A Model for a Contractor Support Agency

Paul Larcher, MA, CEng, MICE

A Doctoral thesis submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy of Loughborough University

Acknowledgements

The model for a Contractor Support Agency proposed in this thesis was reviewed by a number of experts from around the world. I am very grateful for their time and input to this research through their review of the working paper and return of a completed questionnaire.

I am very grateful to my supervisor, Derek Miles for his advice and guidance during my research. I am also grateful to my colleagues at WEDC for their advice and support, particularly Margaret Ince, Darren Saywell, Tricia Jackson and Sohail Khan.

Drs J F and J M Larcher, my parents, who despite initially not warning me about the task I had embarked upon, encouraged, closely monitored progress and provided comments on initial drafts.

Finally, Dr Rob Argent who probably provided the most useful advice of all over the last four years.

"There are only two types of PhD thesis, Perfect and Finished"

Abstract

This thesis is concerned with the development of small scale contractors in developing countries. The global trend towards privatisation has led to an increasing interest in the use of the private sector for the construction of buildings and infrastructure. In developing countries large projects are typically undertaken by large foreign contractors however, there are few small scale contractors to undertake small construction projects or maintenance work.

The first stage of the study investigated three issues pertinent to the small scale contracting sector:

1. The problems experienced by small scale contractors and the inter-relationship of these problems
2. Contractor development projects to identify their support mechanisms and assess their level of success
3. A review of the construction industry framework in developed and developing countries to highlight the problems caused by their different structures.

The second stage of the study proposes the use of a Contractor Support Agency as the most appropriate support mechanism for the development of the indigenous contracting sector and outlines the roles and activities that should be undertaken by the agency. The Contractor Support Agency model is reviewed by experts in the sector and the analysis of the results presented in the thesis. The thesis concludes that the proposed model is broadly correct and discusses small modifications that can be made to enhance its suitability in a range of different situations.

Keywords

Small_Scale_Contractors, Developing_Countries, Private_Sector, Construction_Industry, Institutional_Development, Contractor_Development

Table of Contents

Certificate of Originality ii

Acknowledgements iii

Abstract iv

Table of Contents v

Acronyms xi

Glossary xi

1. Synopsis and Hypothesis

2. Small Scale Contractors, the Construction Industry and Developing Countries

Introduction 8
Importance of the construction industry 8
Construction - a unique industry 8
Structure of the industry 9
Client 11
Consultants 11
Contract Procedures 11
Support Services 11
Materials 12
Equipment 12
Financial resources 12
Construction in a developing country context 13
Small Construction Enterprises and their problems 14
Contractor development projects 16
Training Programme 16
Equipment Provision 17
Contracts and Payments 17
Contractor Selection 18
Support for the industry 18
Finance and the small construction enterprise 19
Financial Assistance 21
Mobilisation Payments 21
Loan Guarentee Schemes 21

Establishment of Construction banks 21
Conclusion 22

3. Literature Review

Introduction 25
Labour based construction: an appropriate construction technique 26
Privatisation 29
The small scale contracting sector 30
Problems facing Small Scale Construction Enterprises 32
Contractor development projects 34
Contractor development training courses 37
Construction industry framework in developing countries 38
Technical aspects 39
Small enterprise development 40
Institutional development 45
Structures and management of organisations 52
Towards solutions to construction industry development 53
Conclusion 57

4. Research Methodology

Introduction 59
Research strategy 59
Reliability and validity 61
Case studies 62
Surveys 63
Research programme 64
Problems facing contractors 66
Contractor development projects 68
Construction industry framework 69
Evaluation of the CSA model 69

5. Problems, Difficulties and Constraints

Introduction 73
Previous investigations 73
Training - helping to alleviate problems 75
Ranking of problems 77
Training - assisting to remove financial and contractual constraints 80
The interrelationship of contractors' problems 82
Conclusions 87

6. A Review of Contractor Development Programmes

Introduction 92

Contractor development programmes 93
Traditional contracts 97
Sub-contracts 97
Management contracts 98
Government run 98
Autonomous agency 98
Development team 99
Review of the delivery mechanisms 99
Case Studies 100
Ghana 100
Lesotho 102
South Africa 103
Tanzania 105
Uganda 106
Zambia 107
Proposed guidelines for project design 108
Training Programme 108
Equipment Provision 110
Contracts and Payments 112
Contractor Selection 113
Conclusion 115

7. The Institutional Framework of the Construction Sector

Introduction 120
The need for a framework to govern private contracting 120
The construction institutional framework in developed countries 123
Trade organisations 125
Contractors' / Consultants' Associations 125
Learned Societies 125
Training 125
Government 126
The construction industry in developing countries 127
Institutional development of the support framework 129
Khuphuka 130
Tanzania Civil Engineering Contractors Association (TACECA) 131
ASIST (Advisory Support, Information Services and Training) 133
MART (Management of Appropriate Road Technology) 133
Review of the case studies 134
Conclusion 135

8. A Model for a Contractor Support Agency

Introduction 139
A role for a Contractor Support Agency 143
Investigations and initiation of the organisation 145
Investigations 145
Initiation 150
CSA activities 151
Registration and Classification 152
Contract Initiatives 157
Financial Initiatives 169
Organisational structure 176
Leadership and Staffing 176
Core Staff 176
Membership 176
Financing issues 177
Other issues 179
Government 179
Donor Agencies 180
Criteria for success 181
Conclusion 184
Towards a Contractors' Association 185

9. Review of the CSA Model

Introduction 188
Results of the questionnaires 189
Perception of small scale contractors problems 189
Assistance to small scale contractors 194
Timeframe for a CSA 198
Applicability of a contractor support agency 200
CSA operational issues 203
Predicted success of a CSA 206
Interviews 207
David Hammond 207
Robert Petts 210
David Stiedl 214
Discussion of results and conclusions 218
Operational issues 218
Timeframe of support 224
Applicability to other sectors 225
Regional applicability 225

10. Conclusions

Introduction 228

Support for the hypothesis 228

Limitations of the study 229

Recommendations from the study 231

Further Work 233

Wider scope of support initiatives 234

Review of existing Contractors Associations and Contractor Support Agencies 234

Discussion with contractors 234

Funding issues 235

11. References and Bibliography **236**

Appendices

Appendix 1	List of Experts Receiving Working Paper and Questionnaire	258
Appendix 2	Problems and Constraints Affecting Small Scale Construction Enterprises	261
Appendix 3	Contractor Support Agency Questionnaire	268
Appendix 4	Institutional Development of Government Agencies	273

Acronyms

AGETIP	Agence d'execution des travaux d'interet public contre le sous emploi
ASIST	Advisory, Support, Information Services and Training
CA	Contractors Association
CSA	Contractor Support Agency
CSIR	Council for Scientific and Industrial Research (RSA)
DFID	Department for International Development
GTZ	Deutsche Gesellschaft fur Technische Zusammenarbeit
IYCB	Improve Your Construction Business
LB	Labour-Based
MART	Management of Appropriate Road Technology
NGO	Non-governmental Organization
ODA	Overseas Development Administration
RMI	Road Maintenance Initiative
ROMAR	Road Maintenance and Regravelling
SC	Small Contractor
SS	Small Scale
SSC	Small Scale Contractor(s)
SSE	Small Scale Enterprise

Glossary

Contractors' Association

The role of a Contractors' Association (CA) should be to provide long term support to the whole construction contracting industry. A CA would be run by its membership for the benefit of its members in particular and contractors in general. It would obtain all its required resources from its members and represent the membership's majority interest, by promotion to government and other relevant bodies. CA membership would normally be open to any contractor who abides by the rules of the Association and pays their membership subscriptions, which may vary according to the size of the company.

Contractor Support Agency

An organisation that provides direct and indirect support to the indigenous contracting sector, particularly small scale contractors. By virtue of its clients and nature of work it is unlikely to be self financing and would therefore have a time limited period of operation.

Expert

For the purposes of this thesis an expert has been defined as a person who has undertaken research and/or consultancy work within the construction sector in developing countries; OR a person who is currently working in the construction industry, either public or private sector, in a developing country

Mahzungu

The Swahili word meaning 'white man'

Chapter 1.

Synopsis and Hypothesis

The construction of houses, schools, industry, hospitals and all the infrastructure associated with these buildings is essential for the well being and advancement of any society. Depending on the size of the project this construction can be carried out by one man businesses, medium sized enterprises or large, multi-national construction companies. Regardless of their size these organisations are collectively referred to as contractors. Unlike in developed countries, private sector contracting is generally not well established in low income countries. However, with the current worldwide trends towards privatisation there is increasing interest in utilising contractors in preference to direct labour organisation to undertake construction projects.

This thesis is concerned with small scale contractors in developing countries. The seed for this research arose from work that the author was undertaking to investigate the potential use of private contractors for road maintenance in developing countries. He became aware that small contractors faced a wide range of business problems both within and outside their own control, and he therefore decided to investigate methods to assist them to overcome these obstacles. Although any business will face problems operating in their market sector, many of the problems faced by small contractors were specific to their market sector and the size of their organisation. Small scale contractors face a large number of problems which need to be addressed in order to become competitive within their market sector.

There is a widely held view that the health of the construction industry is an indicator of the current state of economic growth within a country. Many authors (eg. Edmonds and Miles 1984, Hillebrandt 1985, Dept. Public Works (RSA) 1997, World Bank 1984) have indicated that small scale construction and the contractors involved in these projects are the key element of the construction industry, as they hold the greatest potential for increasing construction capacity and promoting economic growth.

Small Scale Contractors' Contribution to Economic Growth

1. They can be powerful generators of income and employment opportunities since they generally use less capital investment per unit of output than larger enterprises. They are also very efficient at distributing wealth to low income sectors of the population

2. They can be more competitive than larger firms on certain types of small, disparate and geographically dispersed projects because they generally have relatively lower overheads and mobilisation costs

3. The relatively low entry barriers in terms of skills (technical and managerial) and capital requirements make small scale contracting an important entry point into the construction industry

4. They can provide a platform for future medium and large scale firms to develop in the construction industry.

Dept. Public Works Green Paper, Republic of South Africa 1997

Over the last couple of decades there have been many initiatives and schemes in developing countries, to increase capacity within the construction industry, particularly for the smaller enterprises. For example, a small contractor training programme in Ghana and private sector capacity building for road rehabilitation in the Kilimanjaro region of Tanzania (ILO 1997). Although these, and other, projects may have been individually successful in developing a small number of contractors, the view may be held that in general the construction industry and these initiatives in particular have been a failure. According to this view small contractors are always destined to be small and/or unable to survive in a competitive environment. However, this opinion ignores the influence of the institutional framework under which small contractors are required to operate. The most important element of the construction industry with respect to economic growth and development, are small scale contractors, yet they are restricted in their ability to develop due to the institutional framework governing the construction market.

The 'super-hypothesis' to which this thesis contributes is:

Effective and sustainable small scale construction enterprises can be developed through appropriate institutional support

The contracting framework that has evolved in developed countries over the last few centuries, according to the needs of the stakeholders, has been transferred to developing countries (Edmonds and Miles 1984). Unfortunately the situation in developing countries is different to that of more industrialised nations in terms of practices, management framework, skills and available technology, information and support. As it will be virtually impossible within the scope of this thesis to change these construction and contracting procedures in developing countries, it will be necessary to investigate the range of support that can be provided for contractors in developing countries to assist them to adapt and cope with the institutional framework.

Previous projects have contributed to supporting the super-hypothesis in that they have developed individual contracting firms through "high quality training material and delivery systems" (Miles 1997) allowing them to be more successful in the market place. These projects are discussed in more detail in Chapter 6 but their underlying weakness is the limited number of contractors that can be assisted under their schemes. If construction capacity (and economic growth) is to increase it will be necessary to support a large proportion of small scale contractors to operate under the contracting system.

The key question in scoping this research is therefore how to address the issue of how big a target group of small contractors should be selected for support and how should this support be provided. Attempts to help all small contractors may result in support being spread so thin that it is useless. However, targeting a very small number would neglect the majority and not significantly increase construction capacity.

The hypothesis for this research is that:

There is a mechanism for supporting the majority of organisations in the small scale construction sector which will result in an increase in construction capacity, which through small adaptations will be transferable to different developing countries.

In order to be considered successful an increase in construction capacity should be achievable without an unrealistically large investment and be of a limited duration, without the necessity for continual financial investment. It should also not impose any significant additional risks to a client above those normally associated with promotion of a construction project.

The work for this thesis has been carried out in two stages. In the first stage, the thesis investigates three issues associated with the super hypothesis. In Chapter 5 the problems experienced by small scale contractors are discussed and the inter-relationships of the problems are highlighted. The following chapter reviews existing contractor development projects, identifying previous support mechanisms and their level of success. Chapter 7 reviews the construction industry framework within developed countries and then highlights the differences between this and the construction industry framework in low income countries and the resulting problems.

This work leads to the second stage of the investigation which addresses the core hypothesis for this research, proposing that the most appropriate support mechanism will be through the initiation and operation of a Contractor Support Agency (CSA). Chapter 8 describes a model for a CSA. The investigations required to initiate the organisation and the roles and activities that could be undertaken are discussed. An overview of staffing and financing issues is also given and the chapter concludes with two sections dealing with assessing the success of the organisation and how the scheme could come to a conclusion.

The hypothesis has been tested by presenting a working paper of the CSA model to 'experts' in this field for their feedback, comments and criticisms. These opinions were obtain through the use of a questionnaire and semi structured interviews. Analysis of the returned questionnaires and interviews has shown the hypothesis to be correct.

The thesis concludes with a chapter discussing the modifications that may be required to the CSA model as a result of analysis of the experts' responses. These modifications would be required in order for the CSA to satisfy the hypothesis and be workable and applicable in a range of situations. Further research as a result of this thesis, including the issues that should be addressed in implementing the proposals, is also discussed.

This thesis advances knowledge by compiling and synthesising data on the construction industry in developing countries and determining the suitability, operation and role that a Contractor Support Agency could play in the development of the indigenous small scale contracting sector of these countries.

It is anticipated that this thesis will be applicable and of value to those involved in developing, or working within, the construction industry framework that exists in developing countries, including aid agencies, foreign governments and consultants. Aspects of this thesis will also be relevant to researchers and practitioners involved in more general small enterprise development.

Chapter 2.

Small scale contractors, the construction industry and developing countries

Introduction

This chapter provides a background to this thesis by discussing characteristics of the construction industry and the structure of the industry in developing countries. It will explain its special features and highlight the requirements for the industry to function. The Synopsis to this study identified the importance of small scale contractors for economic growth and development. This chapter provides an overview of the problems facing small scale construction enterprises and the institutional support available to a developed country's construction industry. Finally the financial problems facing small construction enterprises will be discussed.

Importance of the construction industry

An effective construction industry is essential for the development of a country's economy, contributing up to 10% of GDP (World Bank 1984). It is the prerequisite for any social development, as a construction industry is needed to build schools, hospitals and government buildings. It is also required for the development of power stations, irrigation projects and water supply treatment works and transport systems essential for the development of other manufacturing industry. The construction industry is also important to a country as it can often be used as a controller of its economy. Firstly, because the public sector commonly accounts for about half of the industry's turnover the government can exercise direct control over the industry. This control, coupled with the size of the industry, makes it susceptible to be used by the government as a tool to control the economy. Secondly, the products and materials of the industry can have a significant effect on a country's balance of payments. Imports and exports can include; plant, raw materials, building products, labour and expertise.

Construction - a unique industry

An industry may be characterised as a process which takes inputs and converts them into outputs. For the construction industry this involves taking raw materials such as cement, bricks, aggregate, timber and earth and converting them into, for example, houses, schools, waterworks and power stations (ILO 1983). However, this is where the similarity with most other industries ends. Unlike the manufacturing industry, each output

from the construction industry is unique (except repetitive housing). Every project is different with components manufactured in many locations and all assembled in one place to make an immobile object (Hillebrandt 1985). This limits the scope for development through improving construction procedures and repetitive steps. The nature of the product prevents the outputs for different projects being made in the same place requiring contractors and their employees to move their work location each time a new project starts (World Bank 1984). As each product is different a new price is set for each project, leading to competitive tendering between contractors to produce the construction output. A totally different situation exists in the manufacturing sector where producers create the same products and sell them for a set price (Edmonds and Miles 1984). The construction industry is also concerned with the creation of investment goods. The industry is not required for itself but for the products it can provide, for example, a factory for production of goods for market, or social investment of schools and hospitals. Economic development may also be achieved through the investment in infrastructure such as roads and ports. Construction projects also represent a significant investment to the purchaser: the cost of a factory compared to a company's turnover or a house to a person's income.

Structure of the industry

There is a requirement for a number of organisations, services and institutional linkages for the industry to operate efficiently. There is the need for contractors to undertake the construction work. These contractors should have the experience and resources to undertake the size of projects required. This will include having suitably trained and experienced staff which includes skilled and unskilled labourers, supervisors and engineers. The contractor will also be required to own or have access to equipment and material resources for the project and the working capital to finance this work.

Within developing countries contractors or organisations capable of undertaking construction projects may be classified into 5 groups (World Bank 1984).

1. Small builders and 'jobbers'
2. Communal and self help groups
3. State owned organisations

4. Private contracting companies
5. Foreign contractors

In the majority of low income countries group 4 is dominated by a few large contractors. These contractors have sufficient resources of their own to undertake large projects and also have appropriate financial collateral and experience to obtain further investment and material loans to extend their working potential. The remaining contractors in this group are generally relatively very small scale contractors. They typically have limited resources and insufficient collateral or experience to obtain additional finance for long term development or working capital.

Building work can range from construction of a small house to a tall office block and civil works can range from constructing culvert headwalls to large dams and water supply schemes. Small contractors are restricted to undertaking small building work and occasional minor civil engineering work. Their businesses are often small enough to be 'invisible' to national construction statistics and legal regulation. This study is primarily concerned with groups 1 and 2 from the World Bank classification and the subset of small companies in group 4 discussed above.

In its 1994 World Development Report, the World Bank also noted that technical change is making it possible for smaller scale operations to be economical - and implemented by private enterprises (World Bank 1994). Over the past decade there has been a growing awareness of the importance of social and economic roles of small business on the basis of three favourable characteristics in addition to those listed in the synopsis:

- They provide productive outlets for the talents and energies of enterprising, independent people, many of whom would not fulfil their potential in large organisations.
- Small firms often flourish by serving limited markets that are not attractive to large companies.
- They supply dynamism and contribute to competition within the economy, enhance community stability and generally do less harm to the environment than large organisations.

There are, however, a number of other factors which are required for the efficient functioning of the industry and these can be considered under the following headings:

- Client

There must be a demand and hence a requirement for construction, i.e. a client. In the majority of developing countries the client for major projects will almost invariably be the government. Small building projects however, may be commissioned by private investors.

- Consultants

For all but the simplest building project, where a contractor offers a standard design based on experience, a project will require an engineer (and possibly an architect) to undertake the design of the work to be constructed. The consulting engineer will be required through the whole implementation of the project for tasks such as initial feasibility studies for the client, the design of the project, the supervision of the construction and response to problems and queries raised by the contractor. In many low income countries the consulting profession is virtually non existent. The majority of design work for all, but the smallest projects, is carried out by the client (government) or foreign consultants.

- Contract Procedures

It may be possible to undertake small simple building projects by a short written agreement or letter of intent; but this system would be unacceptable for more complex projects where a legal agreement is a necessity. The legal agreement will set out the obligations of each party, the timeframe and payment procedures for the work, the procedures for making changes to the project and methods for dispute resolution which would be suitable for the type of work and procedures adopted by small scale contractors (ICE 1996). The use of a contract presupposes that a fair legal system exists and is operative in the country. In addition to the contract documents there must also be a fair and equitable explicit published procedure for tendering and awarding work and then managing the subsequent construction.

- Support Services

In order to facilitate the efficient operation of the construction industry, a range of support organisations need to be available to provide advice and information to the client, engineer or contractor. These organisations may provide technical or legal information,

training courses for employees or undertake research and development to improve construction techniques and procedures or material properties. Whilst these organisations are not essential they are able to improve the efficient operation of the industry. These organisations include learned societies which promote research in the industry such as the Institution of Civil Engineers or organisations such as CIRIA (Construction Industry Research and Information Association). Support can also be provided by trade organisations, representing material manufacturers and/or suppliers, groups of consulting engineers or contractors. These organisations can be based either nationally or internationally.

- Materials

Suitable materials for projects must be widely available for purchase. This will require building materials to be freely imported or manufactured in the country in question. There must also be a distribution system to allow access to materials in all areas of the country where they are required. The supply of materials must also be sufficient to prevent monopolies and hence high prices due to the shortage of supply.

- Equipment

While most small scale contractors will not own large quantities of equipment they must have access to equipment suppliers who can also offer spares and maintenance services. When contractors need additional or specialist equipment for work that they are undertaking, a plant hire organisation would allow access to this equipment obviating the need for contractors to purchase equipment which they are unable to utilise fully. It is likely that more than one hire company or organisation would be required to create a competitive environment, unless there is independent control of the plant hire organisation.

- Financial resources

Of prime importance for the development of a country is the availability of financial resources to pay for the construction demand. While this requirement is necessary for the general development of a country rather than directly part of the requirements for the effective operation of the construction industry, there are other financial services which are directly required for the industry to function efficiently. Contractors must have access to financial organisations that can provide long term loans and working capital at realistic

rates. This implies that there should be a national banking system operating in the country capable of providing credit facilities. A banking system would also facilitate monthly payments to contractors for work undertaken.

Construction in a developing country context

In developing countries the majority of all but minor building works used to be undertaken by either government controlled direct labour organisations or contracted out to foreign contractors. This situation did not require the existence of the various support services discussed above. The state owned organisation was often able to procure, from abroad where necessary, the materials and equipment required for project work. Government departments were also available to provide finance for these projects. As these organisations are difficult to manage and since they are often large and cumbersome, they are inclined to be slow to react to market demand and are inefficient in their use of financial, material and personnel resources. Such organisations are also susceptible to political pressures and bureaucratic mismanagement. There has therefore been a trend over the last 10 to 15 years towards a private sector construction industry on the grounds that these small private enterprises would be less likely to be affected by the inefficiency problems of the large direct labour organisations. Unfortunately the growth of the private small scale contracting sector in low income countries has not been as positive as the growth of small businesses in other commercial sectors. The construction industry continues to be dominated by a few large contractors who work alongside a plethora of small construction businesses. This situation has been referred to as the "missing middle" (Young 1993) of the construction sector where small businesses appear unable to develop their business and expand their market share to become medium, and eventually large sized contractors able to undertake large infrastructure projects. This situation is attributed to the unique nature of the construction industry discussed above and the resulting lack of support which is offered to entrepreneurs who are attempting to start a contracting business.

Small Construction Enterprises and their problems

During the late 1980's, within its Construction Management Programme, the ILO undertook a study of small scale contractors in a number of countries with the aim of finding:

1. Their numbers, experience and capital
2. The problems facing their development

These studies revealed a large pool of entrepreneurs who undertook construction projects when work was available. They typically had other sources of income as there was insufficient construction contracts available to allow a full time business. All the small scale contractors had experience in construction work and had the technical skills required to run a business. However, the study found that they generally lacked the construction management and supervision skills which were necessary for an efficient operation.

The study also revealed that small scale contractors experienced a multitude of problems which, despite small regional variations, were similar throughout the world. Although some of these problems are compounded by a lack of construction management experience, for small scale contractors, this was not the prime factor. Problems occur because small private enterprises are attempting to operate under an institutional system which is not accustomed to, or designed for, their presence. These problems may be summarised under five broad categories and are shown below along with some of the more common problems.

Table 2.1

Summary of problems facing contractors

Contractual

- Contract documents are over complex and biased against small scale contractors.
- Contractors are inexperienced in producing tenders.
- Tender systems award contracts to the lowest bid regardless of achievability.
- The lowest bidder is maybe incompetent and unable to carry out the work at the bid price.
- Contract documents and specifications make labour based techniques difficult to employ and require large amount of equipment capital.

Financial

- There is a difficulty in obtaining loans and bonds from the banks who view contracting as a high risk business.
- Clients are very slow with payments and require unrealistically high bonds and guarantees.

Technical

- Specifications are often vague or ambiguous, compounded by the lack of site supervision and availability of the Engineer.

Materials

- The availability of materials is sporadic and their quality and cost can vary significantly.

Business

- There is a lack of work continuity and availability.

As a result of these studies the ILO undertook various direct technical cooperation projects and produced a number of training manuals aimed at the small scale contractor, in the hope of alleviating some of these problems. A recent example is the *Improve Your Construction Business (IYCB)* series (Andersson C-A et al 1994, 1996a, 1996b) which aims to improve a contractor's project management ability. The IYCB programme drafted and trialled three sets of handbooks and workbooks covering: Pricing and Bidding, Site Management and Business Management.

As interest in the use of small scale contractors in labour based roadworks grew it became apparent in some countries that many of the private contractors had little experience of

undertaking road construction and maintenance. This led to the programme producing the Road Maintenance and Regravelling Manual (ROMAR). (Andersson C-A et al 1996c) This manual, consisting of a workbook and handbook, aims to improve the small scale contractor's ability to bid, plan and manage road maintenance work. While it covered some topics which are similar to the IYCB programme, all the examples and exercises are based on roadworks contracts. Both of these sets of books can be used either in training courses or as self-teaching manuals.

Contractor development projects

While training schemes can assist in addressing a number of the issues discussed above they are not a complete solution to the problems. Issues such as unfavourable contract terms or lack of financial resources cannot be solved by offering training courses. In an attempt to address these higher order issues the ILO and other donor agencies have, over the last 5 - 10 years, designed and implemented projects to foster private sector involvement in the construction industry (ILO 1997). The majority of these projects have concentrated on the road sector and placed varying emphasis on financial, training and other support to achieve a workable market.

These projects have achieved varying degrees of success when measured against their original objectives. While one project may have been highly successful in achieving one objective, such as improving the efficiency of road maintenance, it may not have provided a private contracting capacity which is competitive and self sustaining beyond the end of the project. On the other hand another project may have developed well trained labour based contractors but maintained a relatively short length of the road network, at a greater expense than the original direct labour operation. There are however a number of common factors between different contractor development projects which attempt to address the problems experienced by the small contractors supported by the project:

- Training Programme

Each contractor development programme has a training element within the overall programme. Training is provided to the owner/manager of each of the contracting businesses and in some cases also to a number of the owner's supervisors. The owners of

small contracting firms typically receive training in the management of their businesses covering topics such as accounting, contract procedures and tender preparation and submission. Supervisors and managers can receive training in site planning, materials management and site supervision. Successful projects have also recognised the need for the client organisation to adapt to their new role of contract supervisory agency rather than a direct labour management unit (Lehobo 1998). Training has also been provided to employees of the road authority to inform them of contract procedures and how to prepare, issue and manage small contracts.

- Equipment Provision

Contractors with limited resources often find difficulty in purchasing their equipment. This has been addressed in contractor development projects by assisting the contractors on the scheme to procure the equipment they need to undertake their contracts. The main factors influencing the level of equipment provision under a scheme have been the level of equipment already held by contractors and the opportunity on the open market for the purchase and hiring of construction equipment. Schemes which have provided equipment have usually procured equipment for all contractors on the project as a bulk order from suppliers. Individual items of equipment are then provided to contractors on a hire-purchase scheme typically operated by a national bank.

- Contracts and Payments

Small contractors often experience difficulty in understanding and following contract documents which in turn are often inappropriate for the level of work that they are undertaking. Contractor development projects have sought to simplify contract procedures by either developing their own contract documents or making existing documentation less onerous. This has been achieved by reducing the number of risks which are passed to the contractor, which could include for example the level of surety required or small penalties for late completion. The lack of capital owned by small contractors often results in them adopting labour based or employment intensive techniques. Contract documents and standards must therefore be suitable for labour based techniques as well as to the standard equipment intensive methods in order to allow

small contractors to compete on equal terms with larger contractors. Since, due to their limited working capital, small contractors require prompt payment, development projects have attempted to streamline contract procedure and payment systems to speed up the monthly payments to contractors. This is normally achieved through contractor development projects having support from an external source to the government, and this finance can be specifically earmarked for payments to contractors.

- Contractor Selection

Competition to be accepted onto a contractor development programme is usually very high. Contractors are typically selected through a series of questionnaires, interviews and application forms. This system allows selection of the contractors who will obtain the maximum benefit from the scheme.

Due to the nature of the contractor development schemes the level of support provided to each contractor is very high. Unfortunately, only a limited number of contractors are able to benefit from the scheme, although the majority of contractors supported by a programme may ultimately run successful businesses which develop into larger organisations. Unless the contractor development project is very large, however, it will not be able to make a long term improvement to national construction capacity.

Support for the industry

Donor agencies may be willing to support contractor development projects for a number of years, although they will always set a criterion or timeframe for withdrawing their assistance. If a contractor development project is to continue making an impact on the construction capacity in a country, the project must be self sustaining. It must therefore have developed ways to continue financing equipment provision, training schemes, prompt monthly payments and most importantly work availability.

The construction industry in high income countries has various organisations which offer support to the industry, by assisting contractors, consultants or clients or a combination of

all three. These support organisations can be grouped into a number of different institutional groups with different aims and objectives:

- Learned societies - aim to advance knowledge and develop skills in the industry
- Trade organisations - aim to promote the interests of their members by offering advice and training and lobbying on policy issues which affect members,
- Training organisations - aim to provide training to people and organisations within the industry to support and develop its capacity to undertake projects
- Research and development - aim to undertake research and development on issues which concern the industry and provide advisory support
- Finance - commercial banks and other financial organisations who provide credit and loan facilities to the industry.

Finance and the small construction enterprise

The main problem for small contractors, like all small businesses, is lack of access to or difficulty in obtaining credit. Compared to other small businesses, small construction companies have a high financial need due to the amount of materials required, relatively high staff wage bills and equipment purchase or hire costs. They need short term working capital to pay staff wages, buy materials and hire equipment which they anticipate will be covered by the payments at the end of the month. Long term capital is also needed to cover the costs of expanding the business and financing the purchase and depreciation of equipment.

The main financial problem facing contractors is their lack of collateral for loans. They do not have significant premises to act as collateral and most of their turnover is in the form of wages and materials. They also have very few fixed assets which can be used as loan guarantees. Contractors are frequently unable to provide a clear cash flow or profit forecast due to construction uncertainties such as weather conditions, worker productivity and materials availability. Banks therefore consider contractors and contracting a high risk business when compared with other businesses and are therefore not keen to lend them money. If small contractors are able to obtain loans from the bank it is invariably at a high level of interest to cover the perceived high risk associated with the loan. Banks in developing countries are in general not orientated to deal with small businesses. Hence

they are unable to offer financial advice, or have long cumbersome bureaucratic procedures for agreeing the size of loan requested and therefore have high administration costs compared with the size of the loan. These problems result in the contractor rarely obtaining money from established financial institutions and instead relying on family and friends to lend money for their business, based on ad hoc agreements.

The box below illustrates the problem a contractor faces in obtaining a loan, by describing a banker's viewpoint when assessing a loan request.

