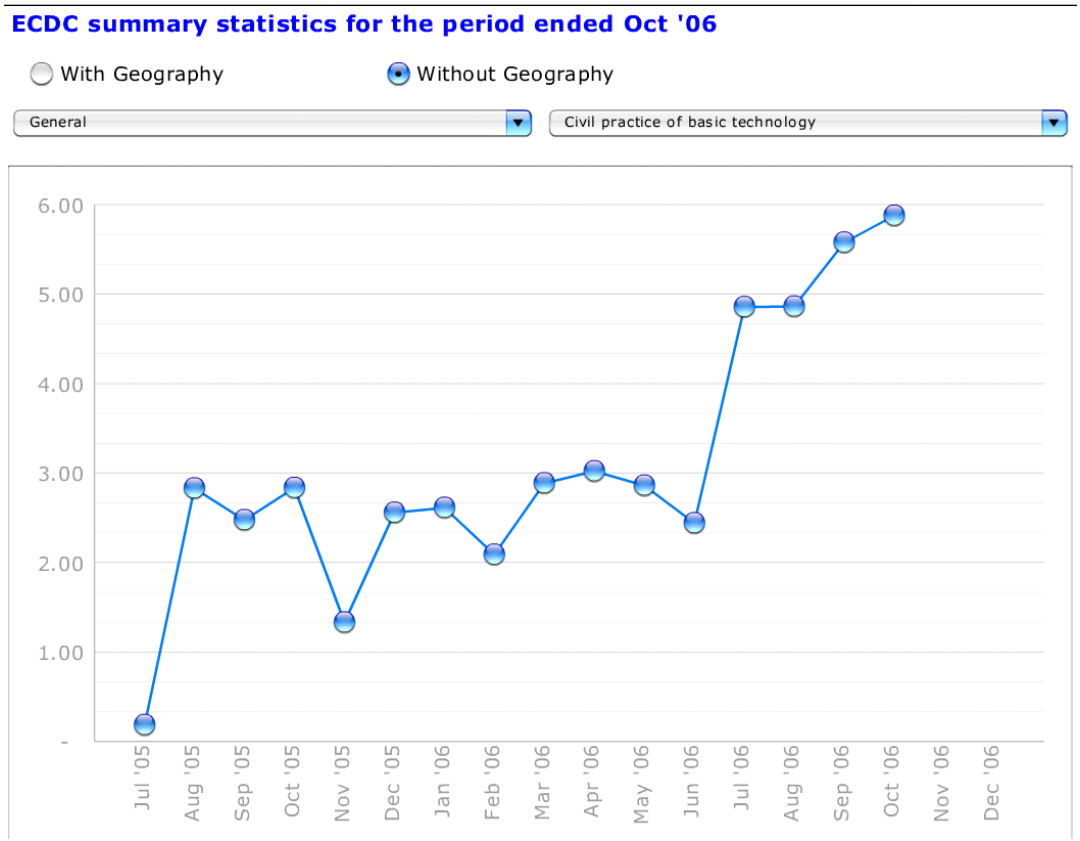


50. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 32.6% increase in perceived performance since the start of the intervention.

Civil practice basic technology

51. Figure 19 shows that this indicator started at a level of 28.3% in August 2005 with a rating of "fair." It achieved a 58.8% high in October 2006 with a rating of "average to good." The largest increase took place in July 2006 from a base of 24.4% in July 2006, which is lower than the level recorded in August 2006.

Figure 19: civil practice basic technology



52. The July increase resulted in a consistent increase over a period of four months ultimately stabilising at the current highest levels. This would appear to indicate that it took almost 11 months before consistent and significant gains were achieved which has resulted in a 30.5% increase in perceived performance since the start of the intervention.

CONCLUSIONS AND RECOMMENDATIONS

53. In the broadest sense, the data compiled in this report indicate a substantial increase in the perceptions level pertaining to the performance of emerging contractors. All indicators displayed significant gains, which would appear to indicate that the intervention has made a positive contribution towards the development of emerging contractors.

54. It should however be born in mind that these indicators merely reflect the perceptions of the mentors, and, as such, lack independent verification. It is thus recommended that future interventions should retain the baseline perception data as recorded in this and the monthly, as well as to include impact indicators that can be quantified and independently verified.

55. One of the major lessons that can be drawn from this study is that it takes up to 11 months of intense monitoring before any sustained gains and increases in performance can be made. The general trend that emerged was one that indicated that contractor performance increases in cycles of about three months (August-October 2005, February to April 2006), which are generally followed by two to three months of declined performance.

56. The declines are generally followed by increased levels of performance, which seem to increase to higher levels after about 3 months. This could be an indication of the time it takes for contactors to absorb or internalise new knowledge before it impacts on their performance. In addition, it would appear that sustained exponential performance usually takes place after a period of about 11 months. This period of sustained growth is characterised by high levels of performance which seems to level-out after about three to four months.

57. It is significant that on average none of the indicators scored and “excellent” rating, although the data base indicates that a number of individual regions have achieved this. Based on thus, it would appear probable that levels of “excellent performance” could be achieved after about 24 months.