A Bankers Viewpoint

A bank manager not only lends money to people but also looks after other people's money. He must therefore exercise caution when lending money to applicants, because he is not lending his own money but a bank creditor's money. These creditors may request their money back at any time and would not be pleased if the bank manager informed them that it had been lost on bad debts such as loans to unsuccessful contractors.

Before lending money to a contractor the banker will wish to review the contractor's past performance of operating a bank account. The banker is not solely interested in the account balance, but also the frequency of deposits, whether these deposits are regular or irregular, turnover in the account and the speed at which money is withdrawn after deposits. It is highly unlikely that a bank manager will lend to an unknown client who walks into his bank and requests a loan.

If the potential client passes this stage the bank manager will then examine the actual loan request. He will wish to compare the amount of capital held by the contractor against the level of borrowing required. He will also wish to see the predicted cash flow for the project, to determine when and how funds are to be obtained and spent. The banker does not want the contractor to return to his bank the following week and request a further loan to cover new project costs. He is interested in the maximum value of loan that the contractor will require throughout the project. Once the maximum value of the loan is agreed the banker will then compare this figure against the contractor's assets or capital. In general a loan is granted to supplement the contractor's capital so it is highly unlikely that a loan valued in excess of the contractor's working capital would be approved.

If the contractor passes the first two criteria and the bank manager is still considering offering a loan, the final criterion must be satisfied, the loan security which the contractor can offer the bank. This security must have tangible value to the bank, i.e. it could be used to recover the cost of the loan if the contractor defaults. Items which can be used as security include, deeds to property, guarantees from other people or organisations and life insurance policies. In addition to this security it is highly likely that the banker will require payment made to the contractor be paid into the bank. A bank manger will always go through these steps

before lending money. As he is lending the money of other customers he must ensure at all times that it remains safe.

Adapted from Lemunge 1980

Financial Assistance

Various options may be available to improve a contractor's access to credit. The examples shown below are from schemes which have previously been tried by government and donor agencies in previous development projects.

- Mobilisation Payments

Mobilisation payments are made by the client to provide the contractor with working capital at the beginning of a job. Mobilisation payments typically comprise up to 15% of the contract value and are deducted from the contractor's monthly claim by the client throughout the life of the contract.

The advantage of this scheme is that the contractor will not have to obtain large loans to commence work. The ultimate price of the contract may also be lower due to the reduced finance costs incurred by the contractor.

- Loan Guarantee schemes

Contractors often have problems supplying security or guarantees for their loans. When contractors are undertaking a project for the government, it may be able to guarantee loans on behalf of the contractor. In order to be successful there should be strict criteria for loan eligibility and careful screening of applications to ensure that the facility is not abused. There must also be careful monitoring and collection of loans to prevent bad debts due to contractors considering the loan as a handout from the government. (Relf 1987)

- Establishment of Construction banks

Construction banks provide contractors and consultants with working capital to undertake their projects through a reserve built up from loans and grants. Contractors who are

working and receiving payments could also invest in the bank. Contractor's investment would entitle them to larger loans in the future. (TACECA 1997)

For each of the options shown above there is a requirement for commitment of one or more of the stakeholders in the industry to make a financial investment as shown in the table below.

Table 2.2 Contractor's credit options

Access to Credit Option	Stakeholder Commitment Required
Mobilisation Payments	Government or Client
Loan Guarantee schemes	Government
	Banks
Establishment of Construction Bank	Contractors
	Donor Agencies
	Government

These are only three possible options each of which has already been tried by different donors and/or government agencies in an attempt to promote small construction enterprises. Further schemes are discussed in more detail in subsequent chapters.

Conclusion

This chapter has attempted to provide a context for the present research and an overview of the construction industry in developing countries. The key issues to be drawn from this chapter are summarised below.

1. The construction industry is unique:
    - Each product or output is a one-off
    - Construction enterprises have to move location for each project
    - The price is individually set for each product

2. The institutional framework which supports the construction industry in the majority of developing countries is very weak and under-developed

3. Many small contracting enterprises by virtue of their size and turnover are invisible to construction statistics

4. Due to the three factors above small construction enterprises have great difficulty developing and expanding their businesses

5. Small construction enterprises face problems in obtaining credit and financial resources

Chapter 3.

Literature Review

Introduction

"There are few aspects of human social and economic life that do not rely on construction of one type or another" (Relf 1987)

The construction industry provides housing for personal needs, offices and factories for business activity as well as the transportation or communications infrastructure to enable them to operate. It also provides schools, hospitals and other facilities to improve the quality of life of the population. The construction industry is therefore of vital importance to a country's economy. Firstly, its size accounts for 5-10% of a country's GNP or labour employment and 50-70 % of public investment is spent on the industry (Edmonds and Miles 1984, Hillebrandt 1985). Secondly, it creates investment goods providing products for economic development such as factories and schools (Hillebrandt 1985), and also creates a market through "backward linkages" to material suppliers (Relf 1987). Thirdly, the large quantity of raw materials consumed by the industry can have a significant effect on the balance of payments (Hillebrandt 1985) and the capital formation of the country (Edmonds and Miles 1984, Relf 1987).

The construction industry is also unusual in its institutional framework when compared to other industries. Each product is unique or a 'one off' (Miles and Neale 1991) with components manufactured in many different locations and combine to produce a large, expensive and immobile object (Hillebrandt 1985). The actors in the industry, designers and especially contractors, are dispersed around the country and move location according to work availability, employing different labour on each project (ILO 1983, Edmonds and Miles 1984). Despite the size of the industry the government is responsible for half of the demand (Relf 1987) and has significant control over the other half (Edmonds and Miles 1984). The price determination method is unique to the industry, with each product having an individual price (Miles and Neale 1991) and project work being obtained by tendering and/or subcontracting (Edmonds and Miles 1984).

The construction industry in developing countries is particularly important as it is the 'engine of development', providing the infrastructure required to assist not only in the improvement of quality of life (houses, schools and clinics) but also for the development of

industry and trade (road networks, factories and ports). Despite its importance to development, developing nations which comprise two thirds of the world's population, only account for 15% of the world construction market (Edmonds and Miles 1984). It has been suggested that this is a product of history (Edmonds and Miles 1984) with the British contracting system being adopted in many developing countries. The system, which has evolved over 200 years, changed to meet Britain's needs as it developed after the industrial revolution. It was introduced into many developing countries during the colonial era with no regard to the local institutional framework that existed in the country to support it.

The importance of the construction industry for development has led organisations, especially the World Bank and International Labour Organisation (ILO), to address the issues of the industry's poor performance in many developing countries. Apart from the arguments discussed above, additional reasons for investment in construction industry development include:

- the role of the industry in sustainable development
- the desire for 'best value' in donor assistance
- the need for improved maintenance in the life cycle of infrastructure
- the potential for poverty alleviation through labour based construction

(Ofori 1993)

Labour based construction: an appropriate construction technique

"The economically efficient employment of as great a proportion of labour as is technically feasible to produce the standard of [road] construction demanded by the specifications and allowed by the funding available" (McCutcheon 1989)

In the early 1970's the International Labour Organisation became increasingly interested in labour based construction as a method of overcoming the increasing unemployment problems in many developing countries. Road construction and maintenance was highlighted as a potential sector for implementation of labour based techniques, which resulted in a number of studies to determine:

1. If labour based construction is technically efficient
2. If the techniques are socially acceptable

3. What would be the ideal system of financial and administrative procedures to encourage private contractors to adopt the techniques
4. What are the factors affecting widespread use of labour based techniques.

(Irvin 1975, McCleary 1976, Lal 1978)

These initial investigations, which showed that labour based construction was technically efficient for the vast majority of road construction tasks, led to the instigation of a number of road construction and maintenance programmes utilising labour based techniques. These initial projects highlighted the fact that while labour based construction was technically efficient there were different factors and problems which needed to be taken into account when planning labour based programmes (Allal & Edmonds 1977). Often the primary objective of utilising labour based techniques was the possibility of employment generation. It has been noted, however, that this should not be the primary reason for adopting these techniques (McCutcheon 1989). In addition a careful mix of labour and equipment should be chosen to provide the most efficient output (Henley 1981) and there are certain conditions which would preclude the use of labour based techniques (Edmonds & Ruud 1984).

Nevertheless labour based construction can provide a number of advantages over more equipment based techniques for developing countries;

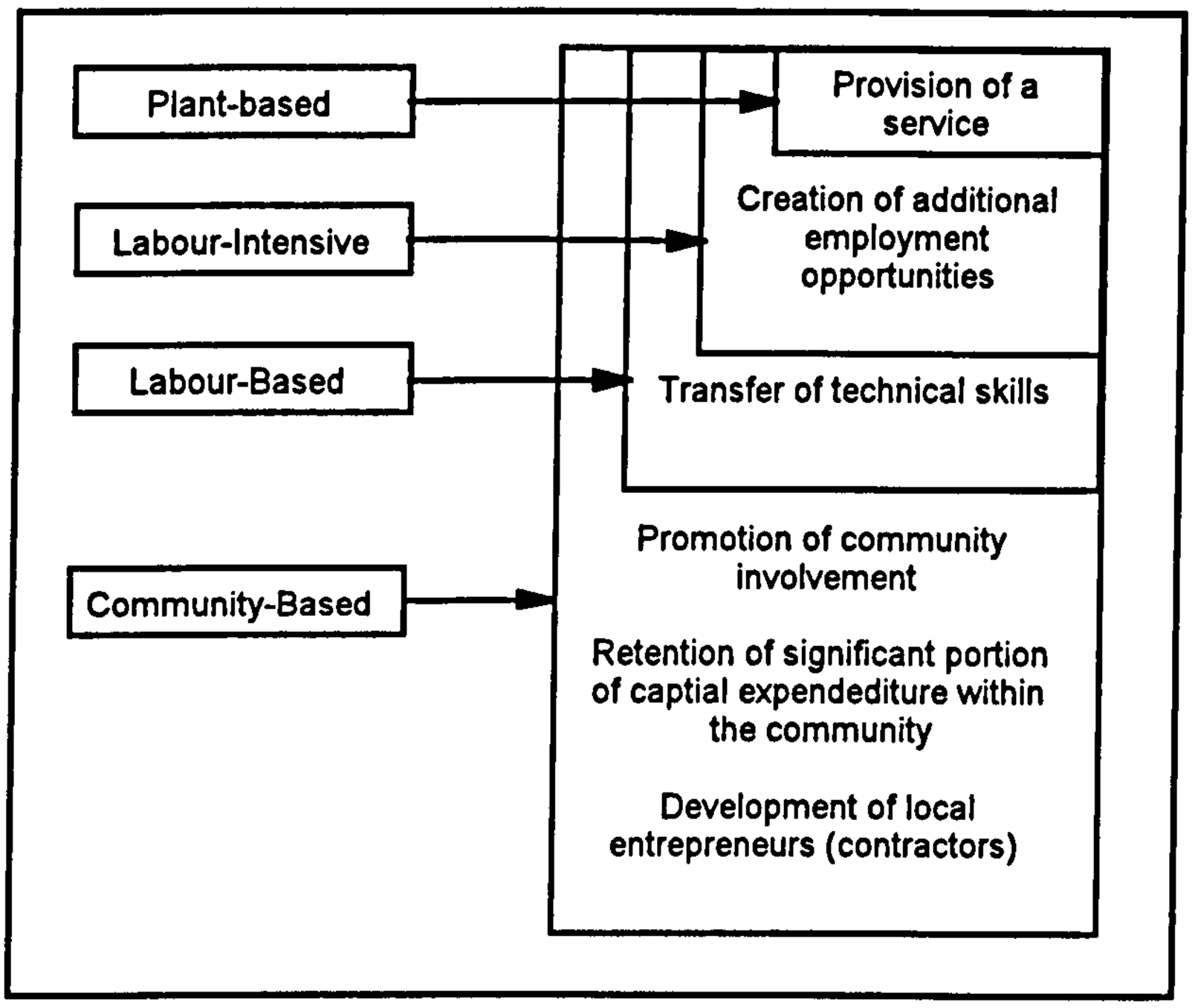
- Less investment in capital equipment
- More employment for unskilled labour
- Reduced capital repatriation
- Reduced need for skilled operators
- Increased use of local resources
- Stimulation to the local economy.

A more recent addition to this list, discussed below, is the openings to the construction market that labour based construction offers small construction enterprises.

During the late 1970s and early '80s labour based road construction and maintenance programmes were undertaken in many countries including Kenya (deVeen 1980), Malawi (Hagen 1988) and Botswana (McCutcheon 1988). Due to the interest in labour based

construction the World bank produced a detailed guide for the planning and management of labour based construction programmes (Coukis 1984), which was complemented by the ILO's Guide to Tools and Equipment for Labour Based Roadworks (ILO 1984).

There are a number of different phrases that are often used interchangeably by practitioners working in the labour based sector: labour-intensive, labour-based, labour extensive, plant based and community based. Watermeyer (1993) suggests that there are differences between these definitions which are based primarily on the involvement and transfer of skills to the labourers.



Watermeyer 1993

For this thesis the following definitions are used:

Labour-intensive - The economically efficient employment of as great a proportion of labour as is technically feasible, to produce the standard demanded by the specification and allowed by the funding available (McCutcheon 1990)

Labour-based - Operations principally carried out by manual methods. They may be supported by intermediate or sophisticated equipment for activities not ideally suited to labour. (Petts 1997)

Labour-extensive - Using large numbers of labour with the prime objective of creating temporary or permanent employment rather than achieving sustainable efficient systems.

Privatisation

"Markets do not spring magically into life as the public sector downsizes" (World Bank 1993)

In some countries state owned construction corporations were established to enable large projects to be undertaken without the use of foreign firms. National construction organisations were formed with the intention that they would undertake both public and private projects. Unfortunately they failed to perform in terms of workload, range of projects and quality of workmanship (Ofori 1991). State owned enterprises are seldom given preferential treatment on government projects but are expected to undertake work for public sector organisations with "unflattering reputations as construction clients" (Ofori 1991). As financial support for structural adjustment programmes no longer requires the involvement of the public sector (World Bank 1988) many of these organisations have been or shortly will be privatised.

Although labour based technologies proved their potential in project conditions, the reliance on direct labour execution was a lurking weakness which lead to declining levels of operational performance. For example, there were 2 million kilometres of roads in Sub Saharan Africa of which one third has been lost due to poor maintenance. The additional transportation costs due to this poor maintenance account for 0.85% of a country's GDP (World Bank 1995b). Thus interest grew in stimulating private sector involvement, on the grounds that these private enterprises would be able to over come the inefficiency problems of the large direct labour organisations and be more flexible and innovative in their approach to problems. The private sector would also offer better financial management and accountability (Miles 1996e). Programmes particularly focused on the small scale private enterprises within the construction sector as they were perceived to offer increased employment potential over larger construction firms (Relf 1987) due to their use of labour based techniques (Miles 1995c, Levitsky 1993)

Privatisation schemes experienced their own problems including intensified competition not only with the public sector but also with other private enterprises (World Bank 1995a). Many private enterprises also suffered from poor performance due to lack of, or access to, business information, barriers to free market trading and a lack of infrastructure (World Bank 1993). On the other hand, liberalisation of trade barriers to enhance private sector enterprise presented problems for previously protected domestic markets (World Bank 1995a).

As many developing country governments have decided to outsource to the private sector work that was traditionally carried out by public works departments it has been necessary to develop small and medium enterprises (SME) to undertake the construction and maintenance contracts. The responsibility to support the SMEs has mainly fallen either directly or indirectly to the government (Sibanda 1999). In order for these SMEs to succeed, the government must recognise their role in creating an enabling environment by: (Musumba 1998)

- Creating policies and related strategies which promote contracting as a means of providing works and services
- Ensuring work availability
- Funding and prompt payment mechanisms in place
- Ensuring availability of equipment and skilled personnel
- Developing confidence within the industry

Despite the general trend towards privatisation, the role of public sector procurement should not be overlooked in its ability to meet social policy objectives. Public sector bodies without their drive for shareholder profits can champion the promotion of fair labour conditions, prevention of discrimination against minority groups and improvement of environmental quality (Watermeyer 1998)

The small scale contracting sector

"A small scale contractor is ... one in which the manager or owner spends much of his or her time actually carrying out the function of the business" (Miles 1993)

A wide range of definitions may be applied to 'small scale contractor'. For this thesis a small scale contractor is considered as "one with a limited capital investment, who may need financial and managerial support to effectively run his or her business." (Sibanda 1999) These one person (usually one man) businesses employ possibly a few permanent supervisory staff and own a few simple items of equipment. They employ casual labour depending on the availability and size of the job(s) that they are undertaking. These small scale contractors, in order to survive, must be able to keep their costs down and work as efficiently as possible. Their lack of capital often results in them adopting labour based techniques (Edmonds and Miles 1984).

Promoters of construction industry development focused on small contractors for a number of reasons. The two main reasons were the lack of capital investment required per job (Relf 1987, Levitsky 1993) and the potential for employment generation (Relf 1987, Lantran 1990, Levitsky 1993, Miles 1995c). Overall the World Bank claimed that new business creation cost $4750 for every new job created (Theocharides and Tolentino 1991). Small scale contractors would also undertake small projects not attractive to large companies (Relf 1987, Miles 1995c), provide a developing ground for entrepreneurial talent (Levitsky 1993, Miles 1995c) and be more flexible to market changes (Levitsky 1993, Ofori 1993).

Small organisations allow decisions to be made quickly, avoiding bureaucratic delays since staff are motivated by the control they have over their future and their interest in the business. Casual labourers are also more motivated by their employment and promotion prospects.

Within the roads sector, maintenance tasks offered a good entry point to other civil works, due to the broad array of tasks involved (Lantran 1990). New small scale construction businesses can come from a range of different backgrounds although the sources usually fall into four basic categories (Edmonds and Miles 1984, Relf 1987).

1. The "Trade and Jobbers route" includes artisans and labourers who originally worked freelance for larger contracting firms.
2. "Labour only contractors" are contractors who work as subcontractors to larger firms. They often started as recruitment businesses supplying labour to large firms before executing their own work.

3. "Management route" includes managers from private firms and the public sector who have left their organisations to start their own business.
4. "Commercial Entrepreneurs" are businessmen who have businesses in other commercial sectors and enter the construction sector as another commercial venture.

Business owners from these 4 categories have different experience in business management and contracting which present them with slightly different problems in the development and running of their construction businesses.

In addition to the groups of 'contractors' listed above there is a fifth group generally referred to as community contractors. A community contract can be defined as "an agreement between a funding agency and representatives of a community, in which representatives of the community contract to perform certain tasks in return for payment" (Fransen and Mason 1998). The community representatives are therefore viewed as contractors and the funding agency as the client. However, Cotton et al (1998) cite cases where the community has either acted as the promoter (client), engineer or contractor. In order to enter into a contract the community must form themselves into a registered group, usually referred to as a Community based organisation (CBO). The driving force behind setting up these organisations is the local residents' desire to improve the infrastructure facilities in their local community. Community contractors will usually have no technical expertise and will require a great deal of technical, financial and managerial support from the regional engineering office (IT Transport 1999, Cotton et al 1998). In most cases community contractors have no desire to develop their organisation into a profitable business. They may even work for no pay in order to maintain a road to be able to travel to and from their village (IT Transport 1999).

Problems facing Small Scale Construction Enterprises

"..lack of knowledge of management and commercial administration matters, inexperience in site organisation, insufficient financial means, including difficulties in obtaining credit from suppliers of materials, and inadequate plant and transportation equipment" Kenyan Government Official (ILO 1983)

The quote above summarises the multitude of problems which face small scale construction enterprises. These problems can be categorised into three different themes: (Relf 1987, Hernes 1988)

- Problems derived from the business environment
- Problems derived from the client
- Problems derived from the contractor's own shortcomings.

While a contractor can overcome the problems in the third category and reduce or mitigate against the problems in the other two, they can never be eliminated completely. A successful contractor will be one who can eliminate problems within his capability and assess and reduce the risk of those outside. In reducing this risk he must identify, measure, evaluate and re-evaluate the risk he is undertaking (Miles 1996d).

A number of studies have been carried out by the ILO construction management programme (Miles 1990, Miles and Ward 1991) and others (Lemunge 1980, Levitsky 1993) to determine the problems facing small scale enterprises, with a view to offering support to the industry (Miles 1993). Specific problems that are commonly identified by small contractors are:

1. Over complex contract documents
2. Difficulty in preparing tenders and bids
3. Lack of on-site supervision and meetings with the client
4. Long delays in receiving payment
5. Difficulty in obtaining loans and working capital
6. Lack of work continuity

Or more generally problems fall into the broad headings:

- Labour
- Equipment
- Materials
- Contract Procedures
- Education and Training
- Technical
- Financial

It can be seen that all the specific common problems fall into one or more of the three categories listed above.

Research carried out to investigate the reasons for contractors to move away for labour based techniques as they expand has identified (Stock 1996) that contractors find difficulty in managing large labour forces that they are unable to supervise personally. They also consider the cost of learning a new technology to be too high. The problem of delayed payments listed above is also more acute for labour based contractors as the majority of their outgoings are in the form of labour wages, which must be paid on time to prevent low morale and possibly strikes.

A more detailed discussion of the problems facing small scale construction enterprises and how they are interrelated will be discussed in Chapter 5 of this thesis.

Contractor development projects

"development of small-scale construction enterprises can mean a variety of more or less active measures ranging from the introduction of general policies to improve the business environment in which they work to the provision of tailor-made training, advisory and financial services." (Relf 1987)

There have been contractor development projects initiated which promote the use of lengthmen maintenance programmes (Jones & Petts 1991) to relatively large contractor development projects (Ashong 1996, Miles 1996b) and from relatively modest projects (Cortes 1979) to large international projects undertaken by the ILO and World Bank (Harrel et al 1986, Miles 1993).

Each project has a different delivery mechanism to develop small scale contractors which can vary from the traditional employer / consultant / contractor tripartite arrangement. Chapter 6 discusses in detail the different delivery mechanisms that may be used for contractor development projects. A summary is offered below: (Stock & deVeen 1996, Bentall et al 1995, Bentall et al 1999)

- Subcontracting: the contractor is solely responsible for construction work

- Government run project: the contractor joins a training programme run by the government and is assisted in all aspects of construction and project management
- Autonomous agency: The government appoints an agency to oversee the development of contractors and management of construction projects (World Bank 1994)
- Development team: An established contractor or consultant provides a decreasing level of technical advice, support and mentorship to contractors as they develop
- Community contracting: Local communities form their own contracting organisations and receive technical support from development and/or government agencies (Cotton et al 1998)

While many project reports discuss the modalities of a particular project or projects and offer recommendations to other project designers, few offer a critical review of the problems encountered. In its review of rural road programmes in sub-Saharan Africa, the World Bank indicates a need for a more co-ordinated approach to projects rather than a project or route cost-benefit analysis to determine which projects to undertake (Riverson et al 1991). A previous World Bank study (Harral et al 1986) had focused more closely on individual projects highlighting more specific problems which fell mainly into the categories of contract documentation and work programming/scheduling. A number of early contractor development projects were criticised for not addressing the government role and changes required. (Ofori 1993) indicates, however, that previous projects "dwell on government's role with inadequate discussion of how the construction industry can contribute towards its continued development". This was echoed by Kirmani & Blaxall (1988) when they claimed that existing strategies had focused on training individual contractors rather than developing institutions to meet the industry's need. Ofori also explains that in general no project monitors, controls or reviews previous experience, although this issue is currently being addressed by the Management of Appropriate Road Technology (MART) initiative at Loughborough University (MART 1995).

It is widely recognised that the differing social, economic, cultural and organisational practices in different countries does not lend themselves to a 'standard formula' for a contractor development programme. The first stage in a devising a contractor development programme is to undertake a survey of contractor's needs (Miles 1993), the

potential/current market (Miles 1996b, Taylor 1996) and the status of the client (government) organisation (Lantran 1991, Miles 1996b). This information will allow a suitable training programme to be developed for contractors and other affected parties. Training programmes may take different forms such as on-the-job, apprenticeship schemes, classroom or mentorship schemes (ILO 1992), and can also cover technical or business management topics (Miles 1995c). During the assessment of the potential market, careful consideration must be given to availability of funding on a steady basis (Lantran 1990) and clear identification of workload (Lantran 1991).

Another major factor in the design of a contractor development programme is the "promotion of measures to remove constraints" (Miles 1993), which may include addressing financial, contractual and equipment issues. The selection procedure of contractors entering the programme must also be open and fair. The overall aim of a project is for the contractor to grow into a larger business. In order for this expansion to be successful, consideration must be given to the type of expansion which is expected i.e. lateral, upward or diversification and it must ensure that the contractor has the necessary skill to succeed.

A contractor development programme is a long term project. (Lantran 1990) estimates that it takes four years from the start of a project to get contractors to "a competitive bidding stage" and much longer to develop a strong domestic construction industry. In order for the programme to be successful, a community based organisation involved with such a project must feel equal to the public authorities and must also have a feeling of ownership of the project (Miles 1995d).

Managers of all SMEs including contractors are entrepreneurs looking to make money from their business ventures. Contracting is a risky business, rarely making a quick profit. This can lead new contractors to "chicken out" of the market and turn to other business ventures (Musumba 1998). There is therefore a need to highlight to SME managers the pitfalls and potential gains and losses within the business.

Contractor development training courses

"The underlying idea ... is that improvements can best come from active and creative thinking by entrepreneurs about their own businesses. The purpose of this material is to encourage such creative thinking and motivate entrepreneurs to take action to improve their business" (Dickson 1988)

The ILO has been instrumental in developing training material through its contractor development projects. It argues that a very effective formula is the production of a textbook covering the theories of the subject and a workbook offering exercises with model answers to test the understanding of the theories explained in the textbook. This training method was first developed by the Management Development Branch of the ILO with the publication of the Improve Your Business Handbook and Workbook (Dickson 1988). These books provided the idea for the production of an Improve Your Construction Business training course focusing on the construction issues of pricing and bidding, site management and business management which included a handbook and workbook for each subject area. (Andersson et al 1994 & 1996). The Interactive Contractor Training modules were also produced to provide trainers with material to cover construction management topics (Hernes 1987). These courses were aimed at the owners and managers of small and medium scale construction firms to improve their business management skills often identified as being weak. In order to improve productivity, a guide to time and motion studies was produced through the Construction Management Programme (Heap 1987).

The ILO also produced a guide to Managing Construction Projects (Austen and Neale 1986) which aimed to introduce small construction business managers, programme designers, non-civil engineers and government officials to the processes and procedures of construction project management in developing countries.

The course and books discussed above all aimed to improve the business skills of small scale construction company managers. However, investigations also discovered that some contractors lacked the technical skill to undertake road maintenance, especially when using labour based methods (Miles 1996b). The Road Maintenance and Regravelling handbook

and workbook (Andersson et al 1996) covered the technical issues of road maintenance using labour based methods.

A 'major player' in the productivity of a small business is the supervisor who is on site all the time. It is recognised that many of these employees could be illiterate or have difficulty in understanding detailed concepts. In order to assist them in their supervisory work manuals which rely heavily on pictures and diagrams have been produced to cover labour based techniques (Antoniou et al.1990) and road maintenance in general (Intech Associates 1994).

Construction industry framework in developing countries

"The contractor is a resource manager co-ordinating the activities of those who are not responsible for the final product and over whom he has little control" (Kirmani and Blaxall 1988)

The construction industry framework has been developing over the last 200 years in the western world. This has allowed parties involved in the business to adapt to the changing trends and to react to new requirements (Edmonds and Miles 1984). However, in less developed countries a 'pre-designed' contracting system has been imposed on them which offers a very alien environment for new small construction enterprises competing against large foreign contractors experienced in the contracting system.

The evolution of an indigenous construction industry in developing countries takes a different route. Initially the market is dominated by foreign contractors with no local firms apart from a few 'jobbers'. Local contractors will develop as subcontractors, before taking on small projects which large firms do not find profitable. Finally local contractors will compete against foreign firms for large projects and will eventually look for work abroad (Abbot 1985). Intech Associates offers a similar route for the development of road maintenance contractors: from lengthmen and labour only subcontractors through small routine maintenance labour based contractors to large major works contractors (Intech Associates 1992).

Many of the problems that private contractors face are a result of the direct labour force account approach (Lantran 1990, Harral 1986) and centralised management and planning (Garnier & Imschoot 1993, Kirmani and Blaxall 1988) adopted by previous governments. Some programmes have attempted to avoid these problems by setting up independent autonomous organisations to manage construction projects, such as AGETIPs (Lantran 1991, World Bank 1994, and others).

There are numerous organisations in the North which assist and advise different sectors of their indigenous construction industry such as learned societies, trade associations and training organisations (Miles and Neale 1991). These organisations are often lacking or are non existent in many developing countries. It is clear that various organisations are required which include: an organisation within the government (Kirmani 1988), a Contractors' Association (Abbott 1985, Kirmani and Blaxall 1988), a Construction Industry Development Board (Lantran 1990) and an institution which can offer training and advisory services (Miles and Neale 1991, Lantran 1990)

Technical aspects

"the provision of the necessary technical know-how to use, apply and reapply a science" (Abbott 1985)

The technical issues associated with labour based construction of rural roads have been covered by many authors through analysis and case studies of particular programmes (deVeen 1980, Hagen 1988, and others). These books and reports indicate equipment that is used and the specifications for roads on different terrain. The management structure and productivity of workers on different tasks is often also discussed. Non country specific books on road construction and maintenance which cover standard technical aspects include (Hindson 1983, Antoniou et al 1990, WEP 1984, Intech Associates 1994). Countries which have adopted a labour based programme have in general produced a technical manual to provide specifications for work that is carried out (Guthrie 1983).

The guide to tools and equipment published by the ILO, although now dated, offers a good source of designs and specifications for labour based roadworks equipment (ILO 1981).

Transport research organisations also offer a wide range of reports and papers on various issues of road construction and maintenance (TRRL 1979, Jones 1984, Jones and Petts 1991).

Small enterprise development

"The strong interest in small enterprise development stems from widespread concern about current and future unemployment" (Theocharides and Tolentino 1991)

The field of small enterprise development is multifaceted and development theory, at least in the pure epistemological sense, in the field is very sparse. Small business management and enterprise development has been approached from a highly practical perspective since the Bolton Report of 1971 and so a great deal of emphasis is placed upon the physical support which can be provided to directly help the practising owner-manager (Jennings 2000).

In July 1969 the President of the UK Board of Trade set up a committee of inquiry on small firms; "to consider the role of small firms in the national economy and the problems facing their development" (HMSO 1971). This report founded the start of the acceptance and latterly the encouragement of small enterprises. In today's society "gone are the days when an entrepreneur is seen as a deviant" and 'enterprise culture' has become a term in political debate (Carter et al 2000). Until the mid 1970s big businesses were seen as best, with the "urge to merge" (Levicki 1984) strong both in Europe and the US. The arguments cited in favour of large firms were that they would be able to rationalise their management practices and create an environment where research and development could be encouraged and afforded (Carter et al 2000). It was also considered that they would have lower operating costs, resulting in greater efficiency (Levicki 1984). However the large businesses showed little productive benefit over smaller firms. The under-realisation of outputs, or failure of larger companies, coupled with the Bolton report promoted debates which encouraged the small enterprise culture.

A number of different concepts may be attached to the term enterprise (Bridge 1998). The most common, as investigated in the Bolton report, is Capitalism or, as frequently called in America, 'free enterprise'. There is a danger that in attempting to promote enterprise

businesses become dependent on external assistance. 'Dependency' can occur as a result of attempting to develop an enterprise culture. 'Clusters and competitiveness' exist where groups (or clusters) of domestic rivals can develop a strong international competitiveness. 'Community enterprise' exists where enterprise is applied for community benefit rather than individual profit.

Small firms were often seen as only making a minor contribution to the economy, but their combined number has a significant effect not only on the economy, but also on the employment of the national workforce. In 1997 there were 829,000 construction firms in the UK which accounted for 99.9% of the employment in the sector and 87.2% of the turnover (Office of National Statistics data). The Bolton report attempted to define a small business but was unable to reach a clear definition as "industries will have considerable variations in their combinations of number of employees, assets and turnover so that no single numerical indicator can serve as a universal quantitative conceptualisation of small" (HMSO 1971). The DTI currently describes a small business as one with less than 50 employees.

The most obvious small enterprise is the owner-manager business however, there are two other important groups of small business. Firstly, franchise businesses where the manager buys into a tried and tested product or service. This form of small enterprise is suited to the entrepreneur who is unable, or unwilling, to take on the risks of starting their own business from scratch or who has not got the initial seed of a business idea (Burns & Dewhurst 1996). The second category of small enterprise is the black economy. Businesses which by virtue of their size or mode of operation are 'invisible' to local and government authorities. These black market businesses are an important group of small enterprise as they can form the basis of tomorrow's legitimate businesses. It is estimate that the black market in the UK accounts for 15% of the national income (Stanworth 1982).

Small businesses may also be categorised by the characteristics of their owner. Hornaday (in Bridge et al 1998) suggests that there are 3 types of owner. There is the craftsman who is good at practising a trade or occupation, a professional manager whose main ability is to build an organisation and thirdly, an entrepreneur who is able to attain personal wealth. A good small business manager should have an element of all three characteristics in order to

be successful. The type of support a small business may require to develop will depend on the group that the owner originated from.

There are many suggestions about the ways a business grows from start up to a large firm. These may be summarised by 5 stages:

- Existence – staying in business by finding services and customers
- Survival – establishing a customer base and demonstrating business viability
- Success – establishing a confident market position providing options for further growth
- Take-off – deciding to expand the company
- Maturity – a large, stable company.

The critical time for a small business is reaching and passing the first stage. Bridge (1998) suggests that there are a number of different prerequisites for a potential small business owner to start a business (stage 1). Firstly there must be a culture which is aware and will accept small businesses and will preferably provide nurturing support. Secondly, the entrepreneur must have a product or service that they feel will attract customers and an idea that they can be successful with this idea in business. Finally the idea must be turned into the pre-existence phase where the activities of starting the business are carried out. Once a business has reached the existence phase there are 3 possible dynamics for development. The business may remain static, it can grow leading to the next stage or it can decline leading to termination. The use of straight lines in a model between different stages of business growth is therefore a gross oversimplification due to the oscillations of the business development around these 3 situations (Bridge 1998).

There are many reasons cited to support small businesses (Carter 2000):

1. Monopoly – prevent market being dominated by one or two firms
2. Imperfect information – small firms find it difficult to access information which may be provided as a one-stop shop by government
3. Risk and uncertainty – large firms are able to absorb risks more easily than small firms
4. Financial support – small firms find it difficult to access financial resources

5. Externalities – activities of an actor (enterprise) which may have consequences on society (eg pollution) which justifies intervention or support.

However, Bridge (1998) although supporting the development of small enterprises cites a number of arguments for not supporting small businesses:

1. Small businesses have high casualty rates which result in wasted effort and resources to assist them.
2. Increasing numbers of small businesses may not increase employment due to displacement effects
3. Assisting growth businesses, rather than new businesses, promotes competitiveness and ultimately wealth creation

With the growth in popularity of small businesses there has been an equal growth of small business pressure groups. While many of these groups have been successful in promoting the issues important to small businesses they have a number of underlying problems (Stanworth 1982):

- There is a tendency for these groups to fragment
- The groups can have a poor representativeness usually due to the fact that they only recruit a small proportion of the potential membership
- The leaders of these groups often have wider interests and goals which can be highly ideological

Support to new businesses can come from different sources. While authors argue that Governments must provide support and develop policies that assist small businesses Burns and Dewhurst (1996) highlight that government or other support networks are the final level of support utilised by small businesses. The first group approached for support are close friends and family, which are then followed by close and trusted business associates. Professional advisors and commercial contacts (customers & suppliers) form the third and fourth levels respectively. Finally the fifth level is the purposive support network which may include government policies and support mechanisms.

Although government policies according to Bridge (1998) are the fifth level of the support they can form an important element of support to small businesses. Storey (1994) suggests

a range of different policies for providing assistance to the small and medium enterprise sector:

1. Macro policies – interest rates, taxation, inflation
2. Deregulation & simplification – legislative exemptions, cutting 'red tape'
3. Sectorial and problem specific firms
4. Finance assistance – investment and loan schemes
5. Indirect assistance – information and advice, training
6. Relationships – small firm division

Enterprise is not just limited to a business context. Enterprising behaviour will impact on many aspects of our lives. It involves addressing obstacles such as belief and acceptability and within the business context; a shortage of ideas, finance and advice.

Micro, small and medium scale enterprise development is all seen as contributing to social and economic development, particularly job creation and income distribution (Adams 1998) in many developing countries. Other factors widely accepted as advantages of developing small scale enterprises include:

- Ease of entry due to small resources requirement
- Development of entrepreneurial talent
- Operation in rural areas with little infrastructure
- Flexibility with respect to market changes

While the overriding problem facing small enterprises is the lack of finance (Theocharides and Tolentino 1991, Levitsky 1993, World Bank 1995, and others) there are a number of other significant problems which should not be overlooked. The business environment and legislation is often not geared towards small scale enterprises, resulting in the high cost of transactions and regulatory polices constraining labour and capital (World Bank 1993). The lack of infrastructure to import and export materials increases production costs making small businesses with tight profit margins unprofitable (World Bank 1993, World Bank 1994).

The main element of a small enterprise development programme is almost invariably some form of financial assistance scheme. Small businesses find great difficulty raising finance from banks through the normal routes as banks consider them as high risk and unable to offer suitable collateral (Lemunge 1980, Levitsky 1993). The administration costs associated with small size loans and the long bureaucratic processes involved with applications discourage small business from obtaining finance from the formal sector (Levitsky 1993). A common solution to this problem is the establishment of a self help organisation which runs informal savings clubs or saving/credit associations (World Bank 1995a). These organisations can also develop links to major banks to assist in the administration of loans (Levitsky 1993). In order for these loan guarantee schemes to be successful there must be a strict eligibility criteria (Relf 1987) and simple, rapid but strict screening and appraisal criteria (Relf 1987, Levitsky 1993). The size of loan should not be large initially but should increase, as the entrepreneur demonstrates sound financial management, to an upper ceiling figure (Levitsky 1993). The most vital aspect of loan schemes is that there must be an efficient loan collection system to prevent misuse. This may be achieved by requiring that payments from the client be made via the lending organisation (Relf 1987).

Institutional development

"...the application of the principles of economics and management in the construction industry especially in the context of developing countries." (Ofori 1993)

As low income countries gained their independence institution building of government and state organisations was seen as an important development objective by donor and other development agencies. The theory was that these bodies are the agents that induce and maintain the social and economic changes required for the overall task of nation building (Fowler et al 1992). Structural adjustment programmes implemented by donor agencies may be viewed as country wide institutional development programmes. They require efficiency in pricing and trade policies, planning and policy formulation, economic monitoring and banking and finance (Picard et al 1994). However, the downfall of these programmes is that change was required quickly, and this has lead to management roles being undertaken by expatriates rather than developing the capacity of local staff.

More recently the emphasis has shifted towards supporting and developing private development organizations, due to the emerging and increasing importance of small enterprise development (Edgcomb et al 1993). The emphasis is on long term sustainability with the continued belief that strong and mature institutions are critical to the success of development programmes. The donor community drives NGOs' development as they are seen to have a key socio-economic development role in civil society due to the liberalisation of political regimes in many countries (Fowler et al 1992).

The terms Institution Building, or Strengthening and Institutional Development are used by different bodies and development agencies. DFID (1995) offers a definition of these terms:

> Institutional Development concerns "the process and content of change in institutions".
>
> Institutional Strengthening relates to "such change in individual organisations".

Capacity building is another term often used in this context however, it is suggested by Eade (1997) that this term refers to an individuals capacity to "determine their own values and priorities and to organize themselves to act on these". DFID (1995) also makes the distinction between Institution Vs Capacity and Development Vs Building by highlighting the difference reflects whether the focus is on:

- Individual organisations
- New or existing organisations
- Functional capacity

In this context organisations are purposeful, structured social units, consisting of a "collection of individuals who fulfil roles in order to realise common goals" (Fowler 1992). Organisations may develop into institutions by embracing complexes of norms and behaviours that persist over time by serving collectively valued purposes (Uphoff 1986). Regardless of the terms used to describe the development process there are 4 facets to institutional development (Edgcomb 1993):

1. Process – As institutional development is not 'static' it requires an organisation to learn, adapt and change
2. Capability – institutional development involves human resources as well as systems, both of which may need to be strengthened

3. Impact – institutional development is itself not a goal but a means to solve a problem and have a greater impact
4. Long term – institutional development leads to a self reliant organisation that can sustain benefits and services to members or clients.

Various authors have proposed models for assessing organisations' needs and development requirements. DFID (1995) proposes the 7S's model to review existing organizations in terms of:

1. Strategy
2. Structure
3. Systems
4. Skills
5. Staff
6. Style of Management
7. Shared Values

While this approach provides guidelines on assessing the internal aspects of an organisation its weakness is that it does not allow the external issues to be assessed. If this approach is adopted the external environment must also be investigated and taken into account. Key factors to be considered include:

- Other stakeholders
- Government policies and procedures
- Legal framework
- Informal influences
- Accountability

A review of the internal and external factors allow the planning of a framework to develop the organisation based around factors which include; its role and strategy, management systems and practices, organisational structure and human resource issues.

Fowler et al (1992) suggests a 3 staged approach to institutional development.

Stages	**Factors to address**
1. Building foundations and capacity in the organisation	Accountability, responsibility and resilience to external problems

2. Enhancing collaboration and cooperation	Developing networks, links and associations with other bodies
3. Altering relations with the state	Obtaining greater autonomy, involved in policy development

The staged approach is expanded further into a development framework by Edgcomb et al (1993). It is argued that there are still 3 stages in the development process:

1. Development – a start up period involving initial design, testing and improvement of the methodology and organisational structure. "The institution advances toward effectiveness"
2. Sustainability – a period of organisational growth. "The organisation advances towards efficiency and financial viability"
3. Expansion – the scale up period. "The organisation expands its programme by increasing clients and/or geographical coverage"

At each stage there are 4 components to be addressed; Vision, Capacity, Resources and Linkages. The Vision of the organisation addresses its ability to communicate the mission, reach the client population and achieve the desired level of impact. Capacity looks at the organisation's ability to structure itself, develop operating systems and recruit, train and retain staff. The organisation's ability to earn or raise funds to cover expenses, manage finances and ensure accountability are addressed in Resources. Finally the Linkages component reviews the organisation's ability to develop and maintain productive relationships with other relevant bodies in order to achieve its mission and goals.

There are many different ideas about the factors that make a good institutional development programme and the issues that need to be investigated and addressed. However, the three issues that are universally accepted are firstly, there are no standard solutions to institution building; secondly, the process takes a significant length of time and thirdly, there is no assurance of success. The Rockefeller Foundation's approach to successful institutional development has been "high quality intervention" and "highly qualified people" over a period of 15-20 years to create a critical mass of effective people (Picard et al 1994). Edgcomb (1993) and DFID (1995) both agree that the organisations must 'own' the problems and be committed to taking positive action. Their approach is as critical as the

activities that are actually undertaken. Organisations must be prepared for periods of no change or regression in their development and be flexible in taking into account changing opportunities that may arise (DFID 1995). Sustainability of the organisation is also a critical factor. Edgcomb (1993) describes sustainability in financial terms by explaining that the organisation must not only achieve operational sustainability (where income exceeds operational costs) but also financial sustainability (where the income exceeds the operational cost plus any loan repayment costs). However, Picard et al (1994) suggests that successful Institutional Development "presupposes a satisfactory level of donor and/or national commitment of resources".

Institutional development is often associated with the ideas of promoting agencies, development boards and contractors' associations (Lantran 1990). These institutions have been set up in various countries (Lemunge 1980, Cortes 1979) with the aim of improving and developing the indigenous construction industry. The main functions of these institutions vary but they generally seek to assist in a number of the following ways: (Lemunge 1980, Edmonds & Miles 1984, Kirmani & Blaxall 1988, Relf 1987, Miles & Neale 1991)

- Financial Support
- Technical support
- Training and advisory services
- Provision of equipment
- International intervention/assistance
- Regulatory procedures
- Policy planning
- Stability of working environment

Unfortunately there are a number of problems which are often encountered with these organisations. Firstly, they are often weak with a poor leadership and no clearly defined objectives to achieve their goals (Kirmani and Blaxall 1988, Miles and Neale 1991). Secondly, either small contractors form their own organisation as they are excluded from support by the large contractors (Kirmani and Blaxall 1988, cf. British Federation of Civil Engineering Contractors FCEC), or small enterprises "believe, erroneously, that they have little to gain from seeking the protection of a group, and also by the limited time they have

available for group activities" (Levitsky 1992). Thirdly, these organisations spend the majority of their time lobbying government for concessions from foreign competition rather than addressing the root causes of the problems (Kirmani 1988). These factors imply that in order for a development institution to be successful it must (Miles and Neale 1991);

- have a strong, knowledgeable and committed leader and staff
- a balanced intervention between training, consultancies etc.
- be flexible to react to new situations
- have close links with its clients
- have its impact judged by its clients results

Governments have tried various measures to improve local contractors' access to work. However, these measures have been ineffective primarily due to the fact that many of the contractors lacked the managerial capacity to apply the support offered (Adams 1998)

As an example, one of the factors frequently cited as a problem for contractor development is the issue of inappropriate contract documentation. This may be addressed by an institution building organisation in three different ways. It can offer training course to contractors possibly utilising different forms of contracts (fixed rate, negotiated rate or open tendering) until the contractors become more proficient (Gardiner and Imschoot 1993, Taylor 1996b). It can also lobby government and authorities to improve contract conditions and administration, and also assist with the preparation of revised conditions of contract (Kirmani & Blaxall 1988, Miles and Neale 1991)

A major part of institution building may involve the development of training organisations. This not only involves specific institutions for training in the construction industry but also the academic institutions of the country concerned. Like small businesses, these academic institutions suffer from a crippling shortage of financial resources (Auerhan et al 1985, World Bank 1991) which leads to a lack of information sources, physical infrastructure and qualified specialists, ultimately resulting in poor resource management and planning and little national or international recognition (Auerhan et al 1985).

Training offered to the construction industry can take many different forms including college courses, apprenticeship schemes, inter-firm (and intra-firm) courses and on-the-job training (ILO 1992). The form of training adopted will depend largely on the present and required skill levels of the participants (Hernes 1988) and whether improvements are sought in individual, group or organisation performance (ILO 1992). While training may improve the performance of an individual or organisation it is unlikely to solve the whole problem. There will always be additional elements due to the lack of management skill and other factors that will contribute to a development problem and must be solved by other means (Hernes 1988). Hernes also states that one-off courses do not work well as people must "learn and then practice to learn".

Although the majority of developing countries have a number of technical teaching or learning institutions they are mainly geared towards teaching equipment-based methods for undertaking construction projects (for example (Hussain 1992)). This results in a group of engineers and technicians who are unaware of or unable to make use of their local material and labour resources. The ILO has recognised this problem and has commissioned a set of training material for undergraduate and postgraduate courses in labour based construction. (Howe & Muller 1998) Nevertheless engineers and other technical personnel have strong misgivings about the feasibility of labour based methods.

Apart from direct training, another form of institution building can be achieved through technical assistance or cooperation projects, usually via international assistance. Technology transfer can be informal or formal; formal technology transfer can either be direct or indirect. A very effective form of direct technology transfer is the use of joint ventures with integrated work between local and foreign firms (Abbott 1985). These different types of technology transfer are classed by (Miles 1996c) in an ascending order of assistance as:

- "Window on the world" (access to information through consulting/advisory agencies)
- Fellowships and study tours
- Equipment and Publications
- International Expertise

"One of the most effective learning methods for adults" (Cooper 1984) is the use of a role model. This may be achieved through the twinning of institutions which can result in the integration of technical assistance and training. In order to be successful a twinning arrangement must have clearly defined objectives, time frames and agreements of services/staff to be exchanged and seconded.

Drewer (1982) suggests four criteria for determining the "appropriateness" of new technologies and techniques that were originally proposed by the World Bank:

1. Appropriateness of Goal - does the technology support the goals of development policy ?
2. Appropriateness of Product - is the final product or service delivered useful, acceptable and affordable to the intended users ?
3. Appropriateness of Process - does the production process make economic use of inputs ?
4. Cultural and Environmental appropriateness - are production processes and products delivered compatible with the local environmental and cultural setting ?

Structures and management of organisations

"Genuine decentralisation enables local organisations to exert pressure and defend projects because the negotiating partners and needs of the population are more clearly known" (Garnier and Imschoot 1993)

The above quote refers to the government organisations which manage road maintenance contracts, and implies improved productivity would be achieved if authority was devolved to a more local level. Regional officials are more informed of the problems encountered in the field and are therefore in a better position to deal with issues raised. This suggestion is echoed by (Levitsky 1993) in his requirement for a 'triangular organisation' with decisions made in the field.

Contracting and the construction industry is often considered as a male only profession, both at management and labourer level. However, research has shown that the output of

women labourers is equal to that of male workers (Jones and Petts 1991). On the other hand it has also been shown that women are suited to certain tasks more than men and vice versa. The greatest productivity being achieved when women and men are assigned to the different jobs at which they perform well (Stock 1996). As women are also capable of managing projects in a male dominated environment, including the construction sector, guidelines are required which develop women's participation in construction projects (Shah 1993)

Towards solutions to construction industry development

"Development experts can not avoid being drawn into positions which convert their findings and advice into value loaded acts. They should offer alternative solutions and present each with its social and political implications" (VanVelson 1981)

Numerous organisations have been created to develop the construction industry in their particular country (Lemunge 1980, Miles and Neale 1991) with various aims and objectives and with equally varying levels of success. It has been widely stated by "development experts" that an organisation is needed to undertake various development roles. The title of this organisation varies from Contractor Association and Contractor Development Agency to Construction Industry Development Board and Institute for Construction Management and Training. While the overall aim of all these programmes is to assist the expansion of the indigenous construction industry in developing countries, the specific objectives differ.

The earliest contractor support agency was the National Construction Corporation (NCC) established in 1967 by the Kenyan Government with support from NORAD (ILO 1979). Other notable agencies promoted during this include SEDCO (Swazi Enterprises Development Corporation) and BEDU (Botswana Enterprises Development Unit). These Contractor Support Agencies (CSA) have performed four main roles:

1. Project-related finance disbursed either directly by the agency or through commercial banks
2. Providing performance guarantees for contractors, and assisting in the preparation of tenders or directly procuring a number of projects which were subcontracted to contractors

3. Provision of training on topics including site supervision, pricing and bidding, financial management and project planning
4. Cheap supply of materials which were procured in bulk by the agency on favourable terms. Plant and other equipment could also be hired or bought on a hire-purchase agreement.

Ofori (1991) highlights a number of problems with CSAs providing the services listed above:

1. Lack of experienced and qualified local personnel
2. Expertise-intensive activities reduce the number of contractors that can be supported
3. Dependency mentality developed by the contractors results in over reliance on the agency
4. Ensuring that the contractors are committed to the objectives of the agency and the construction sector rather than making a 'quick buck'.

In addition, none of the agencies has made headway in improving the operating environment for the contractors.

There is a wide range of different proposals for assistance (Relf 1986). For each developing country it will be necessary to decide which are the most suitable. Once particular methods of assistance have been identified, how that assistance is to be provided must also be addressed.

One of the main areas of assistance is in the field of training and advisory services (Relf 1987). Within the training sector, the organisation could run its own formal full-time, part-time or distance learning training courses (Lemunge 1980). It could also act as an intermediary or agent to assist with the provision of technical experts to provide on-the-job training or arranging 'technology transfer' agreements with other larger or international firms. On the other hand (Kirmani 1988) suggests that training should be provided by a separate organisation which maintains close links with the main organisation. Advisory services are an important service wherever information is difficult to obtain from other sources such as libraries, consultants and research organisations. A contractor will require advice on technical, business and legal aspects of his work. The two key issues in providing

this advice will be firstly, exactly what advice and at what level will it be required and secondly, whether it can be provided from a central location (Relf 1987).

The other main area of work for the organisation would be assistance in financial matters. While most experts believe that some form of financial assistance should be provided, opinion is divided on how this should be achieved. It may be possible for the organisation itself to develop a banking section and provide its own loans or alternatively, the organisation may facilitate the provision of financial services through existing banks and lending agencies. The organisation needs to address the issues of not only the access to long term and working capital but also the scale of loan charges (Lemunge 1980). It also needs to discuss with the banks and clients the scale and availability of bonds and guarantees (Relf 1987, Kirmani and Blaxall 1988). Coupled with its training services, the organisation could provide financial accounting and bookkeeping courses to improve the contractor's ability.

The organisation can provide a corporate identity for the contracting sector, providing one voice for all its members. This will assist when making representations to government (Relf 1987, Kirmani and Blaxall 1988) particularly on issues of import taxes and licensing restrictions (Lantran 1990). It would also be able to offer policy and technical advice to government and large client organisations which could improve the flow of work. (Relf 1987). The organisations would also be able to represent their members' interests and offer advice on new contract procedures and national codes or standards (Lantran 1990, Kirmani 1988). In addition the organisation would be able to draft professional standards for its members (Kirmani 1988) which would offer a 'good impression' to clients and the public.

Contractors often experience difficulties in procuring equipment and spare parts. As with the issues of finance, opinion is divided as to whether the organisation itself should provide a plant hire service or promote the idea to independent organisations. (Relf 1987) explains that the criteria set for assistance should be considered carefully to determine whether the supply of large and expensive equipment is a task to be carried out by an organisation aiming to develop small contractors. On the other hand the organisation may assist with the provision of spare parts for common items of equipment (Lantran 1990) which may be

achieved by ordering in bulk and selling on to contractors or lobbying for reduced import duties and levies on equipment.

Finally the organisation may carry out research and development work to improve the efficiency and capacity of the industry (Kirmani and Blaxall 1988, Miles and Neale 1991). As there are many different services which the organisation could offer to contractors at different stages of development (Miles 1983) suggests that the organisation "should not spread itself too thinly" in order to remain effective.

There are a number of key issues which should be addressed when promoting a development organisation (Relf 1987, Levitsky 1992) and criteria necessary for success (Miles and Neale 1991). The primary issue, the funding of the organisation, will always determine how successful and the services that the organisation will be able to offer. (Levitsky 1992) highlights four different sources of funding for services:

- Membership fees
- User fees
- Government support (direct and indirect)
- Donors and large businesses

Depending on the service being provided one or more of the four sources of revenue may be used. Levitsky also indicates that a decision should be made on whether membership should be voluntary or obligatory and how assistance should be charged out to members and non members.

The second important issue is the identification of the target support group and type of assistance which should be provided. Once these issues have been resolved, the scale of assistance to be provided and criteria for withdrawing assistance should also be agreed (Relf 1987). The criteria for withdrawing assistance are highlighted by (Edmonds and Miles 1984) with the discussion of "will it ever end" which states that once the organisation has been created it can continue offering support, probably to newer contractors, or can it work itself out of a job.

The structure and staffing of these organisations are critical to their success, which requires training and development of the organisation's staff in addition to the contractors themselves (Miles and Neale 1991). Miles and Neale also offer a four point goal plan for development organisations:

1. Better understanding of the industry
2. Encouraging a national contraction capability
3. Improving performance of the industry
4. Strengthening the institution

Conclusion

"Small Scale Contractors, like babies should be assisted to come into the world, to learn to stand and walk and thereafter, be gradually left to fend for themselves" (Sibanda 1999)

Chapter 4.

Research methodology

Introduction

This chapter outlines the methodology used to carry out the research. The following issues are discussed:

- choice of research methodology
- reliability and validity of data
- sources of data, reasons for choice and methods of collection
- methods used to collect and analyse data

Research strategy

The 'super-hypothesis' to which this thesis contributes is:

Effective and sustainable small scale construction enterprises can be developed through appropriate institutional support

and the specific hypothesis for this research is:

There is a mechanism for supporting the majority of the small scale construction sector resulting in an increase in construction capacity which through small adaptations will be transferable to different developing countries.

In determining the research methodology for this study both these hypotheses have been used to guide the author. The super hypothesis had a significant bearing on the approach used at the start of the research while the specific hypothesis determined the overall approach to the whole research.

The hypothesis for this research leads to the following research question:

What are the mechanisms for supporting and developing the small scale contracting sector ?

There are five commonly cited methods that may be employed in a research project or study; case studies, experiments, surveys, histories and archival information. (for example

Pratt & Loizos 1992, Yin 1984). The benefits of each of these methods will depend on three conditions; (Yin 1984)

1. the type of research question
2. the control an investigator has over actual behavioural events
3. the focus on contemporary as opposed to historical phenomena

Yin provides a table, reproduced below, which reviews the suitability of the different methods based on the three conditions.

Strategy	Form of research question	Require control over behavioural events	Focus on contemporary events
Experiment	how, why	yes	yes
Survey	who, what, where, how many, how much	no	yes
Archival Analysis	who, what, where, how many, how much	no	yes/no
History	how, why	no	no
Case Study	how, why	no	yes

Table 4.1 - Different research methods

Yin lists 'what' questions only in survey and archival analysis techniques because he uses the word in the context of prevalence, although he acknowledges that exploratory 'what' questions will be applicable to any research strategy.

As this research is concerned with contemporary events, albeit possibly affected by events in the recent past, the use of historical methods could be eliminated. The large number of variables affecting the study which were outside the author's control also eliminated the use of experimental techniques. A combination of the remaining 3 techniques was used for this research. The initial research focused on the use of archival analysis of recent events and case studies while the latter half utilised a survey to support the hypothesis.

Any project or job can be broken down into tasks or activities. Kirk and Miller (1986) suggest that qualitative research has 4 stages:

1. Invention denotes a phase of preparation or research design
2. Discovery denotes a phase of observation, measurement or data collection
3. Interpretation a phase for evaluation or analysis leading to understanding

4. Explanation a phase of communication which produces a message

These 4 stages can be expanded into seven stages (Nachmias & Nachmias 1990)

1. Problem
2. Hypothesis
3. Research design
4. Measurement
5. Data collection
6. Data analysis
7. Generalisation

The research process is often carried out in a cycle with the generalisation of one piece of research leading to the start of a subsequent piece of work. Any research is based, and builds, on previous work or knowledge which is documented in some form. However, for work carried out in developing countries documented records are often sparse and unreliable. The construction industry, in any country, comprises a formal and informal sector. The informal sector typically comprises one man businesses who enter and leave the sector according to demand and level of work available. This informal sector by virtue of the size of the business is invisible to national construction statistics (Edmonds and Miles 1984) and is therefore an area where basic data does not exist.

Although the author has followed the stages outlined by Kirk and Miller (1986) and Nachmias & Nachmias (1990) it has been necessary in this study to carry out two sub-cycles in the research programme. 'Interpretation and Explanation' or 'generalisation' of the first cycle investigations leading to the second cycle of the study, the proposal of a model for a contractor support agency. This cycle required the testing of the model and evaluation of the results in order to support the hypothesis. The actual study approach is outlined in the section below.

- Reliability and validity

The key issue in any piece of research work is objectivity. In either quantitative or qualitative research, objectivity can be broken down into two components; reliability and validity:

- Reliability is the extent to which a measurement produces the same answer however and whenever it is carried out
- Validity is the extent to which it gives the correct answer (Kirk & Miller 1986)

Validity can be further divided into three types (Yin 1984)

- Construct validity - establishing correct operational measures for the concepts being studied
- Internal validity - establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships
- External validity - establishing the domain to which a study's findings can be generalised

In designing the research methodology careful attention has been given to ensuring it is reliable and valid. The use of triangulation techniques has been particularly useful in this respect. For example, in the collection of data from existing contractor development projects figures quoted in one source have been compared with similar figures quoted in an alternative source.

- Case studies

The case study can take a wide range of forms and definitions. For the purpose of this work the definition of a case study has been taken to be:

- an investigation of a contemporary phenomenon within its real-life context; when
- the boundaries between phenomenon and context are not clearly evident; and
- multiple sources of evidence are used

(Yin 1984)

The use of case studies is commonly criticised for the following reasons (Yin 1984):

1. lack of rigour, leading to equivocal evidence or biased views being presented
2. difficulty in generalisation from single case studies
3. excessive length, resulting in unreadable texts.

These criticisms have been addressed in this research by preparing short case studies for each of the projects studied which has provided 6 cases. Information has been gathered for each of the cases from different sources. Yin suggests 6 sources of evidence: documentation, archival records, interviews, direct observations, participant-observation and physical artefacts. For the purposes of this study, however, the first four sources were used as the last two were considered unrealistic and inapplicable respectively.

Throughout the preparation of the case studies the guidelines outlined in texts covering research method design, particularly Yin (1984), have been followed in order to reduce the possibility of criticism in the use of case studies.

- Surveys

The latter part of this research utilised a questionnaire survey to evaluate the contractor support agency model. Fink and Kosecoff (1985) suggest that there are other methods for collecting data in addition to surveys:

- observations and eye witness accounts
- performance tests; observers assess the effectiveness
- written tests of ability or knowledge

(to assess if someone has learned or changed attitude)

- record reviews that rely on existing information

However, none of these alternative methods were suitable for this research. Fink and Kosecoff also suggest that surveys can be carried out either through questionnaires or by interview. The advantages of utilising an interview approach are that the questions posed can be tailored to the individual and interesting responses can be investigated further. On the other hand questionnaire responses can often be more rigidly defined which may prevent the collection of irrelevant data. There is also a trade off between time, cost and convenience in collecting the data. For this study the trade off favoured the questionnaire approach as potential respondents were located around the world

The reliability and validity of different research methods will also affect the chosen approach. However, as the reliability and validity of survey are the same whether a questionnaire or interview approach is taken (Fink and Kosecoff 1985) this factor did not affect the choice of research approach. For some research the issue of anonymity for .

respondents is also important. Interviews prevent anonymity but questionnaires may allow the respondents, if they wish, to remain anonymous. For the purposes of this research anonymity was not considered to be a problem. The questionnaire survey requested respondents to indicate their name but indicated that they may remain anonymous if they desired.

Each interview will result in collection of some data, but questionnaires can often be ignored resulting in typical response rates of a maximum of 50 percent (Allison et al 1996). Many of the techniques covered in literature (eg. Allison et al 1996, Oliver 1997) which can be used to improve the response rate that were utilised. Three key techniques to improve response rates that were employed were:

1. Producing a short questionnaire which can be completed in a few minutes. This factor is particularly important for people who consider themselves busy with limited spare time
2. Asking closed, multiple choice or simple one word answer questions
3. Providing a method and/or assisting respondents to return the questionnaires, for example, enclosing an addressed envelope

These three techniques were used in this study to improve the response rate to the questionnaire. The second technique may be criticised for limiting the information that can be obtained from each respondent. Attempts were made to mitigate this criticism firstly by allowing respondents to add their own category in multiple choice answers if they required, and secondly by providing space at the end of the questionnaire for them to make any other comments or statements that were felt to be relevant.

Research programme

Every piece of research work has to be designed or have an action plan to get from the initial set of questions through to the final conclusion. Yin (1984) suggests that research design deals with four problems:

1. What question to study
2. What data is relevant
3. What data to collect
4. How to analyse the results

The author developed an interest in small scale contractors through a project investigating the role of contractors in road construction and maintenance. This project highlighted that there were frequently very few small local contractors despite the quantity of work potentially available to them.

It was mentioned above that this research study was carried out in two stages. As there is relatively little information on small scale contractors in developing countries the first stage of the study involved investigating:

1. the problems experienced by small scale contractors
2. previous projects designed to help develop small scale contractors
3. the institutional framework governing the operation of the construction industry in developing countries.

These aspects of the study are discussed in chapters 5, 6 and 7. Data was collected from various sources outlined in the subsections below. Analysis techniques were dependent on the data collected, but resulted in the key issues to be address and factors affecting support summarised at the end of each chapter.

The outputs from the first stage of the study, the key issues which needed to be addressed formed the foundation for the second stage of the study. Taking into account the factors which had been found to affect the support to be given to contractors, a model was developed for an agency that would provide institutional support to contractors. This model outlined the investigations that would be required to initiate the organisation and the roles and activities that could be undertaken based on the findings of the initial three studies. Additional investigations were also undertaken to provide outline guidelines on staffing and financing issues and how the success of the scheme could be measured.

The obvious and most rigorous method for testing the Contractor Support Agency model and hence the hypothesis would be to set up and run a large number of organisations. However, this option was clearly not viable due to the timeframe and the financial inputs required. The model and hypothesis were tested through an evaluation questionnaire which investigated issues of how the agency might operate and its applicability to different areas of the world. A working paper was prepared which summarised the key issues of the first

phase of the study and presented the model for the Contractor Support Agency (chapter 8). The questionnaire was sent accompanying the working paper to experts in the sector. Appendix 1 contains a list of the experts who were sent the questionnaire. The responses to the questionnaire were used to test and prove the hypothesis

The flow diagram below shows the stages undertaken in the research.

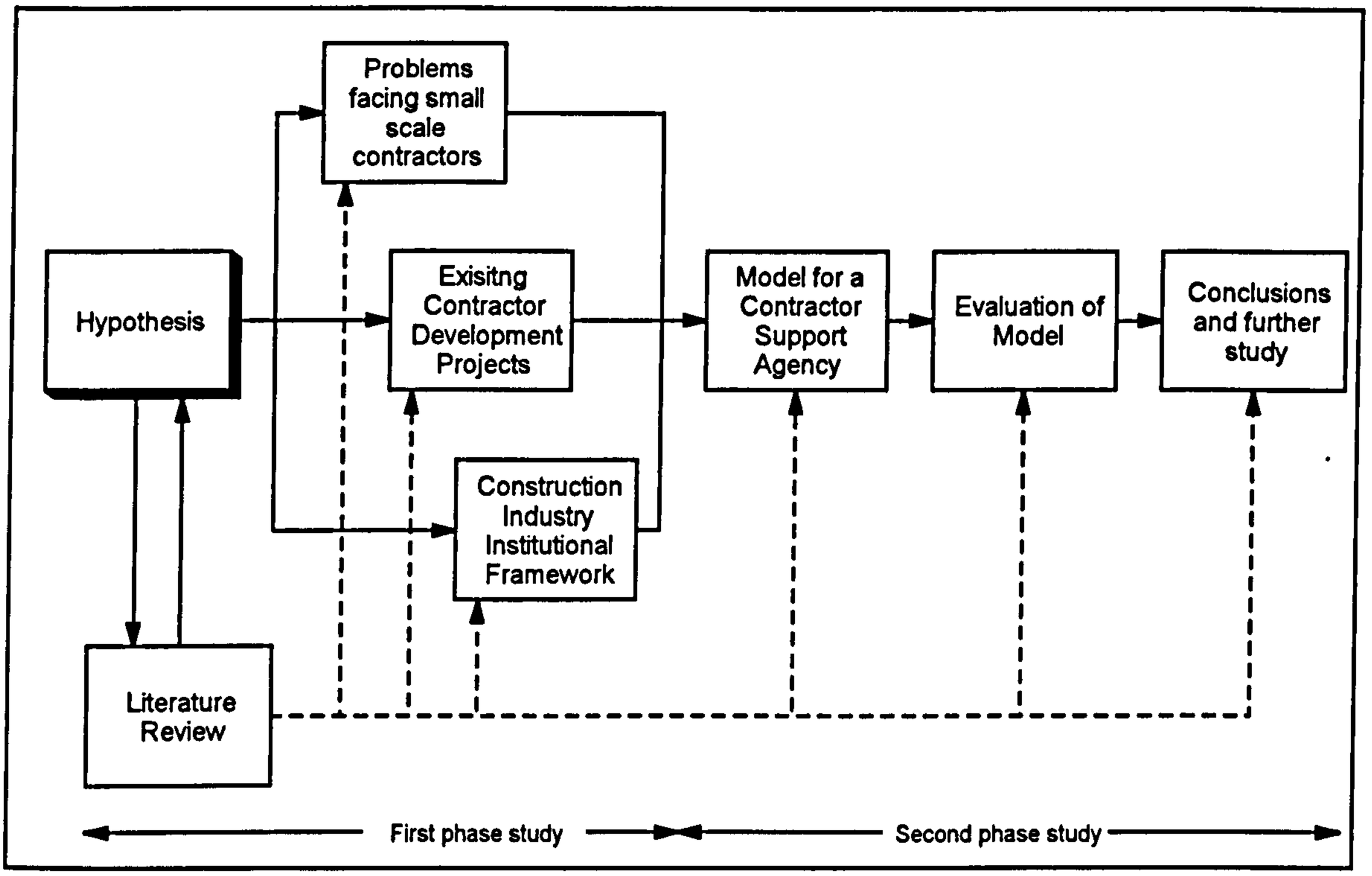


Figure 4.1 Research stages

The following subsections discuss the individual aspects of the research and outline the sources and how the data was collected. The issues of how the data was analysed and objective maintained are also discussed.

- Problems facing contractors

The first step was to investigate the problems experienced by small scale contractors, in order to determine the most effective support mechanism. Clearly the most effective method to obtain this data would be to question contractors themselves either through direct interviews, open discussion or questionnaires. Unfortunately it is very difficult to obtain complete and accurate information directly from the contractors who were to be the

subject of this study. Through other research the author discovered that these contractors are very cautious about discussing detailed problems and issues concerning their business with a "mahzungu" whom they have not met before and may use the information for uncertain purposes. This problem has also been encountered by other researchers (Ward 1997). Data was therefore collated from existing reports where other studies had been undertaken. The information in these reports could be taken as being reliable as the authors of this data had been able to spend time observing the work undertaken by contractors and had also developed a level of understanding and trust. The data was sourced from different authors or organisations in order to obtain a balanced view.

The data was recorded as a list of problems and the number of occurrences (number of data sources highlighting the particular problem). This enabled the data to be sorted into general categories of problems and problems to be ranked by level of occurrence. Appendix 2 lists the problems encountered. As each author describes a problem in a particular way, similar problems were defined as separate problems each with a single occurrence rather than grouping similar problems together to ensure validity. A review of the lists of problems revealed that many of the problems were related to each other. Diagrams were therefore produced (chapter 5) to graphically illustrate the interrelationships between the different problems.

There were considered to be two methods for defining the severity of the problem affecting small scale contractors.

1. The number of occurrences of the problem (i.e. how many times the problem has been highlighted by separate authors as affecting small scale contractors). This approach would be straightforward to assess but may not allow the root problem, or problems, to be determined. Authors writing reports who have been directly overseeing the problems facing a small contractor may not have the benefit of other reports to analyse the interrelationships between different problems and hence determine the core problems
2. The number of problems which occur as a result of a different problem. This approach requires the use of interrelationship diagrams. It may be argued that this approach is more subjective; but it is more likely to highlight the main problems preventing contractors' development.

A combination of the two approaches discussed above was adopted to highlight the key problems which needed to be addressed in order to provide support to the contracting industry.

- Contractor development projects

There have been many projects designed to develop the contracting industry in specific developing countries (for example ILO 1997). It is necessary to study these projects to determine aspects that were beneficial, detrimental or neutral to supporting small scale contractors. Data was collected from project reports that ranged from inception, planning and progress reports to monitoring and evaluation reports. The level of documentation of the different projects tended to be proportional to the success of a project. Projects or initiatives that were considered to have been unsuccessful are poorly documented, particularly where the have failed over a short period of time. It was therefore only possible to collect data, in this phase of the study, on projects that had achieved at least a certain level of success.

As each project was structured differently and had somewhat different objectives it was not possible to directly compare different projects. Short case studies were prepared for each project utilising as many of the 'six sources of information' (Yin 1984) as possible. The main issues highlighted in the study of the problems facing the contractors formed a focus for the preparation of the case studies. The following issues generally appear to be covered in the majority of the reports which have contributed to the case studies:

- Level of international assistance provided
- Training programme format
- Equipment provision
- Contracts and payments
- Programme objectives
- Contractor selection

Although the case studies provide a useful reference to the planning of future contractor development projects they also outline a wide range of issues that need to be addressed and

operational procedures that need to be put in place for small scale contractors to be able to compete on equal terms in the market place.

- Construction industry framework

The MART (Management of Appropriate Road Technology) project highlighted the fact that one major constraint faced by small scale contractors attempting to obtain work in the road sector was the institutional framework which controls the industry. (Miles 1996e) This section of the research investigated the institutional framework of the UK construction industry and compared it with the construction industry framework of developing countries. Case studies were also prepared to contrast the different schemes that have been attempted to develop the construction industry institutional framework in developing countries.

- Evaluation of the CSA model

The initial stage of the research indicated that an organisation was required which could provide support across a range of different fields to the majority of contractors. The development of the contractor support agency model was based on this premise. The framework for the contractor support agency presented in chapter 8 was based on the findings of the initial phase of the study and further literature providing information about support mechanisms to contractors. It was necessary in a number of cases to modify or adapt schemes proposed in the literature in the light of the findings from the initial stage of this research and for the scheme to be operated by an autonomous agency.

It was felt that the model for a contractor support agency presented in chapter 8 would answer the research question and hence support the hypothesis. It was therefore necessary to test and evaluate the model through three steps to show that it satisfied and proved the hypothesis. These steps were:

1. Show that the general outline of the model was correct
2. Clarify and / or quantify issues that had not been resolved in the presentation of the model
3. Determine the model's applicability to a range of developing countries and construction sectors

Evaluation of the first two steps would aim to support the first half of the hypothesis; *there is a mechanism for supporting the majority of the small scale construction sector resulting in an increase in construction capacity.* The third step would aim to support the second half of the hypothesis: *which through small adaptations will be transferable to different developing countries.*

It was mentioned above that the most rigorous method for testing the model would be to run a project to set up a contractor support organisation in a developing country and monitor its progress. While this approach would allow the testing of the first two steps in supporting the hypothesis it would not be a practical approach. If a single test were carried out it would still not be conclusive as it would not be possible to show that the agency would be viable or appropriate to a range of different developing countries.

The most suitable method for testing the model was to consult other practitioners who have been working in the field of contractor development, thereby drawing upon dispersed, and frequently undocumented, collective experience. It would be necessary to obtain their views on the proposed model and on the unresolved issues. These views were obtained in two ways:

1. A questionnaire to gain a general, albeit more limited, view of a wide range of experts, followed by;
2. Semi-structured interviews which gained a more detailed view of the opinions of 3 experts and allowed issues which had been raised by the questionnaires to be discussed in more detail.

The questionnaire contained in Appendix 3 was compiled, to investigate the three issues stated above. Fink and Kosecoff (1985) state that a large sample size is required to draw definitive conclusions from any questionnaire. Unfortunately, the number of practitioners throughout the world working in this field is limited. A balance was therefore required between attempts to obtain a limited response from high quality respondents who had a good knowledge of the contractor development sector and a larger response to the questionnaire from lower quality respondents who may only have a limited knowledge of the sector.

Experts selected to receive the questionnaire were drawn from 2 databases; the MART (Management of Appropriate Technology) database (MART 1995) and the database of recipients of the ILO guide *Capacity Building for Contracting in the Construction Sector* (Bentall et al 1999). The author believed that by combining the names on these two databases and sending the questionnaire and accompanying working paper to specific people (rather than organisations) listed, the majority of practitioners with experience of the sector would receive a copy of the questionnaire. A significant number of recipients from these databases were also personally known by the author and hence a high response rate could be anticipated. The questionnaire was sent out to 76 recipients.

Fink and Kosecoff (1985) also state that a questionnaire survey should be trialled with a limited pilot sample to ensure that the data collected is valid. i.e. the respondent has understood the questions and instructions. Due to the limited sample size available for the actual survey, it was not considered possible for this investigation to use part of the sample in a pilot survey. Nevertheless a pre-test survey was carried out with the questionnaire to ensure that the content, instructions and questions were explicit to an educated reader. The questionnaire was given to a small sample of recipients who had little or no knowledge of the contracting sector. They were asked to complete the questionnaire 'to the best of their knowledge' and highlight any ambiguities that they discovered. This pilot survey resulted in minor changes to the phrasing of some questions and instructions for ranking responses before the questionnaire was distributed for the main survey.

Five weeks after sending out the questionnaire 37 responses had been received which gave a 49% response rate. The limited number of questionnaires that were received did not allow detailed statistical analysis to be carried out with the results. Rank orders, averages and importance weightings provided by respondents were used to prove the hypothesis.

The semi-structured interviews were carried out after the analysis of the questionnaires had been completed. This allowed questions that had not been fully answered and issues that had not been fully clarified in the questionnaires to be investigated in more detail. The detailed discussion and analysis of the questionnaire and interviews results is contained in chapter 9.

Chapter 5.

Problems, Difficulties and Constraints

Introduction

This chapter discusses the problems facing small scale contractors in particular and the development of the contracting industry in general.

It may initially appear to be a simple process to determine the problems encountered by small contractors who are commencing work. It should be possible to ask them what are the main problems facing their business, and as contractors are always great complainers, a long list of replies can be obtained. However, the one answer that will always be obtained, straightaway from virtually all contractors, is lack of money. It is a fact of life that however much money an individual or small enterprise owns or has access to it will never be sufficient for their perceived needs. The art of success in contracting or any other business enterprise is to obtain sufficient funds to operate. As a white expatriate it is often difficult to persuade contractors to openly discuss their business affairs (Ward 1997). Contractors will often give the answer they want you to hear rather than the whole truth.

While lack of money is undoubtedly a constraint on any small business, further in depth investigations must be undertaken to determine what financial and other types of constraints inhibit the development of small scale enterprises in the construction industry. Despite these constraints some contractors manage to expand their business into large relatively successful companies (although they will still complain about lack of money) while others businesses will fail resulting in bankruptcy.

Contractors who manage to operate a business have to some extent overcome the problems affecting the industry. This has usually been achieved by finding a way to circumvent the problems rather than actually addressing the cause of the problem which may often be beyond their control. It is therefore necessary to highlight the problems and look for ways to address their cause rather than avoiding them or implementing measures that 'sweep them under the mat'.

Previous investigations

There have been a number of previous projects that have specifically sought to determine the constraints affecting the development of the small scale contracting industry. The

UNIDO/World Bank Cooperation Programme undertook studies in Swaziland, the Sudan and the Yemen. The ILO's Construction Management Programme which ran from 1976 to 1994 sought inter alia to determine the constraints faced by local contractors and to propose means of overcoming them. The programme undertook extensive studies in Ghana (Miles and Ward 1991) and Nepal (Miles 1991) to determine the "Practices, Problems and Needs" affecting the industry in these countries. These studies each compiled an extensive list of problems which ranged from commonly cited problems such as a long delay in receiving payments to more subtle issues which include for example a fear of being blacklisted for claiming their contractual rights.

More recently a study, sponsored by the British Council, was undertaken in Nigeria to determine "appropriate development programmes to ensure sustainable development of domestic contractors and to promote their effective participation in the local construction industry" (Adams 1997 & 1998). This study investigated the different perceptions of the constraints on industry performance by surveying 'professionals' in addition to contractors. These professionals had received a tertiary education in building, architecture, engineering or quantity surveying. Adams also investigated the different perceptions between professionals and contractors in their opinions of the measures which should be implemented to promote the development of the indigenous contracting sector.

The abolition of the apartheid regime in South Africa has resulted in a large employment and infrastructure generation programme to support and develop disadvantaged communities. The requirements of an effective construction industry and the potential of small enterprises to create a large number of unskilled and semi-skilled jobs has resulted in a various studies to investigate the problems facing the development of these enterprises (Ward 1995, CSIR 1993, Dept of Public Works, RSA 1997, Miles and Ward 1998). These studies have, in general, been undertaken as part of a larger project to determine the training that should be provided to contractors.

Reports of studies in numerous other countries highlight problems which may be encountered by small scale contractors. Some of these problems may be country specific while others occur in a number of countries. The list of problems assembled from over 20 reports and books is included in Appendix 2 which also includes references specifically .

mentioned above. Many reports mention different problems that may be encountered by small scale contractors; for the problems to be included in the list, however, the reference must have a specific section which discusses contractors' problems rather than a general mention of problems throughout the reference. As each report has described a particularly problem in slightly different ways it has been necessary to apply a small amount of interpretation of specific wording in order to categorise the problems. Some of the problems are also very specific while others are more general. The problems have been initially categorised under the headings below to highlight where the greatest number of problems lie.

Category	No. of Problems in category	Total no. of problem citations in category
Labour	12	24
Equipment	8	16
Materials	15	22
Contract Procedures	25	59
Education and Training	13	25
Technical	15	32
Financial	29	73
Other Problems	27	38

Table 5.1 - Problems facing contractors

Training - helping to alleviate problems

It was mentioned above that studies have been undertaken to determine small scale contractors' training needs (for example Miles and Ward 1991 & 1998). The projects, of which these studies have been part, have produced training materials to assist contractors to overcome their own shortcomings. Other training materials produced by projects, particularly the ILO, have already been discussed in the literature review.

Hernes (1988) suggests that there are 3 stages to training:

1. Learning a new skill
2. Applying the new skill
3. Using the skill with success

While training can help by reducing small contractors problems it will not offer a complete solution to the problems that he encounters. Hernes (1988) also suggests that there are two further issues to be addressed in solving the total problem, shown in figure 5.1.

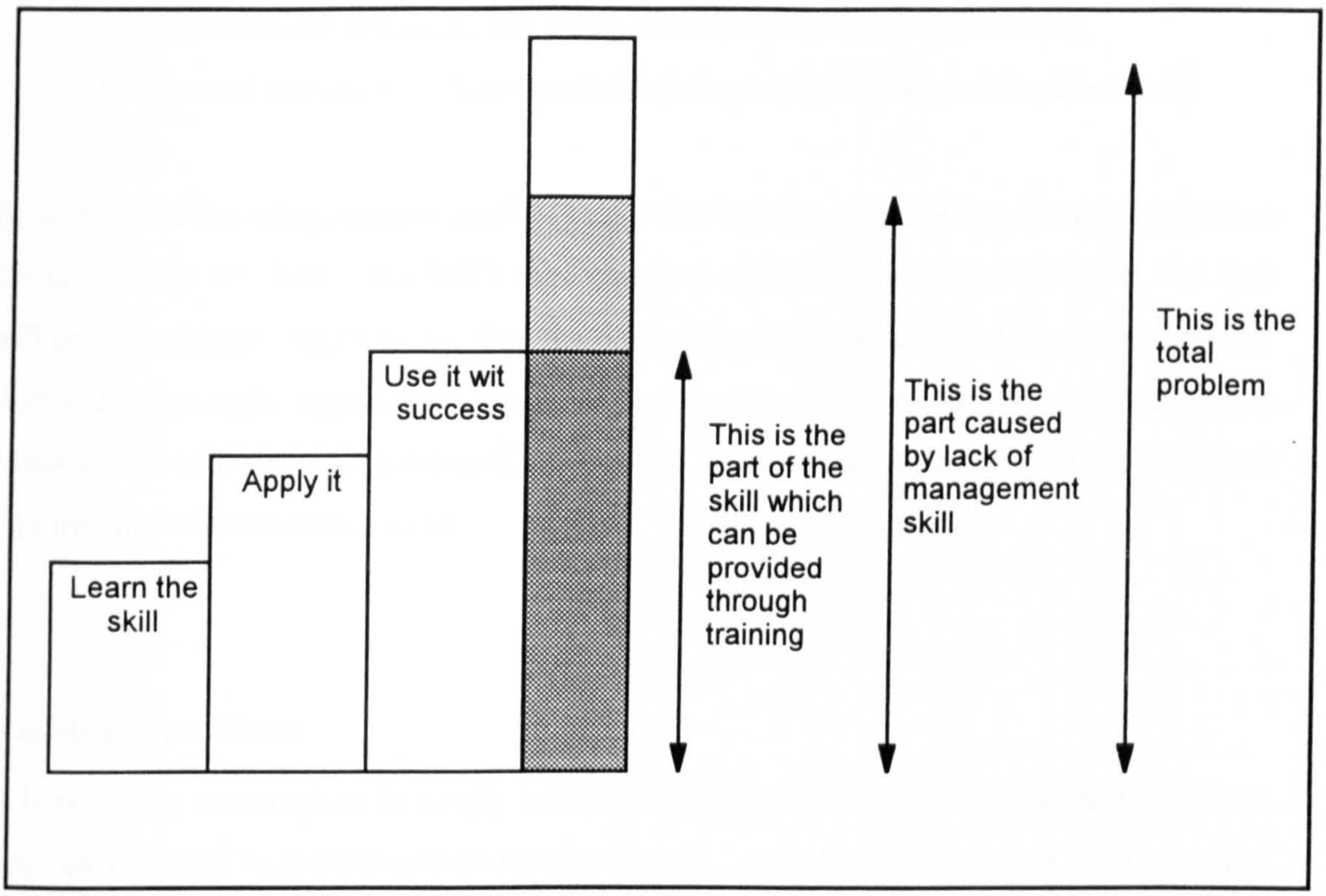


Figure 5.1 Analysis of small scale contractors' problems

This idea is supported by Miles (1993 and 1996b) who suggests that there are 4 stages to delivering training. These stages commence with a survey of the needs and then develop and deliver modular training but also provide technical and managerial services to support the training and promote measures to remove the constraints.

Problems may be categorised under the nature of the problem or constraint that may be encountered. However, Relf (1987) suggests that constraints inhibiting the performance of small scale contractors may be grouped under 3 headings:

1. Difficulties presented by the particular market and business environment in which the contractor is operating.
2. Difficulties deriving from clients.

3. Difficulties deriving from the shortcomings and inadequacies of the contractor himself.

Milne (1994) suggests that there are two types of constraints:

1. Internal constraints - factors which the contractor has direct control
2. External constraints - factors which are beyond the control of the contractor

Regardless of the categorisation used it is clear that training schemes may be able to remove the constraints which fall into Relf's third category or Milne's internal constraints, but they will only be able to reduce or alleviate the difficulties which fall under the other categories. Relf and Milne each suggest that in order to provide support for developing contractors it is necessary to address constraints in all categories. There is also a need to identify problems that training courses cannot solve

Ranking of problems

It is relatively meaningless to simply review the full list of over 140 problems which have been encountered in at least one country or project. A ranked list of the 18 most common problems collected from the reports, based on frequency of occurrence, is shown in Table 5.2. It should be noted from the table that the only problems listed which fall in the "internal constraint" or "difficulties derived from the shortcomings of the contractor himself", are lack of contractors' ability to prepare tenders is ranked 6th and lack of expertise in planning and programming is ranked 16th. Table 5.2 would suggest that training courses can only assist to alleviate the problems but will not eliminate them altogether. This would agree with the theory suggested by Hernes.

Rank	Problem	No. of occurrences
1=	Bank finance is difficult to obtain	12
1=	Long delays in receiving payment	12
3	Contract documents are over complex and unsuitable for the work	10
4=	No work continuity	9
4=	Poorly managed/ non existent classification or prequalification system	9
6=	Lack of contractor's ability to prepare tenders / estimates and bids	8
6=	Lack of skilled labour / staff at all levels	8
8=	Little or no on-site supervision / quality control	7
8=	No provision for price fluctuations / estimated badly	7
10=	Specifications are vague, over complex and/or impractical (usually foreign codes)	6
10=	Insufficient meetings between client, consultant and contractor	6
10=	Lack of equipment for hire	6
13=	Very high bank interest charges	5
13=	Contract document biased against the contractor	5
13=	Difficulty in obtaining performance bonds / guarantees and their cost	5
16=	Contracts awarded to companies who bid too low (lowest tender)	4
16=	Delays and shortage of supply - materials	4
16=	Lack of expertise in planning and programming	4

Table 5.2 - Common problems facing contractors

Table 5.2 is based on observations from a range of countries; it can be compared with Table 5.3 that shows the top 10 constraints on indigenous contractors from one country, Nigeria. It shows the constraints inhibiting contractors' performance ranked by the contractors themselves and the professional working in the industry (from Adams 1997).

Constraint	Contractors Ranking	Professionals Ranking	Combined Ranking
Uncertainties in supplies and prices of materials	1	2	1
Obtaining interim payments	2	4	3=
Procuring work	3	3	3=
Access to capital	4	1	2
Negotiating variation payment	5	14	8
Access to plant and equipment	6	6	5
Inappropriate contract conditions	7	15	9
Maintaining plant and equipment	8	9	7
Resolving contract disputes	9	22	11=
Meeting contract deadlines	10	5	6
Accounting / financial management	19	8	10
Project planning and site management	21	10	11=
Company organisation	24	7	11=

Table 5.3 - Constraints facing contractors in Nigeria

From Table 5.3 it can be concluded that professionals working in the industry rate contractors' own shortcomings higher constraints than do the contractors themselves. Nevertheless, Adams' study shows the majority of the highest ranking constraints, regardless of the group questioned, are not caused by the contractors themselves. Although it may be argued that "procuring work" or "negotiating variation payment" are shortcomings of the contractor, problems collated from the range of reports listed in Appendix 2 would suggest that these constraints could fall outside the control of the contractors. 'No work continuity' and 'no contract provision for price fluctuations' are two examples of constraints that are not due to the contractor but would be classified under Adam's two headings "procuring work" or "negotiating variation payment". This would suggest that these constraints are not solely the contractor's own shortcomings but may also be caused by external factors and therefore the categorisation may be blurred by the specific words used.

In both of the tables above financial and contractual issues form the majority of the constraints experienced by small scale contractors.

Source	From tables above		From complete list		Total number of constraints in list
	No.	%	No.	%	
Larcher	13	72	54	38	144
Adams	8	66	11	42	26

Table 5.4 - Comparison of financial and contractual constraints against other constraints

Financial and contractual constraints comprise almost half of the total constraints experienced by small scale contractors. They are also higher ranking in importance when compared against other constraints. This would imply that the most important issues to be addressed in improving the development of small scale contractors based on the ranking of their constraints are financial and contractual issues.

Training - assisting to remove financial and contractual constraints

In their investigations of the constraints experienced by contractors in Ghana and South Africa, Miles and Ward (1991 & 1998) questioned contractors on their training needs. This investigation was conducted using a questionnaire offering 42 topics divided into 6 groups, allowing contractors to indicate if there was a great need, some need, small need or no need for training to be provided for that subject.

Table 5.5 shows the training needs between the two countries with 10 common topics in their 15 highest ranked training topics. It is interesting to note that South African contractors appear to have problems with materials and equipment as topics in these categories are ranked 2nd, 9th, 10th and 15th but these topics are all in the lower half of Ghanaian contractors' priorities.

Although the table above ranks the training requirements of small scale contractors in all categories, the majority of the problems fall into the financial and contractual categories. Nine training topics out of the top ten fall into these two categories. It would therefore appear that contractors experience the greatest problems with these issues.

Training Need	Priority		
	South Africa	Ghana	Combined
Understanding and using a standard contract to get a fair deal	1	4	1=
How to go about funding a job or contract. How to deal with banks	4	1	1=
How to "take off" drawings to find out the quantities of materials required for the job	2=	5=	3
How to submit a properly prepared quotation in a professional way.	7=	2=	4
Why the site should be inspected before pricing the job.	6	9	5
Claiming for extra payments through variation orders, site instructions, and site day work records.	14	2=	6
How to use a working rule agreement as applied to the client-consultant-contractor relationship.	12	5=	7
How to control the quality of your products. How to control your building standards	5	14	8
How to organise cash flow	12	8	9
How to read plans and specifications along with a contract. How to change a contract to get a fair deal.	11	12	10
How to measure work and prepare and present payment certificates.	7=	20	11
How to draw up a labour contract that is fair to employer and employee	22	10=	12
How to store materials to save waste, theft and damage. Working with the supplier.	2=	31	13
How to calculate material costs	10	27	14
How to calculate plant costs.	9	32	15
How to claim for additional costs when presenting certificates	30	14	16
How to stop delays on the work	32	12	17
How to improve productivity	39	7	18
How to improve methods of working	37	10=	19
How to draw up plant and transport schedules	15	34	20

Table 5.5 - Training priorities for contractors in Ghana and South Africa

In his study of contracting problems in Nigeria, Adams (1997) ranks the importance of contractor development measures based on data collected from contractors and professionals. The results show that six out of the top ten measures are financial or contractual improvements with a seventh measure being improved training and advisory services.

The interrelationship of contractors' problems

All the investigations discussed above have collected data on the problems faced by small contractors and proposed measures to mitigate them. There appears to be a lack of analysis of the problems experienced in an attempt to highlight the causal and effectual problems, i.e. problems which are caused by other problems and or problems which affect other factors to create additional problems. Ofori (1993) is an exception to this situation where he highlights the interrelationship between different factors contributing to the shortage of construction materials in developing countries.

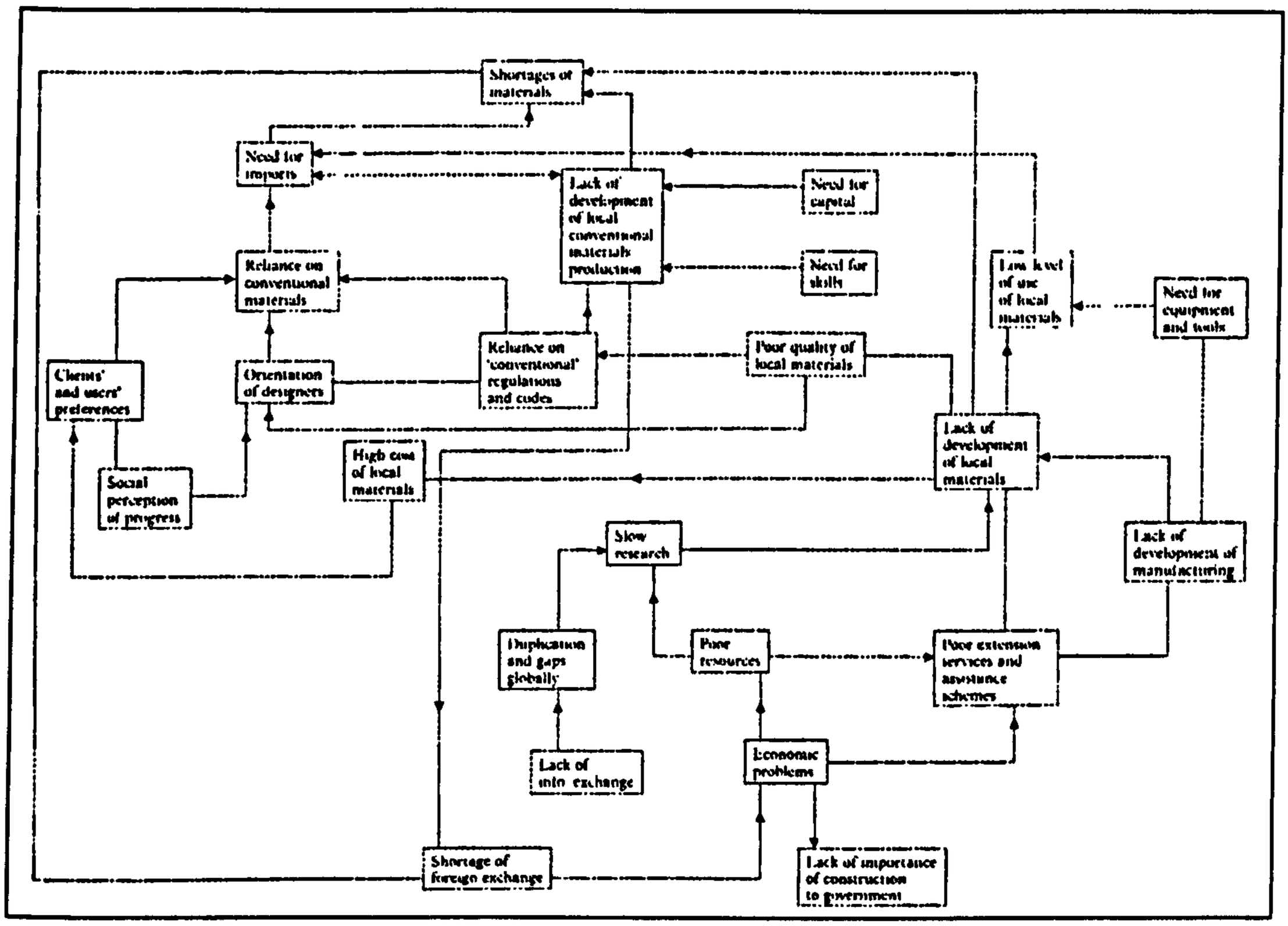


Figure 5.2 Interrelationship of contractors' problems

He argues that people "fail to investigate the problems facing the construction industries to identify factors lying at their root(s)". Ofori also argues "to improve construction many other economic sectors require attention". It is necessary to address the core problems that are at the root of the problem tree in order to improve the operation of the industry.

Figure 5.3 shows the interrelationship of the problems categorised under labour from the list in Appendix 2. It can be seen that the problems are interrelated and that these problems are

also linked to training and contractual issues. If a project was initiated to overcome these problems it would not be appropriate to address the issues of labour not receiving minimum wages or difficulty in retaining experienced staff, as these problems are casual, being caused by other problems. Instead, for the examples given above, it would be necessary to address the issues of poor wages paid in the public sector and the requirement for labour to be on a contractor's books in order for him to bid for work.

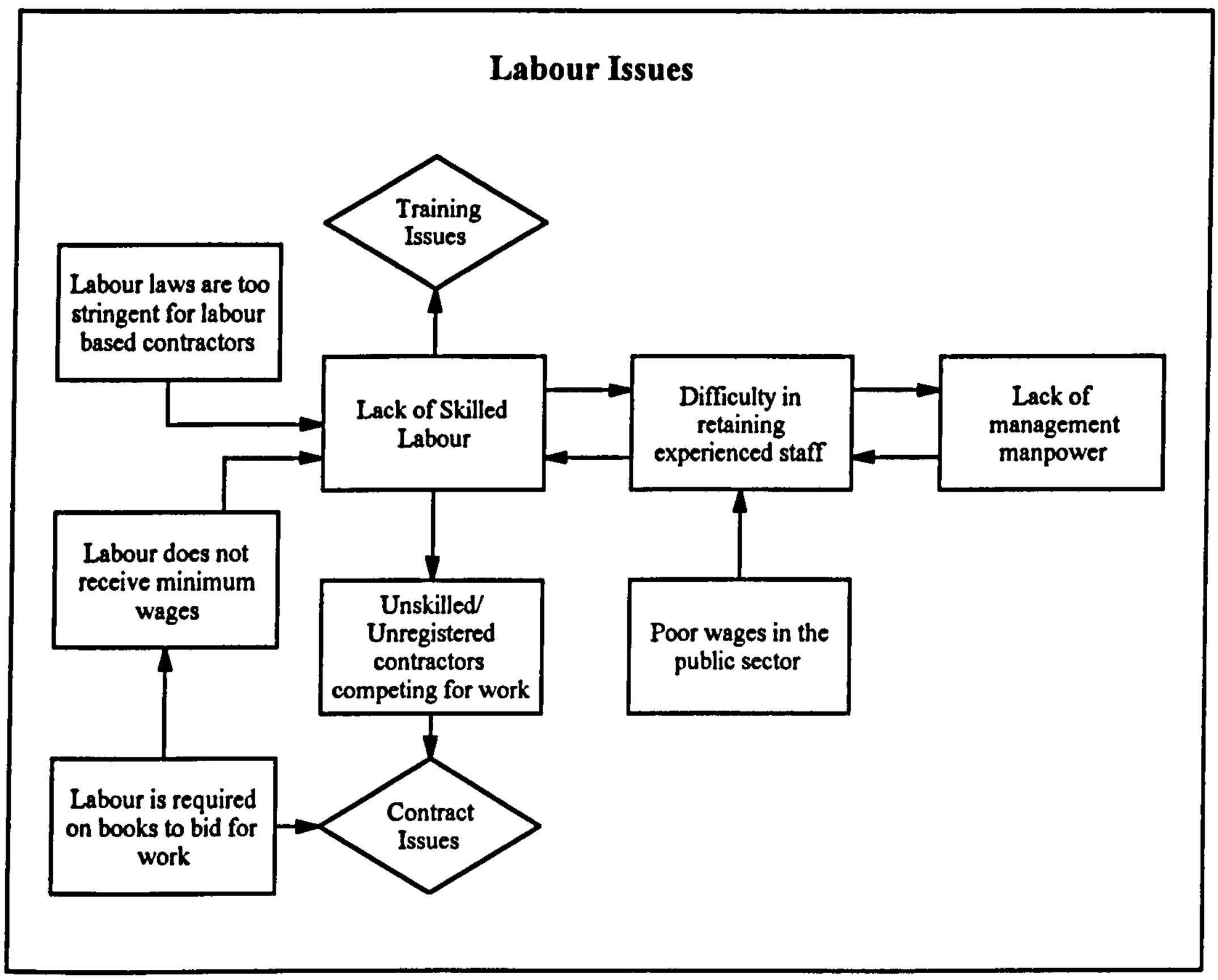


Figure 5.3 The interrelationship of labour issues

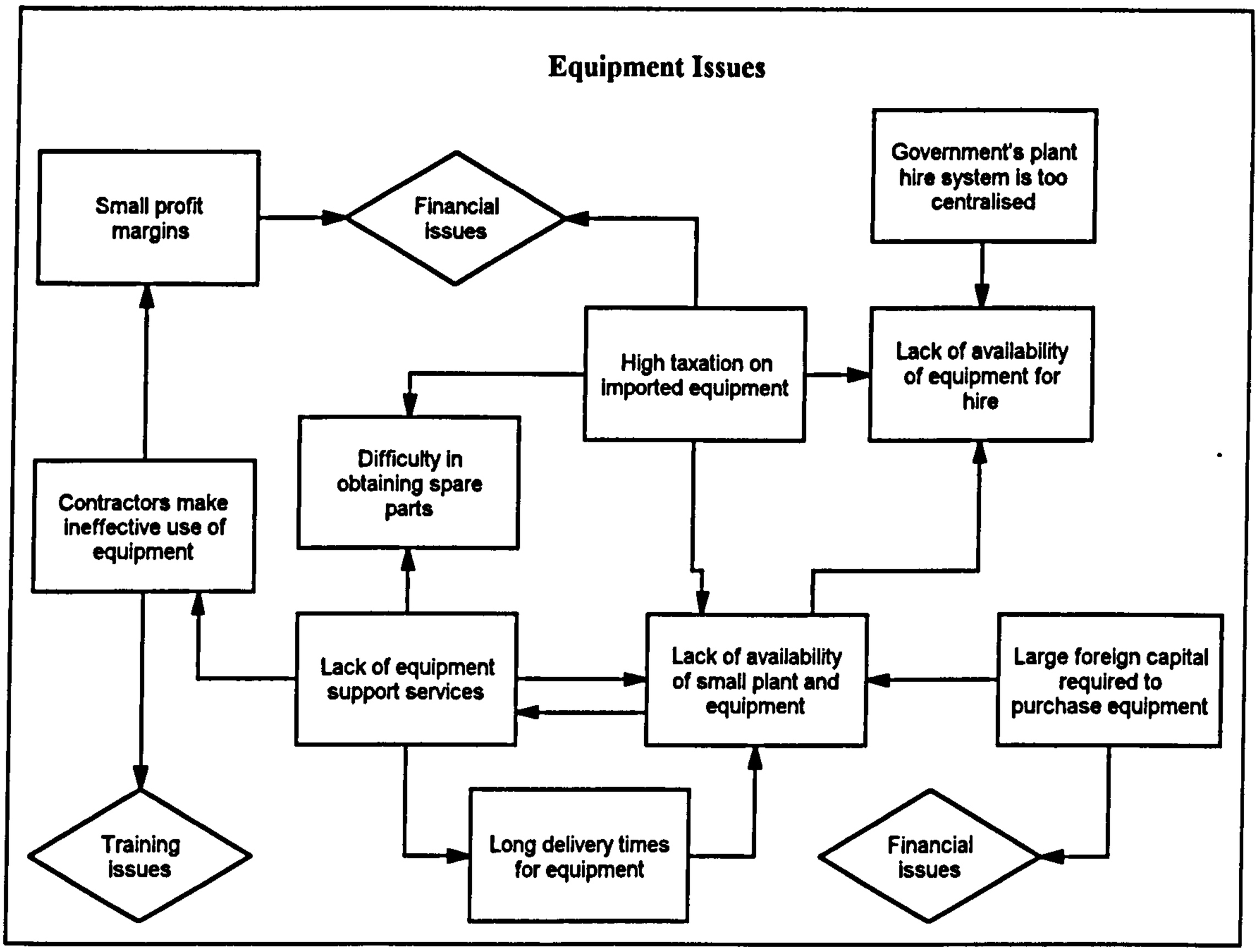


Figure 5.4 The interrelationship of equipment issues

Figure 5.4, covering equipment issues, is very simple with only a few interrelated problems, although it is likely to become complex very quickly as the number of problems increases.

From previous studies of contractor problems it appears that the two major issues to be addressed are:

- Difficulty in obtaining finance
- Over complex and unsuitable contract documents

It may therefore be helpful to analyse these problems in order to develop a strategy for assisting small scale contractors. Figure 5.5 and 5.6 highlight the interrelationship of these two specific problems with other problems affecting the industry listed in Appendix 2.

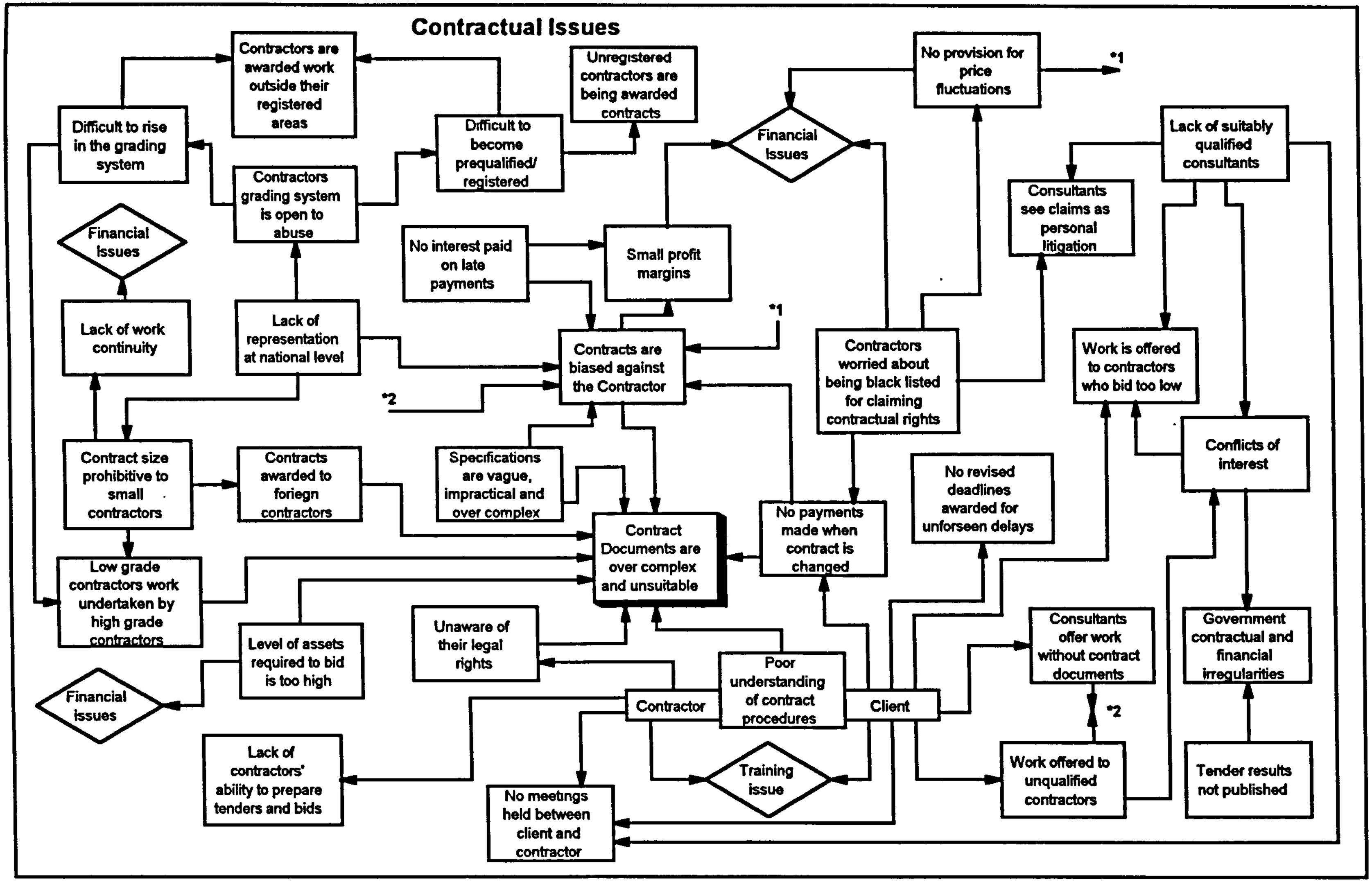


Figure 5.5 The interrelationship of contractual issues

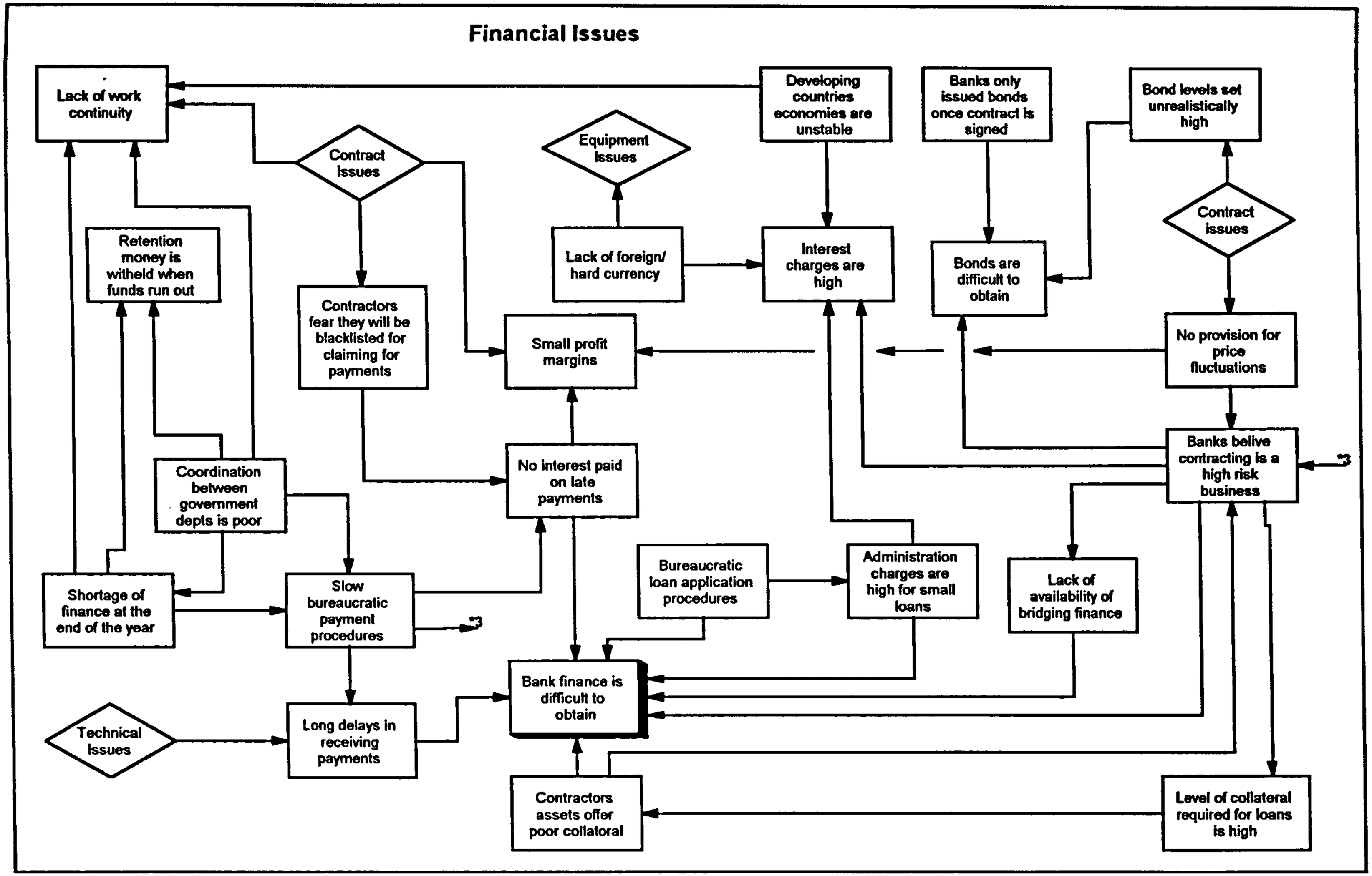


Figure 5.6 The interrelationship of financial issues

From these two figures it is clear that there is a complex interrelationship, not only between different financial or contractual problems, but also between problems in different categories. There are few problems that are clearly causal or effectual, which prevents a simple addressing of the causal problems to assist the development of the industry. There are also 'problem loops' where one problem causes another and so on until a further problem exacerbates the initial problem in the loop.

Conclusions

The figures above are based on data collected from various sources referring to various countries. It may therefore be argued that as all the problems have not been identified in one country the interrelationships are not valid. On the other hand it may also be argued that the problems exist in each country but have not been specifically identified by investigators. Nevertheless, regardless of the existence of different problems in a specific country, their interrelationship can not be overlooked. The interrelationship may be simpler in some countries but it will still be necessary to globally address the problems encountered rather than attempt to initiate measures to mitigate individual problems.

Many of the problems collated from the different sources are specific to the construction industry, although others are more general. The classification of problems due to the business market, suggested by Hernes (1988) could be further divided into two sections: problems derived from the construction market and problems derived from the general business environment. When looking to assist the development of indigenous contractors it would be useful to review problems experienced by small enterprises in other sectors, as it may be useful to co-ordinate development policies between these sectors. This view is echoed by Hillebrandt (1984): "There is the need for a complex synchronisation of policies and initiatives".

When problems are being reviewed and used to develop proposals or measures to improve contractor development a careful review must be taken of the perspective of people who are highlighting the problem or their understanding of the system. An example drawn from the list in Appendix 2 highlights this point: 'payments are withheld as a guarantee against poor workmanship'. This particular problem may arise in two different scenarios.

1. The contract used for the work utilises a retention payment system, withholding money against defects in the construction. While this deduction is not desirable to the contractor it is a common practice on construction contracts and will have to be borne in mind when preparing contract bids. The deductions should only represent a small percentage (5-10%) of the cost of the contract. This scenario only exists when the respondent clearly does not understand the contract management procedures.
2. The second scenario occurs when, as the statement above suggests, the client does not make payments due to the contractor to cover costs in the event that the contractor does not complete the work in accordance with the contract. This scenario could exist regardless of the respondent's understanding of contract procedures.

When investigations are undertaken into a country's construction industry problems, careful consideration must be given to the perspective that the respondents have on the situation. Any indigenous industry is likely to complain about potential clients offering work to foreign companies. The problem of work being offered to foreign contractors has been highlighted as a constraint on local contractors, with the implication that foreign contractors should be banned or required to work in partnerships with local contractors. While this revised situation may be desirable to local contractors, they must be capable financially and technically to undertake the work that has previously been awarded to foreign contractors.

It was discussed above that some problems are specific to the construction industry and others are applicable to a wider industrial sector. There are however some problems that extend beyond the whole industrial sector that can not be addressed by assistance programmes. Examples in Appendix 2 include: tribal loyalties and political unrest. It may be possible to mitigate against these problems by having fair and open selection systems, but ultimately there is very little that can be done by business development programmes to overcome these deep seated loyalties or power struggles.

The introduction to this thesis suggested that an agency that could offer support to small scale construction enterprises would be helpful. While this route to support may be the most suitable, careful consideration should be given to the management and 'ownership' of this support organisation. Adams (1998) discovered in his study of the construction

industry in Nigeria that a government sponsored contractor development agency was the least popular out of 20 different potential assistance measures.

This chapter has highlighted that the main problems facing the development of small scale construction enterprises are financial and contractual issues. Training also is a major requirement with training topics particularly focusing on financial and contractual issues. It would therefore be appropriate to concentrate on addressing the broad financial and contractual issues as a route to improving the capacity of indigenous construction enterprises. Within the contractual issues a common problem appears to be classification of contractors with the following six problems being related to a classification system:

- The contractor grading system is open to abuse
- It is difficult to rise in the grading system
- Unregistered contractors are obtaining work
- Contractors are awarded work outside their registered areas
- Low grade contractors work is being taken by high grade contractors
- It is difficult to become registered

These problems come from a range of different countries but highlight the need for a strictly controlled registration scheme to ensure that work is available to suitably qualified contractors.

Key Issues

1. Financial and contractual issues cause the most problems for small contractors

2. There is a need for a well structured and managed contractor classification system.

3. Training can help eliminate contractors' own short comings but it can not alleviate external constraints

4. When investigations are undertaken to highlight constraints on small contractors the following factors should be considered

- The relationship between the interviewer and contractor
- The respondents' understanding of the contracting system
- The stance or viewpoint of the respondent

Chapter 6.

A review of Contractor Development Programmes

Introduction

Over the past decade, there has been growing international interest in utilising private contractors to improve the efficiency and reduce the costs of public sector construction and maintenance. In industrialised countries the mechanism has been to open maintenance work to competitive bidding among existing general contractors, and in some cases to sell existing direct labour organisations to private firms interested in diversifying into facilities management. In developing countries the existing private contracting sector is often too weak to take on this work. However, it is desirable to promote small labour-based firms that will make effective use of local skills and resources.

Projects to foster private sector involvement have been designed and implemented through international technical assistance, with a varying emphasis on financial, training and other support in order to achieve a workable market.

These programmes often had other objectives, which included improve rural accessibility, the promotion of labour-based technology for job creation, and wealth distribution to poorer communities. These may create additional problems for small contractors forced to adopt labour-based techniques. Stock (1996) suggests that contractors are not keen to adopt a labour-based approach as they consider the cost of learning a new technology too high and find difficulty in managing large labour forces.

Countries vary widely in terms of social, cultural, contractual and organisational practices. It therefore could not be guaranteed that a successful programme could be transferred to another country and achieve the same level of success. The question that must therefore be asked is not have these projects been successful, or which project should be replicated, but;

How can we learn from these projects in order to propose guidelines for the design of future contractor development initiatives ?

This chapter highlights the different contractor support delivery mechanisms that may be utilised and reviews these mechanisms, through case studies of six contractor development projects. These projects from different countries vary widely in terms of social, cultural, contractual and organisational practices. While there are many different aspects to a construction development programme, the case studies highlight the issues of international assistance, training programmes, equipment provision, contracts and payments, programme objectives, and contractor selection.

Contractor development programmes

The overall goal of contractor development programmes is to improve the private sector capacity for undertaking construction and maintenance projects resulting in a number of beneficial effects for the country concerned. Primarily this increased capacity creates employment. Small contractors adopting labour-based techniques provide a large number of jobs for the unskilled workforce. Projects can also develop trade skills in the labour force and enhance the business and management skills of supervisors and managers.

The majority of contractor development programmes receive some form of international assistance, generally financial inputs, technical assistance or a combination of both. This assistance is most often for an agreed length of time. In order for it to have been worthwhile, by the end of this time the project must have achieved a sustainable level where it will continue without the support.

In the case of financial assistance this will usually mean that internationally sourced money should be used for the initial capital investment which can then be sustained by the host government, independent company etc, possibly by the use of a revolving fund. Alternatively international funding can meet the difference between the settled running costs of the project and the higher costs during the initial stages of a scheme. These higher costs can be due to lower productivity, higher training costs as a result of 'the learning curve' and higher expatriate salaries (Howe and Muller 1998). This situation implies that the host government or private companies can invest in the project either from the beginning or as international assistance is phased out.

International technical assistance usually takes the form of international specialists who advise on the modalities of delivery of the project and assist with the initial training (training of trainers). However, with some projects technical assistance can be offered directly to the contractors, rather than via training courses, generally through on-the-job visits and advice.

While the main goal of contractor development programmes is to increase the private sector capacity there are often other aims associated with the programme such as improved maintenance, increased rural employment or wealth distribution. As competition between contractors for selection onto the programme is usually fierce these factors, along with the nature of the intended work in the programme, should be considered. The secondary objectives of the programme will determine selection criteria such as:

- Existing contractors
- New companies
- Gender
- Ethnic origin
- Home region
- Level of contractors resources

Whatever selection criteria are chosen the selection process should be open and transparent. With past projects, advertisements in the press and on local radio have been successful in informing potential programme participants. Generally, the selection has then been undertaken using a questionnaire with a ranking system followed by an interview. (Musumba 1998, Karanja 1998, Ashong 1998)

When designing a contractor development programme the primary and secondary objectives must be determined and agreed at an early stage. This will allow needs assessment and project preparation tasks to be thorough in terms of both overall concept and practical detail. It has been mentioned above that as there is no definitive project implementation formula projects must have flexible criteria and approaches and be able to adjust for differing circumstances.

In his report on the contractor development programme in Lesotho, Miles (1996) suggests five steps that should be addressed when designing a programme. These tasks can be modified/adapted to highlight secondary factors which should be considered during the planning stage of a programme.

Five Steps in Designing a Contractor Development Programme
1. Define the new role of the government department and changes that would be required for it to operate as a contract supervisory agency
2. Determine the long term market prospects for contractors (i.e. beyond the life of the original project)
3. Agree the size of the project. (i.e. targets in terms of contractors trained and employed or roads maintained)
4. Review the role of secondary institutions such as equipment suppliers, financial organisations and trade organisations.
5. Design training provision

Table 6.1 Five steps in designing a Contractor Development Programme

In addition to considering these five factors the problems facing small scale contractors should be considered at the programme planning stage with a view to eliminating or mitigating them.

There are many procurement methods available to undertake construction and maintenance. Beside the use of force account where the government or local council is responsible for the whole process, deVeen and Stock (1996) suggest five other methods for undertaking construction work using contractors.

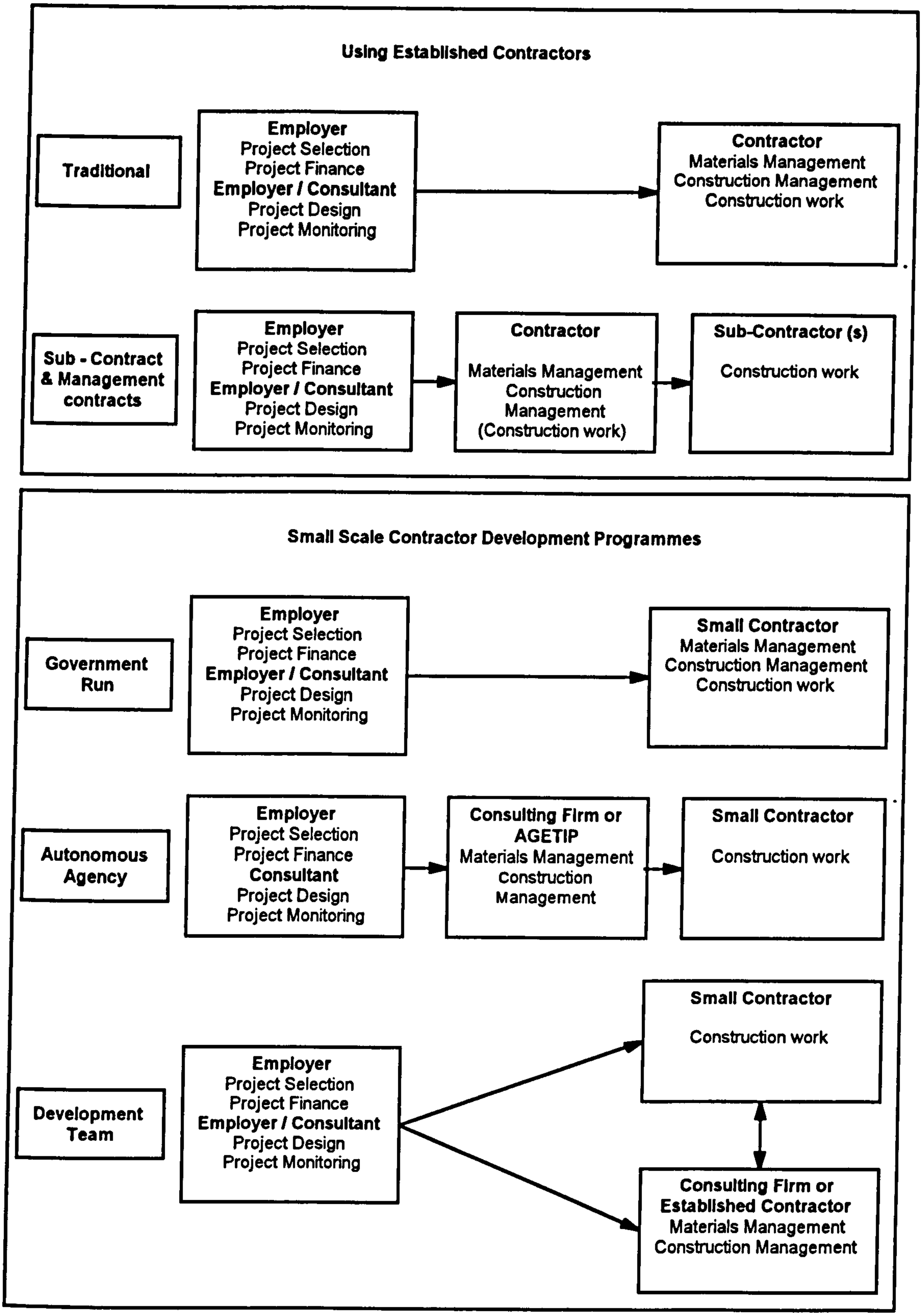


Figure 6.1 Contractor Delivery Mechanisms (adapted from deVeen and Stock 1996)

- Traditional contracts

In a traditional contract the contractor will bid for work using a measurement form of contract. In other words the contractor will price a bill of quantities with estimated quantities against each item, and payments will be based on actual measured work. The employer, usually the government, will have selected and prioritised the projects which need to be carried out and is responsible for ensuring that sufficient finance is available to cover the project costs. Depending on the experience, work load and capacity of the employing organisation, design and supervision of the work can be undertaken in house or subcontracted to an external consultant. The contractor is responsible for implementation of the project, including materials management, construction management and the actual construction. Traditional contracts effectively foster an adversarial relationship between client and contractor, and therefore are not generally conducive to contractor development unless some form of contractor development agency operates in a third party role with links to client and contractor (Edmonds and Miles 1984).

- Sub-contracts

This system is similar in principle to the traditional contract, except that the contractor will employ another firm to undertake some of the construction work. The scope for sub-contracting is usually defined in the main contract, and most contracts do not permit a contractor to sub-contract the whole of the work (although it may happen if the client's representative is not vigilant). Sub-contracting provides an avenue for new firms to establish themselves in the industry, since their legal and financial obligations are less onerous and they can focus on their technical responsibilities. In return for these advantages, sub-contractors have to accept lower rates than those in the main contract (to provide a margin for the main contractor) and also run the risk that unscrupulous main contractors may not pay them in full for their services or pay them late, using them as a short term loan facility. These considerations may encourage clients to formalise the sub-contracting relationship by setting up a management contract, in which the management contractor may be given an explicitly developmental role.

- Management contracts

In large projects a number of separate sub-contractors can be employed by the main contractor to undertake different parts of the project. This is a development of the simple sub-contract and may be referred to as a management contract. There is clear scope in this delivery mechanism for new small contractors to be employed as sub-contractors to the larger main contractor. In a management contract, the main contractor is paid directly for management services rather than relying on the margin between the main contract unit rates and those negotiated with the sub-contractor. The management contractor is effectively operating in a professional consultancy role, and is responsible to the client for negotiating a competitive rate with sub-contractors but may also provide training and advisory services to the less experienced sub-contractors in order to develop their skills.

- Government run

This contractor development model is based on the traditional delivery mechanism. In this programme the government agency is responsible for packaging works into suitable size contracts for small scale contractors, and may also provide training, advisory and other assistance to enable them to carry out their tasks effectively. The major difference between this system and the traditional contracting system is the need for the government to have an increased monitoring capacity, due to the number of contracts which will be let and the likely inexperience of the target group. The government agency will also be responsible for providing training and other support to the contractors. Supervisors will have to be encouraged to change from a purely 'policing' role to one in which they combine a concern for the continuing responsibilities for quality and time control with a more developmental and supportive approach. This change in approach may not prove easy to achieve in practice.

- Autonomous agency

The major problem with the government run contractor development system is the major reforms and capacity building that are required by the government agency. In autonomous agency system the government hires an agency to undertake the contract management and contractor training aspects of the project. The government is still responsible for financing the project and prioritising the work to be done, but pays the agency on a cost plus fee basis

to manage the work including the payments to contractors. The perceived advantages of an autonomous agency are that the staff can be selected and paid a realistic salary to ensure well motivated and high calibre staff. Donor agencies are also able to monitor and account for all the money spent through a private agency. There are two possible disadvantages of utilising this system. Firstly the private agency will be run to make a profit and careful monitoring will be necessary to ensure that it does not abuse its monopoly situation. Secondly, this system does not promote a change in the government agency itself which may be an inherent weakness in the sustainability of this system or development approach.

- Development team

This system is similar to the management contracting approach where a large contractor manages the materials and construction management aspects of a project. The small contractor will be responsible for the construction of the work. The major difference is that the small contractor is paid by the government agency rather than by the development team, which is also paid under a separate agreement with the government agency. The contract with the development team requires the larger contractor/consultant to undertake a mentoring approach with the small contractor to assist him to gain construction management experience. Successive projects undertaken by the small contractor will result in him taking on more of the construction management responsibilities.

- Review of the delivery mechanisms

The five delivery mechanisms have different approaches to developing a contractor to undertake all the roles required to manage his company successfully. One option available is to make the contractor responsible for all aspects of the project: construction and materials management and construction of the actual works, but to offer small simple contracts in order for experience to be gained without a high risk (Government run system). Alternatively a contractor may be responsible for the construction work and be slowly introduced to the issues of construction management as he gains experience and ability.

Case Studies

The issues discussed above provide a framework for the planning, growth and evaluation of a contractor development programme. In the case studies below six factors are reviewed in order to draw lessons from previous project experience with a view to highlighting issues to be addressed in future development initiatives.

	Factors to consider in programme design
1.	International Assistance
2.	Training Programme
3.	Equipment Provision
4.	Contracts and Payments
5.	Programme Objectives
6.	Contractor Selection

Table 6.2 Factors to consider in programme design

The six case studies used in this thesis have all been drawn from the road construction and maintenance sector in Africa but represent a cross-section of contractor development projects. While the main goals of all projects are the same (to increase private sector contracting capability) their secondary objectives differ. They also represent a wide spread in the amount of international assistance which has been offered to the projects from virtually nil to a large financial and technical input. The countries considered are Ghana, Tanzania, Lesotho, Uganda, South Africa and Zambia

- Ghana

The objectives of the Labour-based Programme in Ghana are threefold (Ashong 1998). They are to:

- improve rural accessibility, to
- increase contracting capacity, and to
- create rural employment.

The project commenced in 1986 and by 1995 ninety-three contractors have been trained under the scheme to work on labour-based road rehabilitation and maintenance contracts.

The programme is mainly funded by UNDP and the World Bank and has resulted in the rehabilitation of 1400 km of rural roads at a cost of $14 million.

The programme is promoted to contractors by a newspaper advertisement campaign and selection is based on education, previous experience and locality of business. There are three stages to the training process which addresses the needs of both the contractors and Department of Feeder Roads (DFR) staff

Training Stages in the DFR Contractor Development Programme	
Stage 1.	20 weeks of classroom and fieldwork training
Stage 2.	4 months trial contract of 5 km carried out under supervision
Stage 3.	4 year development with on-site training undertaking a 20 km contract per annum

Table 6.3 Training Stages in the DFR Contractor Development Programme

Following their period of initial training (Stage 1) the contractors are each provided with a set of equipment, listed in Table 6.5, worth $150 000 and financed through a bank loan which is repaid over the following 4 year period (Opoku-Mensah 1995).

Equipment sets given to Ghanaian Contractors
2 Tractors
4 Trailers
1 Water bowser
2 Pedestrian vibrating rollers
1 Set of handtools

Table 6.4 Equipment sets given to Ghanaian Contractors

This loan repayment represents a significant element of the contractors' overhead as the bank interest rate in Ghana is about 35%. In order to ensure that contractors are able to repay their loans the DFR guarantees that contracts will be awarded for the first 4 years after training. Each contract lasts approximately one year and has a value of $240 000. The project initially attempted to operate these contracts under a competitive tendering

system, but the formation of cartels forced the DFR to adopt a schedule of rates for the initial 4 year period. Following the repayment of the equipment loan, contractors compete for work through competitive tendering in an open market.

- Lesotho

The Labour Construction Unit (LCU) was set up in 1977 with the aim "to promote and propagate the use of efficient labour intensive methods .... and create as much gainful employment as possible in the country" (Lehobo 1998). The LCU became increasingly responsible for the development and maintenance of the country's 2300 km earth and gravel road network. In line with the government's promotion of private sector enterprises the LCU commenced a 30 month programme, in 1992, to train local contractors to maintain the road network. The World Bank sponsored the Enterprise Development for Labour-based Road Maintenance Contractors project which was managed by the LCU, with technical input from the ILO.

The programme focused heavily on the training issues in terms of both the technical and managerial skills of the contractor, as well as the retraining of LCU staff for their new contract supervisor role. The contractor training programme, shown below, combined on-the-job training with classroom work to meet the needs of the contractors (Miles 1996b). To address the technical training aspects the programme developed the Road Maintenance and Regravelling (ROMAR) package (Andersson C-A et al 1996c). It also utilised the Improve Your Construction Business (IYCB) series of three handbooks and workbooks which were designed to meet the business training needs of small scale contractors. (Andersson C-A. et al 1994, 1996a, 1996b)

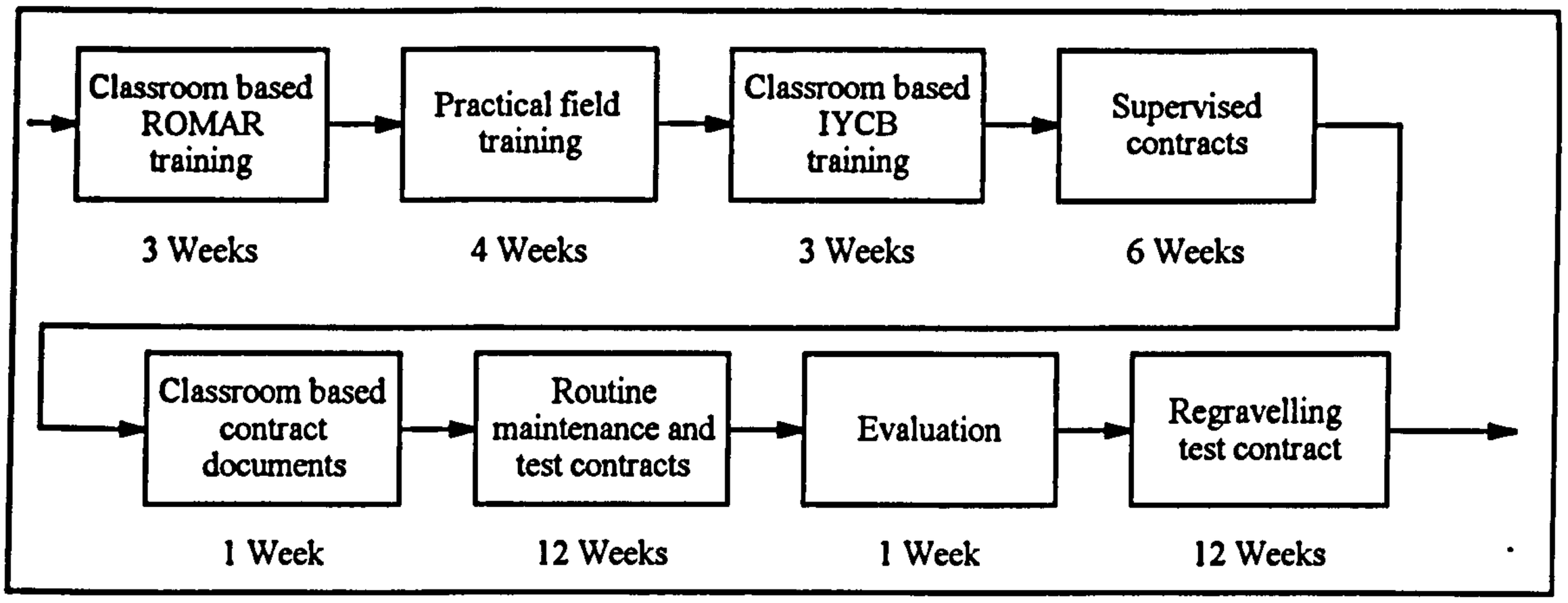


Figure 6.2 The LCU Contractor Training Programme

During the training period all costs were met by the programme. The six month trial contract period consisted of two contracts commencing with a routine maintenance contract awarded at a fixed price. This was followed by a regravelling contract which was tendered by the contractor. If the tender sums were within +/-5% of the Engineer's estimate they were awarded at the tender price, otherwise they were awarded at the Engineer's estimate.

The contractors were given a basic set of handtools worth $6670 at the beginning of their trial contracts, which were paid for during the trial contract period. They were also offered the opportunity of hire purchase agreements on pedestrian vibrating rollers. They were expected to hire any further equipment, which was readily available, or buy equipment using a lease financing arrangement set up with a national bank.

- South Africa

Following the abolition of apartheid in April 1993 the South African government introduced the Reconstruction and Development Programme which aimed to maximise job creation. Small scale contractors existed in South Africa before, but had usually undertaken labour only work as subcontractors to larger contracting firms. A multitude of projects commenced that aimed to develop the employment and business prospects of the indigenous population. These included the Soweto Contractor Development Programme (CDP) and the Winterveld Presidential Project.

The objectives of both projects were employment creation and the transfer of marketable skills whilst also improving the infrastructure in the area. The Soweto CDP adopted three different approaches for improving the skills of small contractors, ex-supervisors and labourers: (Twumasi-Boake A, 1996)

- Development Team

  The contractor is assigned construction managers, engineers and materials managers who assist with administration of the contract, technical training and the engagement of specialist subcontractors.

- Managing Contractor

  A large contractor administers the contract while training and supplying materials to a labour-only subcontractor.

- Mentorship

  This approach is used for more experienced contractors, who employ consultants (mentors) to assist with tender preparation and business management.

The Winterveld Presidential Project adopts a more formal approach to the training of contractors, carried out in two phases. The first phase is project specific, enabling contractors to submit realistic bids for the Winterveld contracts. The second phase, which utilises the IYCB training material, was designed to provide the participating contractors with the skills that would be needed to compete in the open market (Ward 1998).

A common feature of these two programmes was the tiered tendering structure with progressively more testing levels of contract. Contractors progress to a higher level as they gain experience until they reach the final level which is synonymous with a nationally experienced contractor. The Winterveld Presidential Project tiered contract structure is included below.

Level	Assessment of Skills and Experience	Maximum Contract Value in Rand	Performance Guarantees
A	Some ability to organise. Limited artisan skill.	Cost of labour component, including contractor's mark-up and profit, to a maximum value of R 10,000.	Not required

B	Established artisan. Civil engineering ganger, charge hand, gang boss.	Cost of labour component, including contractor's mark-up and profit, to a maximum value of R 40,000.	Not required
C	Advanced gang or trade managerial ability.	Total contract price, to a maximum value of R 250,000.	Not required
D	Advanced general management ability. Commercial experience.	Total contract price, to a maximum value of R 850,000.	5 per cent of contract price.
E	Advanced construction management ability. Marketing skills. Credibility with financial institutions.	Total contract price, to a maximum value of R 2,500,000.	10 per cent of contract price

($ 1.00 = R 3.65) at 1995 prices Ward 1998

Table 6.5 The Winterveld Presidential Project tiered contract structure

This tiered tendering structure prevents contractors bidding for contracts outside their capability and prevents more experienced contractors from dominating the small contract market.

- Tanzania

The Labour-based Road Contractor Training Project (LBRCTP) commenced in 1992 with the objective of establishing a labour-based contracting capacity. The project has trained 24 contractors in two regions of Tanzania who each have an annual turnover of $60 000 and each employ approximately 70 workers (Osei-Bonsu 1995). Three Supervisors from each contractor receive six weeks classroom teaching followed by 14 weeks fieldwork training. The contractors then undertake 6-month trial contracts to maintain a 5 km section of road. During this period the directors of the contracting firms undertake a course in contract management with the aim of improving their business skills.

All the contract work is undertaken with hired equipment which is available on the open market. In order to ensure that the contractor is able to procure the necessary equipment to carry out the work, they receive a mobilisation payment equal to 30% of the contract sum.

While 15% goes directly into the contractor's bank account the other 15% is paid directly to a plant hire company as an advance against the plant hire costs (Osei-Bonsu 1995).

- Uganda

Since 1986 the government of Uganda has rehabilitated 50% of the main roads and 28% of feeder roads at a cost of $300M. With a view to maintaining this investment and developing a local construction industry the government looked to small private contractors to carry out routine maintenance of the network (Musumba 1998a) The Labour-based Contracting Programme was started in 1993 and is financed solely by the government which invests $3.2M per annum. The government's medium term objects of the project is to; (Musumba 1998b)

1. Provide an efficient, safe and sustainable road network to accelerate integrated development and consolidation of peace
2. Develop the local construction industry
3. Undertake poverty alleviation programmes

The programme is open to anybody with District Engineers selecting suitable candidates according to a range of criteria which includes experience in roadworks, availability of tools and personnel and a reference from the local 'council' chairman. Contracts are let with a fixed schedule of rates determined annually. Individual contractors (lengthmen) are awarded 2 km long contracts while small contractors are awarded 10 km long contracts. In order to further develop the contracting industry the government introduced the fixed unit rate mechanised contracting programme which was able to let larger contracts to small contractors. Contracts were awarded to small contractors who passed the appropriate selection criteria. They were allowed to hire idle equipment from the government plant pool. (Musumba 1998a)

The supervision of the contracts was undertaken by the District Engineer and his supervisors. To allow supervisors to adapt to their new roles practice-orientated training was provided in contract supervision and quality control. Engineers received training in contract approval and maintenance management, while contractors received on-the-job training in routine maintenance activities and site planning.

Contracts specifically designed for the labour-based programme implied the use of labour-based techniques. The programme commenced by equipping each contractor with a set of handtools, but was later modified to providing only relatively expensive items such as wheelbarrows. Although the programme is fairly modest when compared to other programmes, it has achieved a relatively high output with 8800 km of road maintained in 1996. As the funding for this project has come solely from government funds, payments to contractors are made from decentralised accounts in order to ensure that finance to pay contractors is available each month.

As the capacity of small scale contractors increased the government introduced a classification scheme and limited local competitive bidding for contractors in the higher classification levels who were deemed to have "graduated" from the fixed unit rate contracting programme. (Musumba 1998a)

- Zambia

The government of Zambia is planning a $1 billion road rehabilitation programme which aims to bring the road network into a maintainable state over the next five years. Although they currently have no specific contractor development programme, current policy is to encourage private sector participation and the use of labour-based methods for road construction and maintenance. In order to investigate the potential for the introduction of small scale contractors to undertake maintenance in the roads sector the government commissioned a report on labour-based contracting in Zambia (Taylor 1996).

Road maintenance is currently carried out under force account, although some technical staff in the district councils have undertaken training in labour-based roadworks supervision. The report highlighted three main potential sources of private labour-based roadworks contractor.

1. Existing supervisory staff from the council roads department who would be seeking new employment following the downsizing of the force account works.
2. A large number of small scale building contractors who are underemployed and would be able to undertake small construction/maintenance contracts.

3. The PUSH (Peri-Urban Self Help) project had undertaken a labour-based training programme in a number of towns to assist in the upgrading of urban areas. The ex-PUSH workers therefore provide a ready made source of small scale labour-based contractors who are already familiar with road building works.

The report indicated that training could be carried out on-the-job with contracts arranged to give progressively more control to the contractor. It suggested a programme using a schedule of rates for an initial 2 year period, followed by a 2 year period with target rates before tendering with a bill of quantities. The report also states that the "killer assumption" is that a system would be set up to enable smooth payment to the contractors.

Proposed guidelines for project design

Although the case studies discussed above have widely different approaches the overriding factor which is the backbone for the success of each programme has been the commitment of the government. This commitment and support has had to be available at all levels from central government and the Ministry responsible for roads down to the local and regional offices.

- Training Programme

In some projects technical advice has been offered directly to the contractors rather than via training courses. In some cases this has resulted in the international expert managing the contract or materials arms of the business rather than advising members of the local staff (Bentall et al 1995). In these situations contractors have flourished but have then faltered when the support has ended. While there is a role for technical assistance directly to contractors it appears that it should be in the form of an advisory role rather than direct input.

Although each case study has had a training element, it should be noted that while many problems can be attributed to a lack of knowledge by the contractor and/or the government department not all problems can be solved by a training programme (Hernes 1988).

When comparisons of programmes are made it is clear that there is a need for training of government officials as well as contractors. Government officials with experience of

monitoring projects which have been carried out by force account have little experience of contract administration procedures and maintenance planning utilising the private sector. Many government officials are also entrenched in the cumbersome force account system (Ashong1998). These bureaucratic procedures are not acceptable to small contractors with tight budgets and low working capital. An attitudinal change is also often required in government departments in order for the schemes to operate efficiently and allow contractors to be paid within a reasonable time frame.

When addressing the training needs of the contractor there are many questions which need to be answered. The case studies have addressed the questions summarised in the Table 6.6 below in different ways.

Contractor Training Issues
• Who in the contractor's organisation should be trained ?
• Should the training be on-the-job or classroom based ?
• When should the training be provided ?
• What training should be provided i.e. technical / managerial ?
• Who should provide the training ?
• What structure should the training take ?

Table 6.6 Contractor Training Issues

It is clear that different members of staff in the contractor's organisation require different skills. For example supervisors do not need to be able to prepare contract documents but the ability to plan daily work schedules is essential. Who should receive training would also depend on the size of the contracting organisation. As the director of a small scale contracting firm maintains a personal daily supervisory role over each project, it would be appropriate for the manager to undertake the same training as his supervisors. It is unlikely that programmes would be able to undertake training of all a contractor's supervisory staff so the director could be trained in day to day management and technical skills along with (say) three of his supervisors. The training of the firm's manager would enable him to pass on supervisory skills to his other and future supervisory staff.

Practical hands-on training in the form of trial contracts has been useful in developing a contractor's skills. An element of classroom based training is, however, also essential to introduce the theories of the problems encountered on site. Contractors have to interact with other professionals such as banks and insurance companies during the execution of their contracts. This often leads to frustrations due to a poor understanding of the constraints under which these organisations operate. Classroom sessions would give the opportunity for workshops/seminars between contractors and representatives from these organisations in order for each party to understand the difficulties experienced by the other (Lehobo 1998). The use of classroom based training sessions implies that training must be carried out as a batch process with a group of contractors who ideally have similar experience in the construction sector.

Figure 6.3 shows a suggested outline training programme based on experience from the case studies.

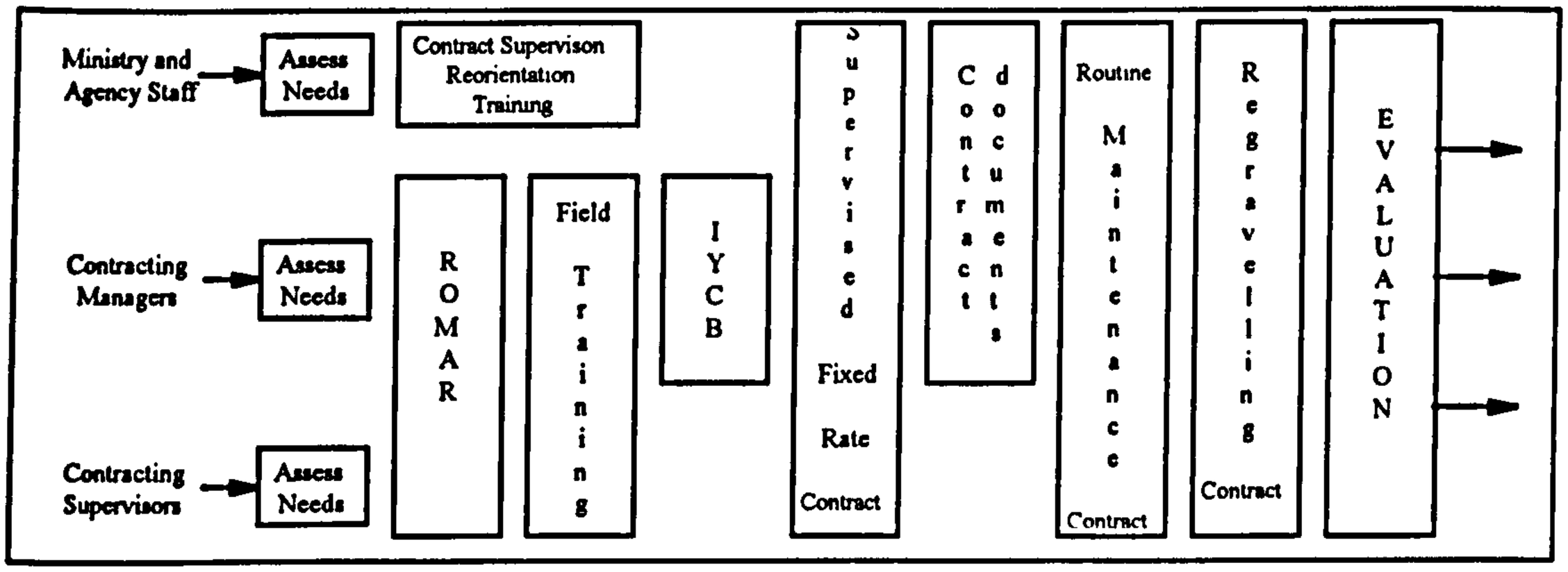


Figure 6.3 Proposed Contractor Training Programme

- Equipment Provision

The solutions to the question of how contractors should be equipped appear to be as numerous as there are projects. Two major factors in deciding how a contractor should be equipped are:

1. The existing level of equipment held by contractors entering the scheme

2. The availability on the open market of construction equipment for purchase or hire

If a contractor development programme is promoting labour-based techniques then it clearly does not need to investigate the issues associated with large civil engineering plant. Existing projects have either given contractors a small quantity of tools and equipment or required them to hire equipment from independent suppliers. The approach adopted has usually depended on the existence of plant hire companies in the country.

Where contractors are given equipment it is essential that this is paid for by the contractor rather than considered a handout. This can usually be achieved during the practical stages of training where the contractor is undertaking construction or maintenance work. The requirement of ownership of tools and equipment results in the contractor taking greater care of his assets and encourages regular maintenance. It also encourages the contractor to maximise the productivity of his equipment in order to increase the return on the investment which he has made. If the contractor is to be provided with equipment it is essential that it is carefully chosen to ensure reliability and that it is suitable for the work and working procedures that the contractor intends to execute (Petts 1994). Rather than forcing contractors to accept a fixed package of tools and equipment, the possibility of allowing them to select from a list up to a maximum total value could be considered.

It appears that the option of the development programme arranging to equip contractors would only be considered where an open free market plant hire sector did not exist in-country. This is due to the additional problems for the project associated with administration of equipment loans and financial payments from the contractor. It should also be pointed out that the dangers of setting up a plant hire company within the project where no other companies exist in country are twofold. Firstly the hire company will have a monopoly and hence a strong control over the contractors (Lemunge 1997). Secondly, the company invariably ends up being owned or run by the government organisation who also issues the contracts thus increasing the hold over the contractors. In countries where plant hire businesses exist contractors should hire the equipment that they require. The one drawback of this option is that the contractor, who does not own the equipment, is not encouraged to maintain or control its use.

- Contracts and Payments

The majority of programmes have experienced problems with contract documents, resulting in some programmes developing their own contract documentation. While this approach appeared to work well in the short term there were two long term problems. Firstly, the contract in some cases would not 'stand up' to legal criticism. This fact would not pose a problem initially as the contractors would not wish to 'rock the boat' while they were part of the programme (Watermeyer 1997). However if the contract was used for work outside the programme there would be the potential for legal cases. Secondly, the programmes were attempting to develop the contractors in order to allow them to enter the open construction market. The programme could therefore not be considered a success if contractors were not familiar with national contract documentation and procedures.

Other programmes sought to simplify existing contracts, but including more parts of the original contract documentation as the contractor became more experienced. The differing levels of contract adopted by the South African Winterveld Project offered a progressively more testing contract. If this approach is adopted a clearly defined set of criteria must be established to determine when a contractor can or should move on to a higher level. In addition if contractors are prevented from bidding lower than their 'level' newer less experienced contractors would be protected from the competition of the more experienced contractor for their first few contracts. The final level of this tiered system should be a contractor able to undertake contracts with the country's standard contract documentation. Apart from the contract value increasing through the levels the following other items could be altered to assist new contractors (Edmonds and Miles 1984, Garnier & Imschoot 1993)

- Level of surety required
- % Mobilisation payment granted
- Lowest level uses a schedule of rates and lower levels use target rates before a Bill of Quantities is required
- Level of technical assistance available
- Taxes and levies on staff, labourers and equipment
- Removal of certain risks from the contractor e.g. unforeseen weather, errors in drawings
- Amount of penalties for late completion

Although the above list is not exhaustive, the items above should not all be included, the choice being dependent on the type of contract that a specific country uses. In order to ensure that there are a realistic number of contracts at each level it may be necessary to slice and package large work into smaller contracts (for example Petts 1992). Figure 6.5 indicates how a 50 km maintenance contract could be 'sliced and packaged'

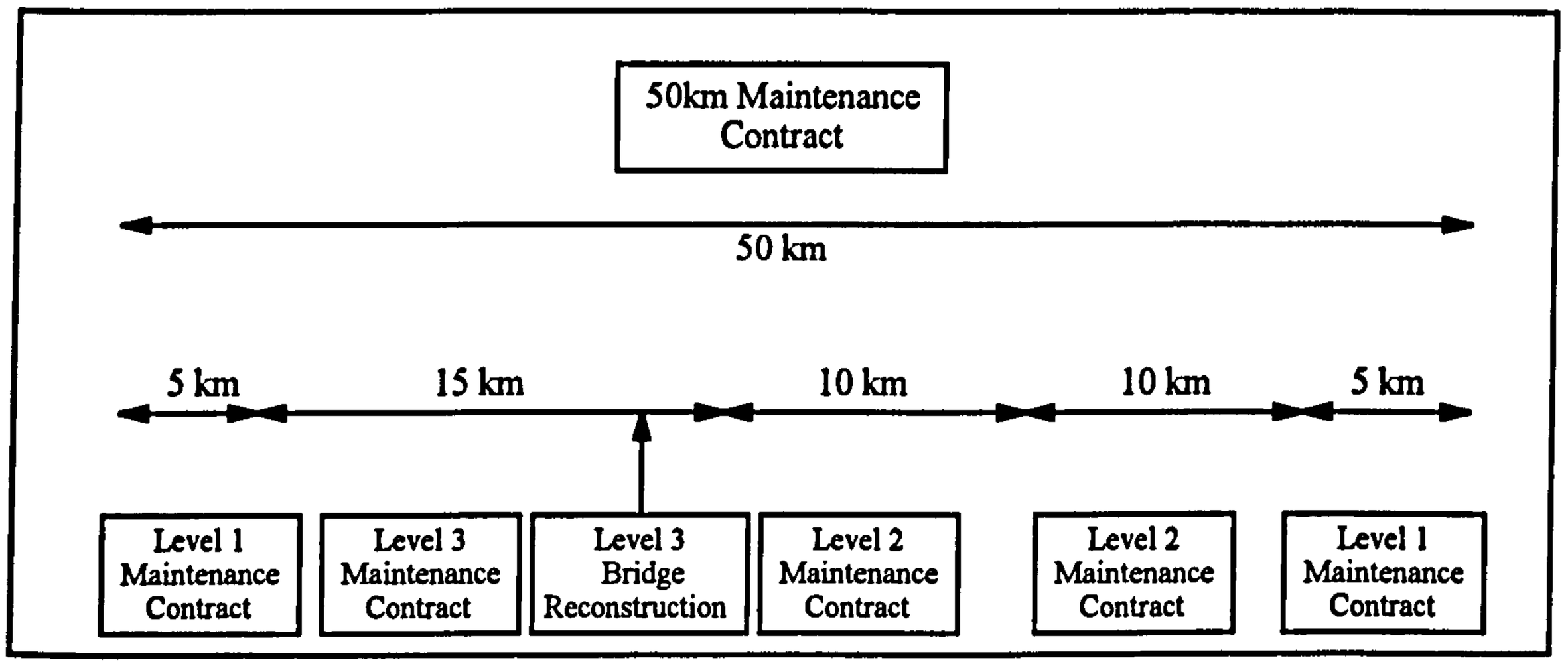


Figure 6.4 Example slice and package contract

During the preliminary stages of a development programme the issue of prompt payments to contractors must be addressed. For an equipment based contractor there are two methods available for mitigating the problem of late payment. Firstly he can delay payments to suppliers and secondly he can use part of his working capital to pay urgent bills. However a labour-based small scale contractor does not have these options (Stock 1996). He does not have sufficient working capital to make payments before he is paid. In addition the majority of his outgoings are in the form of labour wages which must be paid on time to maintain worker morale and prevent strikes.

- Contractor Selection

New small scale road contractors generally appear to come from 3 different sources: (Lantran 1990 and others)

1. Supervisors from larger companies setting up their own business

2. Employees from government road departments disillusioned with their current situation
3. Small building contractors looking to diversify into new markets.

During a study of the potential for road maintenance in Western Uganda using the private sector Intech Associates suggested different candidates could be selected to fulfil different roles depending on their past experience, abilities and available resources (Intech Associates 1992).

Category	Type of Contractor	Work Undertaken
A	Labour only contractor	Labour-based maintenance work only • Vegetation control on verges • Culvert clearing • Drainage clearing and maintenance
B	Small Scale Contractor	Routine Maintenance work • Grading • Culvert construction and rehabilitation • Road furniture repair • Minor repairs to road structures
C	Gravelling Contractor	Periodic maintenance work including regravelling • All work listed in category B • Regravelling work
D	Large Contractor	Major work including construction • All work listed in category C • New road construction including small structures
E	Large Contractor	Major work including construction • All work listed in category D • Large road schemes including large structures

Table 6.7 Private Sector Maintenance Options

Lantran (1990) during a study of contracting out road maintenance activities in Africa, also suggested 4 classes of contractor

Type of Works	Available Contractors	Preparation / Training
Equipment based works Regrading Regravelling Resealing	Medium size contractors and farmers/foresters with some machines and perhaps some experience of civil and road works	Seminars Training works Technical manuals Contract format
Labour-based road works Regrading Regravelling Pot-hole patching	Small and medium size contractors with no or few machines and no or little experience of civil and road works	Seminars Training works Technical manuals Contract format
Small bridges and drainage construction Repairs and maintenance	Small and medium size contractors with experience of housing and concrete works	Seminars Sample works Technical manuals Contract format
Labour-based routine maintenance Grass cutting Culvert cleaning	Small businessmen Communities Individual farmers (Single man Contractor)	Sample works Technical sheets Contract format

Lantran 1990

Table 6.8 Lantran's classes of Contractor

These schemes could be linked to the tiered structure discussed above, where contractors with some experience would not enter the programme at the lowest level and undertake all the training courses, but enter at their specific experience level.

Conclusion

There is no single definitive solution to the design of a contractor development programme. Previous project experience appears to be fragmented and poorly documented. All the

contractor development programmes discussed in the case studies have been declared successful by their respective government or donor bodies. However, no information appears to be available from other projects that have been considered unsuccessful.

The previous chapter, which reviewed problems facing small scale contractors, highlighted that some problems were outside their control. The contractor development programmes reviewed in the case studies have acknowledged these constraints. These projects have implemented training programmes in order to overcome the contractor's own shortcomings but have also addressed financial and contractual issues which are outside the contractor's control. The high intensity training provided by these projects provides a good opportunity for the contractors to dramatically increase their business skills.

This high intensity training may also be considered the Achilles heel of projects as the resources available limits the number of contractors that can receive support. For example, the Ghanaian project has trained 93 contractors in 10 years (Ashong 1998) and the Lesotho project has trained 27 contractors in 4 years (Lehobo 1998, Miles 1996b). It is therefore questionable if these projects have actually significantly increased the indigenous contracting capacity. It may take many years before projects similar to those reviewed in the case studies would be able to train sufficient contractors to significantly increase contracting capacity.

The project mangers are keen to show that their projects are successful. Failing contractors can be provided with additional support to ensure that they continue in the scheme and finally 'graduate' (Watermeyer 1997). This can create a false sense of security for contractors when they are competing in the open market. In any business environment there are expected to be some failures. Within the Ghanaian scheme a false market is created as contractors are guaranteed work by the government agency while they have their equipment loan outstanding with the bank. One contractor has therefore deliberately left a small amount of his loan outstanding to ensure he is guaranteed further contracts (Opoku-Mensah 1996).

It was mentioned at the beginning of this chapter that the objectives of a development project may vary. Some projects have been designed to develop new contractors (eg.

Lesotho and Ghana) while others aim to support existing contractors in addition to training new contractors (eg. South Africa). In order to increase contracting capacity it would be necessary to provide different types of support at a range of contracting levels. The withdrawal of support to contractors as they leave a programme should be gradual rather than sudden (Opoku-Mensah 1996), which would allow them to enter the competitive market in stages. For example, Ghanaian contractors are unable to carry out work outside of the project using their equipment provided by the project until they have paid off their equipment loan. However, by this time they are suddenly not entitled to obtain contracts from within the project (Opoku-Mensah 1996).

The sustainability of projects outlined in the cases studies must be questioned. Donor agencies may provide support for a period of time but are unlikely to support projects for a sufficient length of time to ensure a significant increase in contracting capacity. Local funds must be available not only to continue to increase contracting capacity but also to provide a reasonable level of work continuity for the existing contractors. This issue was highlighted as step 2 by Miles (1996b) in designing a contractor development programme (Table 6.1). The level of contracting capacity should be equivalent to the amount of work available (Taylor 1996b) which will be determined by the financial resources.

Key issues

1. Previous contractor development programmes have provided high intensity training to relatively few contractors, which results in only a limited increase in contracting capacity.

2. Contractor development programmes can create a false market which does not prepare contractors to compete in a open competitive market.

3. There is a need to provide a different levels and types of support to different contractors as they develop their business skills.

4. There is only a limited amount of work dictated by the available resources. It is necessary to develop enough contractors for a competitive market but a false economy to develop too many contractors thus creating cut throat competition.

Chapter 7.

The Institutional Framework of the Construction Sector

Introduction

Following independence, countries in Africa and Asia have traditionally relied upon state owned organisations to maintain their infrastructure and public buildings and to carry out minor construction works. In many cases these organisations have proved to be inefficient due to various factors which include the loss of high calibre staff to better paid jobs, funding shortages, political pressures and bureaucratic mismanagement. Recently interest in stimulating private sector involvement has grown, on the grounds that these small private enterprises would be able to overcome the inefficiency problems of the large state owned organisations, thus improving the level of maintenance undertaken with the limited financial resources available. It would appear that the overall strategy of using the private sector is appropriate. However, it is becoming increasingly difficult to implement as problems associated with contracting procedures and the industry support framework are becoming more apparent to both contracting organisations and client agencies.

This chapter highlights the need for a contracting framework to provide support to the sector. It outlines the framework that exists in developed countries, particularly focusing on the UK. The situation in developing countries is reviewed and current initiatives that have been implemented to develop the framework are discussed.

The need for a framework to govern private contracting

There are five different types of contracting organisation which are capable of undertaking construction work (World Bank 1984 & Relf 1987 and others)

1. Small builders and 'jobbers' - these are small generally one man businesses, who undertake building projects or work for other larger companies.
2. Communal and self help groups
3. State owned organisations
4. Private contracting companies
5. Foreign contractors

Traditionally in low income and emerging economy countries the majority of civil engineering work has been undertaken by large international contractors or state owned organisations. The indigenous private sector is usually dominated by a few large contractors who are able to compete against, or work in joint ventures with, international

contractors. This handful of large contractors works alongside a plethora of small construction businesses. This situation has been referred to as the "missing middle" of the construction sector (Young 1993) where small businesses appear unable to develop their business and expand their market share to become medium sized contractors and eventually a large contractor able to undertake large infrastructure projects. These small contractors are therefore restricted, due to their size and resources, to undertaking small building work and occasional minor civil engineering work. Many of these businesses are often small enough to be 'invisible' in national construction statistics.

For construction and maintenance to be efficiently carried out by the private sector there is a need for contracting firms of all sizes to undertake various sized projects from minor maintenance work to large scale major construction projects. In order to achieve the full benefits of using the private sector there must firstly be a contracted workload of adequate size. Secondly, there must be sufficient numbers of construction companies to create a demand for work and hence realistic competition with associated competitive prices.

Although no market can function without demand, merely creating a demand is not enough. It is also necessary to develop institutional capacity within the country to cope with executing work through a private contracting industry.

Under the force account system run by the state owned organisations there is no need for a contract as the client, designer and contractor are the same organisation. However, when projects are undertaken by the private sector there is the need for a formal agreement between the purchaser (the government) and the provider (the contractor). In many countries which have relied on state owned organisations there are no suitable national contract procedures and documents which can be adopted by the government agencies. For high value projects undertaken by large national contractors it is often possible to utilise international contract documents such as FIDIC, although this contract documentation is invariably unsuitable or too complex for smaller construction and maintenance contracts undertaken by new and emerging contractors.

For small contractors, like all small businesses, the main problem is lack of access to and difficulty in obtaining credit. Compared to other small businesses, small construction

companies have a high financial turnover and hence a greater need for short term working capital. This is due to the amount of materials required, relatively large numbers of staff wages and equipment purchase or hire costs (Stock & deVeen 1996). Small construction enterprises also need long term capital to cover the costs of expanding the business and financing the purchase and depreciation of equipment.

State owned construction enterprises receive financial support from other government departments and therefore are not affected by late payments as finances are obtained from a central account. However, private contractors are dependant on regular payments to retain staff, pay wages, obtain material supplies and maintain a good relationship with their creditors.

There are problems experienced by other organisations who are involved in the construction management sector. As the use of the private sector to undertake maintenance and construction expands, the government agency has to change its role from an executing agency to a contract supervisory agency. This change produces a multitude of problems. Firstly, as discussed above, there are often no suitable forms of contract for these projects. Secondly, government agency staff are accustomed to organising labour groups and not to managing contracts. They are not aware of the procedures and roles which they are required to undertake when managing contracts. There is therefore a need to restructure the agency and re-orientate and retrain staff at all levels to highlight the new tasks which they will have to undertake.

In developed countries the majority of contract administration work is undertaken by consulting engineering firms. These firms are able to undertake design work where it is required, prepare contract documents, tender and select contractors, supervise their work and authorise monthly payments. They are in effect acting as agents to, and undertaking a large part of the work which would have to be carried out by, the government agency staff. Although the work they are able to undertake will reduce the capacity requirements in the government agency it does not eliminate the need for an understanding of contract procedures. Unfortunately the consulting engineering profession is very poorly developed in low income and emerging economy countries. Civil engineering consultants are usually limited to a few small businesses which are run by retired senior officials from the

government agencies. At the present time it is therefore easier and quicker to provide the necessary experience and training to the government agencies for them to undertake their own contract administration, with the possible long term goal of developing the engineering consulting profession to undertake contract management.

The construction institutional framework in developed countries

While the tripartite arrangement between client, contractor and consulting engineer forms the core of the institutional framework within developed countries there are many other support organisations which are essential to enable the industry to function. There are also other organisations which, while not essential, support the industry and enable it to development new techniques and materials and improve productivity. The diagram below highlights the complexity of the relationships between the stakeholders in the construction industry of client, consultant and contractor, their institutional requirements and the support framework that exists to meet these demands. The lines only indicate relationships which may exist to meet the demands of the construction industry and do not include linkages which may exist for other reasons.

Within each sector of the support framework there may be one discrete organisation or a number of organisations providing various but similar types of support to the industry. The different organisations within the framework each perform their supporting roles in different ways. At one end of the scale are organisations which provide a general service to the industry while at the other end are those which are primarily concerned with assisting their own membership.

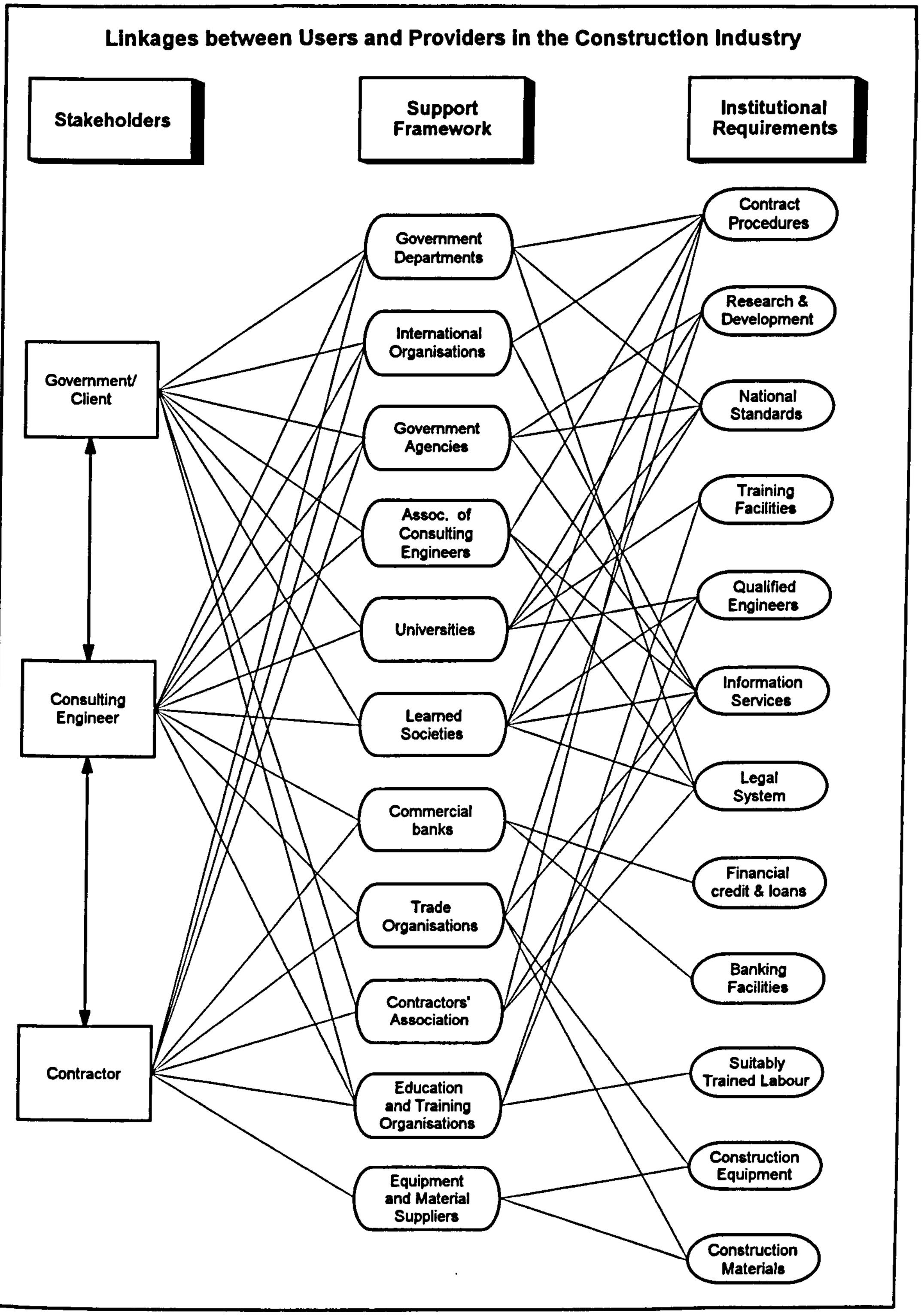


Figure 7.1 Linkages between users and providers in the construction industry

- **Trade organisations**

Within the support framework, trade organisations are set up to support their membership which usually consists of material suppliers and manufacturers. Within the UK there are over 180 different trade organisations representing manufacturers of materials including bricks, cement and steel pipes (CIRIA 1989). Each organisation is typically financed by its members and works to promote its own members' interests. This may include promoting the use of the material to contractors and consultants, providing a technical enquiry service and assisting in the research and development of the material.

- **Contractors' / Consultants' Associations**

Organisations which are similar to the trade organisations are the contractors' and consulting engineers' associations. These bodies are also financed by and represent the interests of their membership, contractors or engineers. They can assist in the development of contract procedures and national standards and can lobby government on issues which concern their membership (Kirmani & Blaxall 1988). They can also provide advisory services to their members which may cover technical, financial or legal issues. Both the trade organisations and contracting and consulting associations are able to represent the collective interests of their members and act as a one voice link between the industry and government policy makers. This is of great benefit to their individual members who would have great difficulty individually influencing government policy.

- **Learned Societies**

Learned societies, although supported by their membership, take a more global view of the industry with the aim of advancing knowledge and dissemination of information to the whole of the industry. They typically examine and certify engineers and other technical staff and aim to maintain a high professional competence among their membership. As a repository of engineering knowledge they can often be called upon to advise the government on issues relating to the industry.

- **Training**

Education and training can be provided by various organisations. At the highest level universities are able to offer courses for engineers which can lead to professional

accreditation by a learned society. On the other hand numerous training organisations and technical colleges offer a range of vocational courses to teach the various construction and business management skills necessary to run a construction business. Universities are also able to undertake research and development. This can be supported by the industry itself through sponsorship from engineering and contracting firms or material manufacturers. Alternatively, research grants can be awarded to universities from government funding bodies.

- **Government**

Government can set up or fund agencies to undertake research and provide information and advice to policy makers. These agencies typically work in a specific field of engineering or construction. In the UK there are a number of these agencies which include, for example, Hydraulics Research (HR) and the Transport Research Laboratory (TRL). TRL "provides technical and scientific information to help formulate and implement government policies in road transportation. It also carries out research and related activities in highway engineering and other related topics" (CIRIA 1989). As the funding of these agencies represents a significant investment, the UK government has attempted to reduce its own financial contributions by privatising these agencies. The government will still commission specific items of work from the agencies but it will not finance the whole agency's running costs It is therefore necessary for the agencies to obtain additional work from private sources.

The construction industry framework is well established in developed countries. It has evolved over the last two hundred years to meet the needs of the stakeholders and public demand in general. The tripartite system exists with each member standing on reasonably equal terms, as contracting and consulting engineering are well established professions that each have sufficient resources and experience to reason and negotiate with the government. The risks involved in construction projects are shared equally between the three groups who each have a similar ability to support them. There are also sufficient financial resources within the construction sector to fund the support framework, even during periods of recession.

The construction industry in developing countries

The construction industry in developing countries has the same institutional requirements as those of developed countries shown in Figure 7.1. The primary stakeholders are also the same, but the 'balance of power' is significantly different to that in developed countries. The diagrams below symbolise the difference in strength of the stakeholders between developed and developing or emerging economy countries. The points to note are firstly that in developing countries the predominant client is the government; in developed countries the client can often be from the private sector. The lack of resources and experience of contractors in developing countries places them in a much weaker position than the government and client. Under the traditional contracting system they are therefore forced to accept a proportionally greater contractual risk then they are able to bear when compared with their counterparts in developed countries. Finally, the consulting profession is almost non existent in developing and emerging economy countries. This situation removes the notion of an independent engineer within the tripartite arrangement.

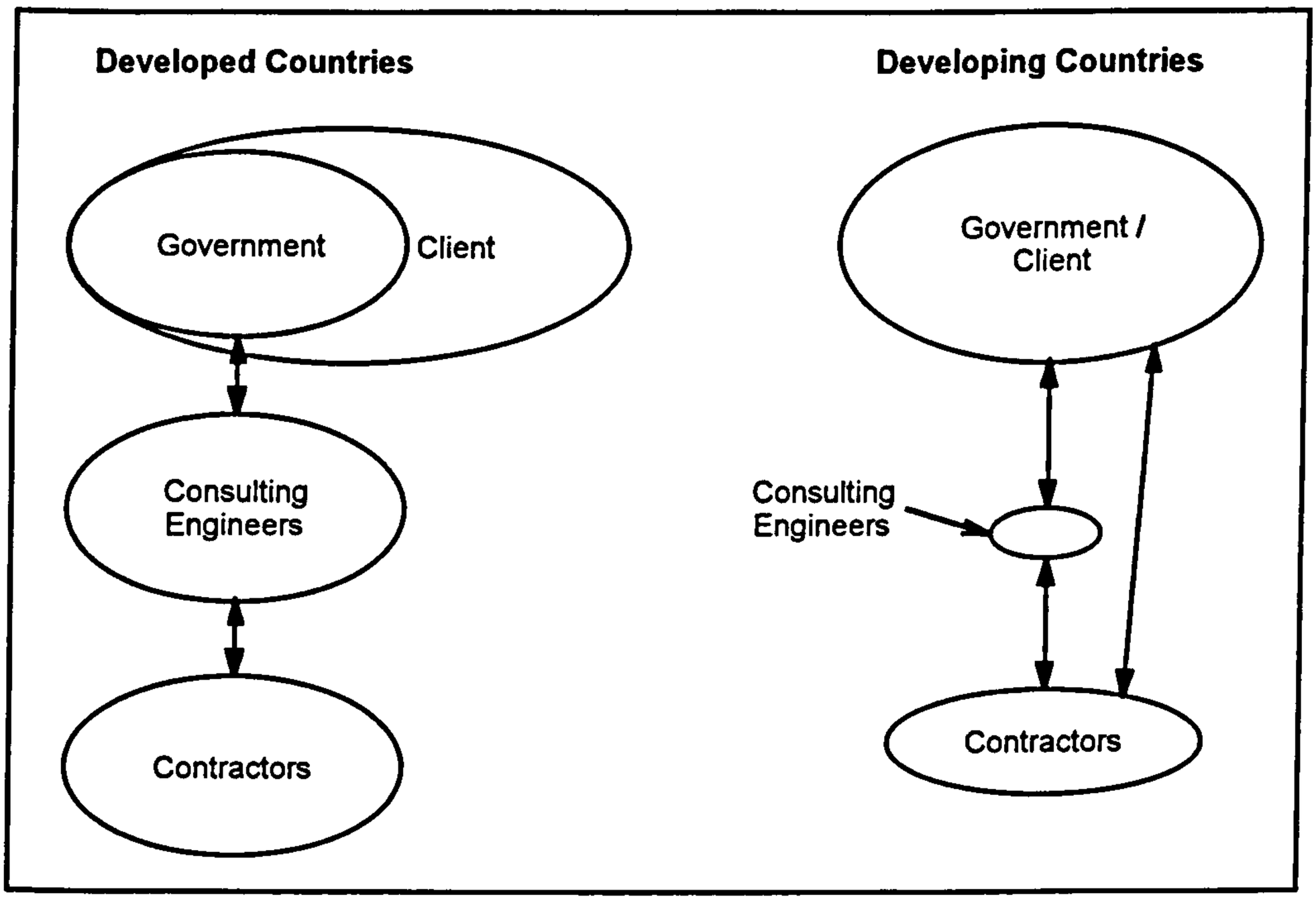


Figure 7.2 Relative strengths of stakeholders in the construction sector

The support framework in developing countries is also very weak. While organisations may exist in the majority of the categories discussed above there is often only one or two in each category, which have limited resources to provide a high level of support. In developed

countries many of the organisations in the support framework are financed by the three stakeholders in the industry.

Within developing countries this financial resource is not available as the engineering profession is virtually non existent, contractors have very limited financial resources and the government budgets are unable to meet the requirements of the construction sector, without supporting the industry framework which carries out the maintenance.

Training of construction personnel at all levels from engineers and construction managers to artisans and labourers is one of the primary functions of the support framework. Studies undertaken by the World Bank (Auerhan 1985) highlighted the fact that while a lack of funding was a major problem with the poor education system in Sub-Saharan Africa it was not the only cause. The study highlighted that a lack of resource management and planning within the education system was also a cause. In addition the reputation of management topics within the education system is low, which results in a lack of qualified staff and specialists in these areas. This situation has a number of knock on effects for those receiving training on construction related activities. While they are able to receive education in the 'hard engineering' skills of design and construction techniques there is poor education provided for the 'soft engineering' skills of construction and business management. The lack of physical infrastructure and the centralisation of education facilities, usually in the capital city results in poor training in the provinces. Finally, the lack of information resources within the education sector contributes to the general lack of information resources within the construction sector.

Within developing countries the tripartite system does not work as the consulting engineering profession is virtually non existent. This situation requires a different mode of operation in an industry where the client takes on the main roles of the engineer. This means that the government departments must undertake the design work and then prepare, tender and supervise the contracts for work that they require to be carried out. Within the existing state owned enterprise system there is in general the capacity within the government authority to undertake the design work. The outputs from the design group are passed to the labour gangs to execute the work and to ensure that it is constructed to agreed standards. This results in little experience and capability to prepare and administer

contract documents, supervise independent contractors and measure and certify work completed for monthly payments.

There are therefore two distinct institutional problems which must be addressed by countries that are attempting to utilise the private sector to undertake construction and maintenance.

1. The lack of a consulting engineering profession
2. The poor capacity within the support framework to assist the contracting sector.

In addressing item 1 the long term objective may be to develop the engineering profession. This, however, is likely to take many years, or even decades in some cases, before the sector has sufficient capacity to undertake the roles which would be demanded of it. As a design capacity exists in the government agencies the most appropriate solution in the short to medium term would be to develop the government agencies' capacity to prepare, award and administer contracts.

The contracting sector is generally underdeveloped; this can be attributed primarily to the lack of a support framework for the industry. It would not be possible in the short to medium term to develop an extensive support structure, through a lower level of support which addresses the core needs should be provided.

Institutional development of the support framework

In order to develop small scale contractors it is necessary to initiate and develop organisations which can provide the support framework shown in Figure 7.1. This process takes a long time and is particularly difficult with limited resources. Different countries and donor organisations have tried different methods for assisting in the provision of the support framework but the common theme of each method is the establishment of an organisation or project that is able to provide a range of different support services rather than only achieving one as occurs in many developed countries. The four case studies described below offer a broad spectrum of the types of organisations or projects which have been implemented in an attempt to provide the support framework. Table 7.1 summarises the case studies, indicating who has initiated and supported the initiative and the parts of the support framework that each organisation or project has attempted to provide.

Organisation / Project	Support provided by	Support Framework
• Khupuka	Non-Governmental Organisation (NGO)	1. Contractors Association 2. Education and Training
• Tanzania Civil Engineering Contractors Association (TACECA)	Tanzanian Contractors	1. Contractor Association 2. Education and Training 3. Equipment and Material Suppliers 4. Commercial Banks
• ASIST (Advisory Support Information Services and Training)	International Labour Office (ILO)	1. International Organisations 2. Government Departments 3. Government Agencies
• MART (Management of Appropriate Road Technology)	DFID (Department for International Development)	1. Government Departments 2. Government Agencies 3. Universities 4. Learned Societies

Table 7.1 Summary of institutional support projects

- **Khuphuka**

Khuphuka was established in 1991 as a voluntary association by a group of community leaders who were concerned at the lack of economic opportunities available to the majority of people in KwaZulu-Natal, in South Africa. Their objective was to set up an organisation that would, through "training linked to production" (Miles and Ward 1998), provide people with an entry point to the economy, while strengthening community structures and promoting development. The priority target groups are:

- Community groups who are engaged in development or about to engage in development
- Unemployed young adults (especially women - at least 30 per cent of intake)
- Emerging and current entrepreneurs, such as micro manufacturers and building contractors.

The Khuphuka concept is that the interests of these three groups are complementary, in that community groups could provide a market for the contractors, and the contractors could provide local employment opportunities. The catalyst for bringing this about is the range of Khuphuka training programmes based on the following precepts:

- Lack of exposure to formal education does not imply lack of intelligence.
- If an emergent contractor can do the job, then he (or she) can price it and plan it.
- Experience is a contractor's greatest asset.
- The majority of small-scale contractors would prefer to be independent operators, but circumstances may force them to become sub-contractors.
- Training programmes should focus on confidence-building, sustainability and self-reliance.
- Training and development must go hand-in-hand.
- Time is money.

Instead of simply trying to provide short term (and probably unsustainable) employment opportunities, Khuphuka aims to create *employers*, who will in turn create employment. The prospective employers are members of local communities, who participate in the community development process as partners with Khuphuka and learn the skills of identifying and implementing project opportunities.
(Miles and Ward 1998)

- **Tanzania Civil Engineering Contractors Association (TACECA)**

The Tanzania Civil Engineering Contractors Association was founded in 1995 with the aim of raising the capacity and capability of local contractors to a level where they can handle any construction project within the country. The vast majority of the membership is made up of Tanzanian contractors who range from large companies to small one man enterprises. Each member pays an annual subscription, according to the type of work he undertakes, which provides the finance for the Association's activities. The main objective of the Association is to protect the interests and foster co-operation between its members enabling an enhanced participation in all construction programmes.

In order to achieve its aim the Association has a five point strategy: (TACECA 97)

- To increase its membership to 500 by the year 2000
- To press for the formulation of a construction industry policy

- To co-operate with other actors in the industry to establish an industrial development fund
- To address the training needs of local contractors
- To encourage institutional reforms in all sub-sectors of the industry

There are two activities currently undertaken by the Association which are particularly interesting as they highlight ways in which a contractors' association is fulfilling roles that are usually provided by another organisation in the support framework (TACECA 97).

1. TACECA is actively encouraging joint ventures between large and small contractors. In these agreements the large contractor bids for and obtains large contracts. He will then pass some smaller parts of these contracts to the small contractors in his joint venture. In some cases the large contractor may also provide the construction materials and equipment for the whole project. The small contractors will be paid by the large contractor for the work they have undertaken minus a percentage for his overheads (approx. 7%) and the costs of any materials or equipment provided. This system benefits from the large contractors who have sufficient financial resources to manage large projects. The small contractors are effectively provided with the support framework, through the large contractors, of a banking system, equipment and material supplies, and education and training by the large contractors staff. The large contractors support the scheme as they are able to bid for larger contracts and the management fee levied from the small contractor helps cover overhead costs.
2. In partnership with the National Construction Council of Tanzania the TACECA is attempting to establish a construction industry development fund which will provide consultants and contractors with access to funds for working capital and procurement of tools and equipment. It is proposed that the fund be established by a combination of grants from the government and donor agencies and shares bought by contractors and other stakeholders in the community. Following the establishment of a sufficient fund, loans would be offered to construction enterprises at rates which will maintain the fund and cover its operating costs but will not result in a large profit. The fund will in effect operate as a commercial bank which works solely in the construction industry.

- **ASIST (Advisory Support, Information Services and Training)**

The ASIST project is operated under the auspices of the International Labour Organisation's (ILO) regional structure for Africa with technical support from the Development Policies Branch (POL/DEV) in Geneva, and in close cooperation with the ILO's Multi-Disciplinary Advisory Team in Harare, Zimbabwe.

The overall objective of ASIST is "to achieve a wide-scale adoption of employment-intensive approaches in national transport and infrastructure investment policies and programmes." This is within the context of the ILO's programme to promote employment-intensive investment policies as a strategy to alleviate poverty. One of the immediate objective of ASIST is to increase the use and efficiency of labour-based methods to carry out infrastructure, particularly road, construction and maintenance activities in Sub Saharan Africa.

In order to meet the immediate objective, the project is divided into three components, as implied by its acronym: advisory support (technical and policy advice, and project backstopping), information services (networking, technical enquiry service, publications, research), and training (international courses for engineers, senior technicians and trainers).

ASIST works closely and effectively alongside national authorities, road agencies and project staff in its region providing the services described above. (Stiedl 1995)

- **MART (Management of Appropriate Road Technology)**

The MART initiative aims to reduce the costs of constructing, rehabilitating and maintaining road infrastructure, and vehicle operations in developing countries. It is based on a research project funded principally by the British Department for International Development (DFID formerly ODA) under its Technology Development and Research (TDR) provision. The project, is led by the Construction Enterprise Unit of Loughborough University's Institute of Development Engineering, in association with two UK-based specialist consultants.

The MART programme is, inter alia, drawing together existing expertise in labour- and intermediate equipment-based technology and the development of private construction enterprises to produce a series of guidelines on the four priority topics of:

- handtools;
- intermediate equipment;
- private sector development and
- institution building.

The MART initiative is strongly research-based, and both DFID and the MART partners see its main impact as providing analysis and codification to support practical project initiatives. Thus much of the output will be in the form of journal papers and other formal publications suitable as reference material and providing an independent and reliable record of the advancing state of the art. The MART project therefore assists the support framework by codifying international expertise from donors, consultants, projects and other research organisations and providing the information in a more usable form for government agencies and departments and centres of learning such as universities and learned societies. (MART 1995)

- **Review of the case studies**

The approaches adopted by the four different case studies show assistance to the support framework at different levels. Khupuka and TACECA are similar as each attempt to provide assistance to contractors at the field level working directly with the groups affected by the lack of support framework. However, they are also different in their approach, as TACECA is an organisation in its own right that aims to fulfil the role of a number of different services in the support framework. While Khupuka is itself an organisation, it exists to promote the development of other organisations and an increased capacity within the industry. The ultimate aim of Khuphuka is to work itself out of a job, whereas on the other hand the contractors association will always be required to lobby government on issues important to its membership.

MART and ASIST are similar initiatives as they both complement and assist the fragile support framework that already exists. They do not attempt to create new organisations but assist with providing the missing institutional requirements and facilitating the links between these requirements and the appropriate support organisations. MART and ASIST predominantly have links with government departments and agencies and can therefore also facilitate the development of the internal institutional building programme of these

organisations. For example, the MART initiative is currently finalising guidelines on the policies and issues to be resolved in the establishment of a private sector road construction and maintenance capability.

Conclusion

This chapter has highlighted that there are many factors to consider when turning to the private sector to undertake construction and maintenance activities. Primarily there are two processes that must be undertaken, firstly, the implementation of the contracting and contract administration procedures themselves. Secondly, there is also a need to undertake institution building, a separate task, that must be undertaken in parallel to the implementation of the privatisation programme. Institution building of the construction industry's support framework must be undertaken to ensure that the assistance needed by the primary stakeholders, particularly contractors, will be available.

There is also a need to develop an attitude change from a state owned approach to a private sector approach. This change can pose problems to staff as the changes highlighted in the table below will occur at a faster rate than cultural attitudinal changes. (Prokopenko 1992)

State owned enterprise characteristics	Private sector characteristics
• Ensures jobs are allocated to the right person at the right time	• The available human resources (skills and potentials) are matched with corporate mission and goals
• Policies aim at trade-offs between economic and social objectives	• Policies aim to develop a coherent culture and balance current and future needs
• Vertical management structure	• Horizontal management structure
• Planning is a reactive exercise	• Planning is fully integrated
• Group unity is emphasised for motivation	• Individualism is emphasised for motivation
• Protocol, rank and status are important	• Informality and competence are important
• Education is an investment in prestige	• Education is an investment in personal development / success

Table 7.2 Cultural differences between state owned enterprises and the private sector

In order for the private contracting sector to operate in developing countries the following issues must be addressed:

1. Do local contractors exist in sufficient numbers with an adequate capacity to undertake road construction and maintenance?
2. What is the capacity of local consultants - would they be able to undertake the roles of design, contract management and supervision?
3. Does the institutional framework exist in the country to support the privatised construction industry?
4. What measures are necessary to develop the support framework?

Key Issues

1. In a centrally controlled economy there is no requirement for contractors. Nevertheless potential contracting firms will already exist but will be undertaking work in different sector(s).

2. In addition to creating a real market economy for contractors it is also necessary to develop the institutional support framework to assist the private construction sector to operate.

3. There is a lack of contract management capacity either within the client organisation or through the use of engineering consulting firms.

Chapter 8.

A model for a Contractor Support Agency

Introduction

The initial phase of this study has highlighted the growing interest in developing the private contracting sector as a method for improving the scale and efficiency of the construction industry. It was indicated in the introduction to this thesis that small scale local contractors are generally seen as holding the greatest potential for increasing construction capacity and general economic development (Edmonds & Miles 1984, Hillebrandt 1985, World Bank 1984 and others) as they:

- are usually more competitive than larger firms on small or disparate projects due to their lower overheads
- provide greater employment opportunities as they use less capital investment per unit of output than larger companies
- have low entry constraints in terms of skills and capital requirements
- like large local contractors, minimise the flow of financial resources out of the country
- can provide a base for the growth of the industry as some contractors will expand their businesses to eventually become large contractors.

Chapter 6 discussed attempts to develop the construction industry, particularly the roads sector, in many low income countries as it is often seen as a pre-requisite for general development (ILO 1997). These attempts have generally sought to provide a high level of support to relatively few construction enterprises, by addressing a number of the following issues: training, technical assistance, contract and payment procedures, financial resources and work continuity. The weaknesses of these projects (particularly those focusing on financial assistance and preferential contract allocation) are firstly the limited number of contractors that can be supported, and secondly, the ongoing requirement for financial resources to ensure a continual workload for contractors involved in the projects creating an unacceptable system promoting dependence rather than autonomy. Also, these projects have concentrated on the symptoms of the problems rather than the root causes (Ofori 1991)

There is a case for concluding that it is impossible to develop the construction industry and that small indigenous contractors are destined to remain small. However, this opinion negates the influence of the institutional framework under which small contractors are

required to operate, as outlined in chapter 7. This institutional framework is not designed for their presence and therefore is not able to meet their needs. The super hypothesis which relates to this thesis is:

"Small scale construction enterprises *can* be developed through appropriate institutional support"

This thesis seeks to test the hypothesis:

"There is a mechanism for supporting the majority of the small scale construction sector resulting in an increase in construction capacity which through small adaptations will be transferable to different developing countries."

The traditional Western contracting framework is the system that was inherited by most low income countries. The hypothesis therefore implies that small scale contractors can work in this construction market place if they are assisted to operate under the traditional contracting system through institutional support. The use of the words "resulting in an increase in construction capacity" in the hypothesis also implies that this institutional support is not permanently required, but that construction enterprises can graduate from the requirements of this institutional support once their competitive disadvantages have been overcome.

In order to be successful, this course of action for the development of the private construction sector should not impose significant additional risks to the client above those normally associated with promotion of a construction project. It should also be achieved without a large ongoing financial expense, when compared against the social and economic benefits of an improved construction capacity.

Chapter 7 highlighted the wide range of different institutional support initiatives that may be provided for contractors to fill the gaps that currently exist in the main support framework. These different services would normally be provided by discrete organisations working in collaboration. The provision of institutional support for small construction enterprises will therefore be required to span across different sectors and organisational frameworks.

Contractors are notorious for complaining about the problems that they have to face. While some of these problems are a 'fact of life' associated with operating any business many of their complaints are justified. The main problem that each contractor faces is that individually they have little power to bring about changes to their current situation.

Training is often viewed as the solution to a contractor's problems. The ILO in particular has produced a wide range of training material to develop a contractor's business and management acumen, which was reviewed in the literature review in chapter 3. Appropriate training will help a contractor, or any other small business, to improve their effectiveness and viability. However, it will not solve the problems of an unfavourable business environment (Hernes 1988). Chapter 5 suggested that constraints inhibiting the performance of small scale contractors may be grouped under three headings: (Relf 1987)

1. Difficulties presented by the particular market and business environment in which the contractor is operating.
2. Difficulties deriving from clients.
3. Difficulties deriving from the shortcomings and inadequacies of the contractor himself.

The ranked list of the 18 most common problems presented in chapter 5 is reproduced in Table 8.1

Rank	Problem
1=	Bank finance is difficult to obtain
1=	Long delays in receiving payment
3	Contract documents are over complex and unsuitable for the work
4=	No work continuity
4=	Poorly managed/ non existent classification or prequalification system
6=	Tenders / estimates and bids are poorly assembled and difficult to follow
6=	Lack of skilled labour / staff at all levels
8=	There is little or no on-site supervision / quality control
8=	There is no provision for price fluctuations / estimated badly
10=	Specifications are vague, over complex and/or impractical (usually foreign codes)
10=	There are insufficient meetings between client, consultant and contractor
10=	There is a lack of equipment for hire
13=	Bank interest charges are very high
13=	Contract documents are biased against the contractor
13=	Difficulty in obtaining performance bonds / guarantees and their cost
16=	Contracts are awarded to companies who bid too low (lowest tender)
16=	Delays and shortage of supply - materials
16=	Lack of expertise in planning and programming

Table 8.1 Ranked list of contractors problems

It can be seem from the table that the only problem listed which falls in the category of "difficulties derived from the shortcomings of the contractor himself', is *lack of expertise in planning and programming* which is ranked 16th. The table also shows that two major problem sectors facing small scale construction enterprises are access to financial resources and problems with contract procedures. The model for institutional support described in this chapter will therefore concentrate on providing the institutional support for these issues. It may be possible to provide support in other areas, although the complexity of the issues will go beyond the scope of this study. There is also the danger that the resources of the organisation providing the support will be spread too thinly by providing a large number of services, thereby reducing its effectiveness.

A role for a Contractor Support Agency

While the tripartite arrangement between client, contractor and consulting engineer forms the core of the construction industry's institutional framework there are many other support organisations within developed countries which enable the industry to function effectively. Chapter 7 discussed these support organisations in more detail, highlighted that developing countries have the same institutional requirements to those of developed countries, but also indicated that the support framework in developing countries is generally very weak.

There is therefore a clear need for an organisation that can fill this requirement by providing the support framework which is currently unavailable to small businesses. This Contractor Support Agency (CSA) could provide a range of services to supplement the existing support framework that may exist. Its role would be threefold:

1. Facilitate the growth and capacity of small businesses to access the current support framework.
2. Fill the gap in the existing construction industry support framework

while it works to;

3. Promote the development of the existing framework to adapt and cater for all construction businesses.

At this point it may be worth highlighting the differences between a CSA and a Contractors' Association (CA). The role of a Contractors' Association should be to provide long term support to the whole contracting industry. A CA would be run by its membership for the benefit of its members in particular and contractors in general. It would obtain all its required resources from its members and represent the membership's majority interest, by promotion to government and other relevant bodies. CA membership would normally be open to any contractor who abides by the rules of the Association and pays their membership subscriptions, which may vary according to the size of the company.

A CSA will have the shorter term goals described above and will therefore require resources from outside the organisations or companies that they aim to support in order to deliver their services. The management of a CSA would come from outside the businesses it supported, who will therefore not have direct control over the CSA's activities except for its remit to assist the development of its members. In common with a Contractors'

Association, membership of a CSA would not be compulsory for small contractors, although, the perceived advantages of membership should outweigh the cost implications involved. CSAs are also likely to provide a wider range of services than a CA but at a more basic level which reflects the needs of the different membership. The ultimate objective of a CSA will be to work itself out of a job (Edmonds and Miles 1984) by achieving the three tasks described above. This may include, where a Contractors' Association does not exist, the promotion or development of a CA.

There are many roles which a CSA could undertake. However, its primary role will be to develop the capacity of small construction enterprises to eliminate the "missing middle" (Young 1993). It will be able to provide one voice to the government on issues important to a large number of small, and individually weak, enterprises. It should also facilitate the flow of information back from the government to the individual enterprises (Edmonds & Miles 1984) by acting as an intermediary. The table below highlights the different roles that a CSA could perform, divided into initiatives which are directed at the contractors themselves and initiatives that are directed at improving the support framework.

Assistance targeted at contractors themselves	Initiatives to develop the construction industry support framework
• Technical advice	• Classification system
• Legal advice	• Development of suitable contract documents
• Business management training	• Financial assistance
• Plant hire	• Promotion of standard contract procedures
• Materials co-operative	• Improved payment procedures
	• Promotion of the image of small construction enterprises

Table 8.2 Potential Roles of a CSA

It would be possible for the CSA to undertake all the activities described above. However, an organisation which undertook all these roles would have a complex structure in order to undertake this wide range of roles. As the objective of this study is to propose a model for the initiation of a CSA which involves investigations, development of services and initial

operation, it will concentrate on the most pertinent issues. These issues are the financial constraints and contract conditions and procedures. Within these constraints the issues of contractor registration and classification for more efficient contract management will also be discussed. It may be possible to further refine and develop the model to allow other services to be undertaken once it is believed that the basic structure for a CSA which addressees the two main issues has been defined.

As the Contractors Support Agency will be representing the whole of the contracting sector it will 'carry more weight' when negotiating with the government and will therefore be able to offer proposals for improving contract conditions and payment procedures. The association would also be able to offer policy advice in the formulation of a construction industry policy which would hopefully result in a more steady flow of work to its members.

The remaining sections of this chapter will discuss the role a CSA could undertake and the criteria for measuring the success of the organisation. It will also highlight the investigations and the steps required to set up the organisation. The range of activities that could be undertaken by the CSA in achieving its objectives are explained and issues relating to finance and organisational structure/ staffing are discussed.

Investigations and initiation of the organisation

- Investigations

The initial stage in commencing a programme to develop a Contractor Support Agency will be to undertake a study of the indigenous construction industry. This study would investigate a number of different aspects of the construction industry to firstly determine if a CSA is the most appropriate form of construction industry development. i.e. there are a large number of potential small scale contractors who are restricted in their ability to procure work primarily due to a lack of institutional support and the institutional framework governing the construction industry. The study would cover 3 areas:

1. The potential available workload for the private construction sector

This part of the study would determine if there is sufficient demand for construction to justify the development of a construction capability. While there may not currently be a great demand for private contractors this section of the study should investigate the

potential shift of work form the public sector to the private sector. The economic growth of the country should also highlight the future workload that may exist. A significant part of the initial study would involve investigating the government's interest and willingness to develop the industry and support the formation of a CSA. This support would not necessarily require a full financial commitment but support to accept the ideas put forward and initiated by the CSA which may require changes in government attitude.

2. Current competence and capacity of the construction industry

This phase of the study would determine the current competence and capacity of the domestic construction industry to carry out the predicted level of private sector work highlighted in the initial study phase. This study would be carried out by conducting interviews with existing contractors and major clients, for example, government ministries. Additional contacts would be made with any Contractors' Associations or representative groups which may already exist. This study should reveal:

- The current numbers of contractors in relation to their
    - size
    - previous experience
    - type of work undertaken
    - turnover
- Their general capital and credit facilities
- Their perceptions of the major constraints for effective execution of contracts
- The level of qualifications of the senior staff in the construction firm and type of training that may be required
- The interest of small contractors in the establishment of a CSA and their willingness to pay for services provided by the organisation

3. The construction industry operational framework

The final phase of the investigation should highlight the current operational framework governing the construction industry within the country concerned. The two figures shown below outline the contract and financial aspects of the institutional framework that should be investigated. These tables were derived from analysis of the problems that have been reported to affect the industry.

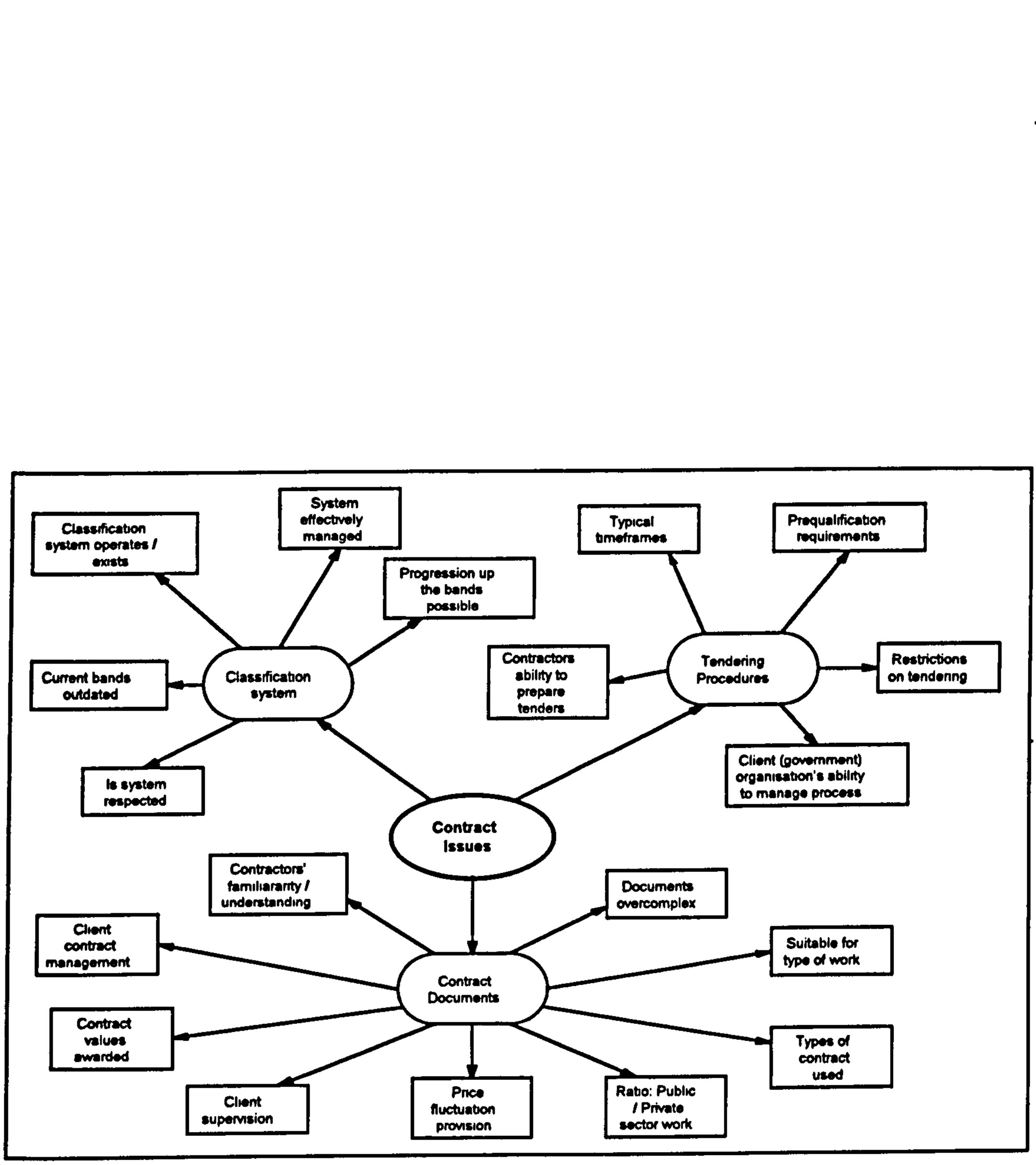


Figure 8.1 Contract Issues

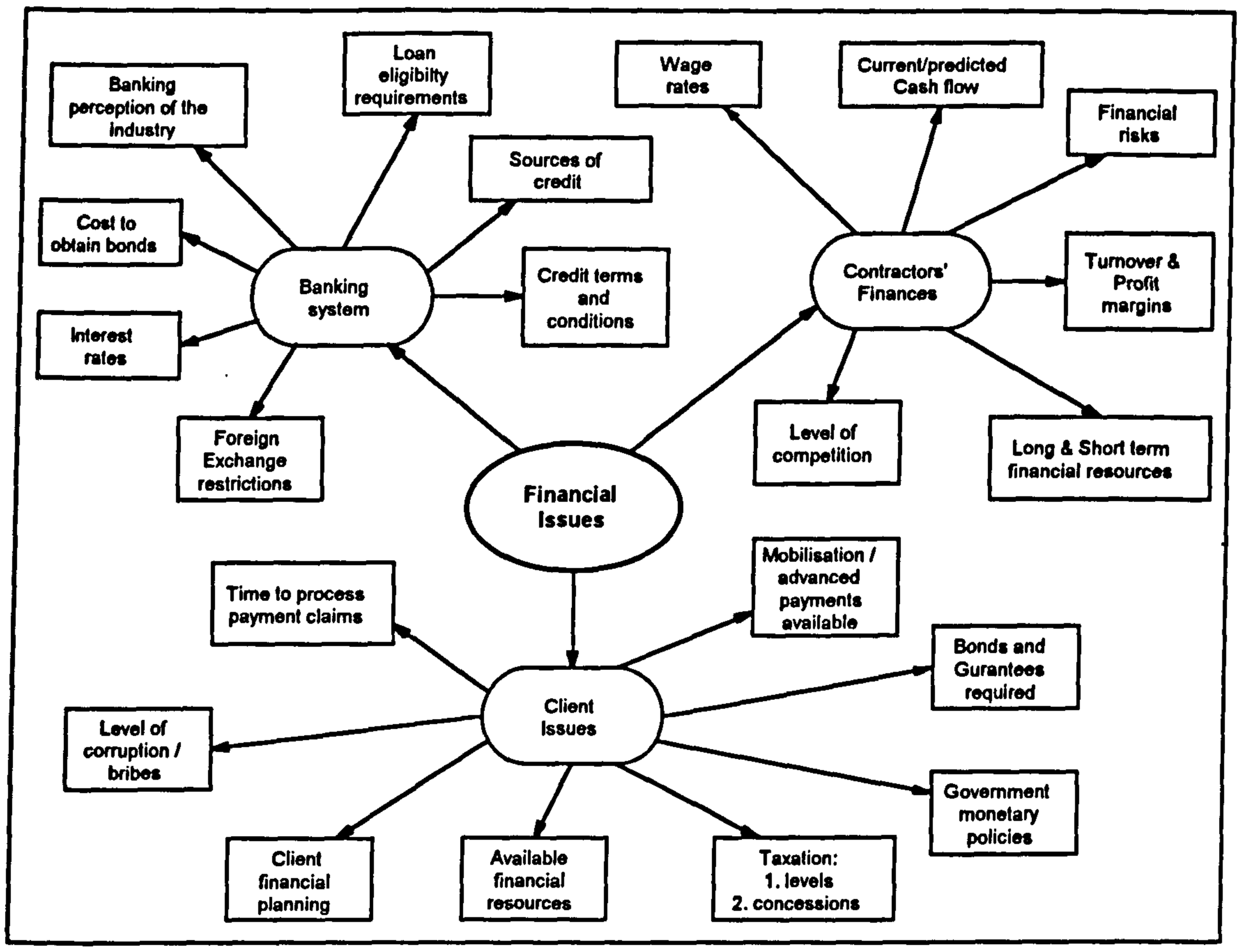


Figure 8.2 Financial Issues

If the investigations revealed that sufficient potential workload exists for the development of the indigenous contractors, but the current contractor's competence and capacity was insufficient to meet the demand then the initiation of a CSA may be beneficial. The results of the investigations carried out in phase three would determine if the poor capacity could be improved by a CSA. The problems highlighted in the third phase of the investigation would also be used to determine, if appropriate, the activities that the CSA should undertake. While problems may be similar in different countries they will be variations. Later sections of this chapter discuss activities that the CSA could undertake to mitigate the problems experienced by contractors and provide support. There are advantages and disadvantages of using each initiative which will be determined by individual situation in the country concerned. The activities described in the next section should therefore be seen as a menu of options which would be chosen depending on the particular problems, shown in the spider diagrams, above experienced in country.

Figure 8.3 shows how the roles a CSA could undertake would be chosen. There is a large number of options for assistance that could be provided to promote and assist the development of the construction sector in general and small contractors in particular. The next section discusses activities in the contract and finance sector that may be provided however, it will not be possible to provide them all. These options should be viewed as a menu from which a restricted number of activities are actually implemented. They should be compared against the problems highlighted during the investigations of the construction industry framework and the most appropriate activities chosen that will address the problems.

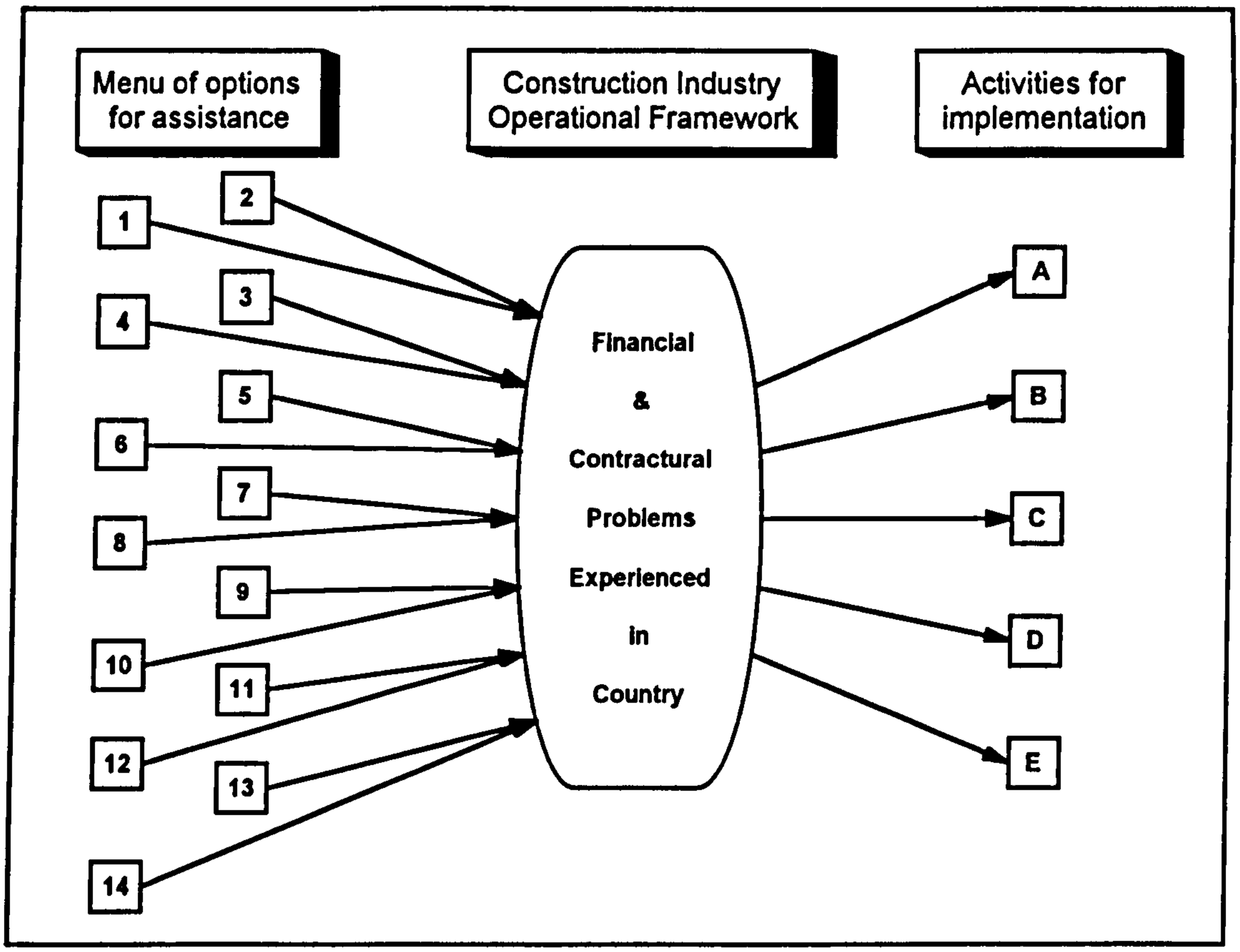


Figure 8.3 Determining the role of a CSA

- Initiation

It will not be easy to initiate the CSA, as it will take time to establish the organisation. It will also be useful to determine the length of operation for the agency at its inception rather than once the organisation is operating as "costly bureaucracies are easier to create than to kill" (Edmonds and Miles 1984). The length of operation may be defined either by a time period or by a measured improvement in construction capability which is, of course, not easy to measure objectively. The 'time period' option is most likely to be favoured if international donors will provide a significant portion of the project funding. International donors are tied to yearly budget cycles and will therefore require a clearly defined point where their support will end. This option will require the CSA to work to a strict timeframe in order to show a result at the end of the donor investment period. On the other hand if the CSA is still making promising progress, possibly after a slow or difficult start, at the end of the donor funding period the overall value for money achieved will be reduced if the funding is ended abruptly. The 'measured improvement' option would permit the CSA to .

have a slow start if initial teething problems were encountered and prevent the initiative ending while it was in full swing. However, there will be no clear achievement milestones for the organisation which might result in it becoming a bureaucratic white elephant. There may be a compromise solution where a donor would fund the CSA in stages each with a specific timeframe. Additional stages would only be funded if criteria were met that could demonstrate a measured improvement was continuing to be achieved. Projects that have been designed to develop contractors from scratch have taken 4 years to develop a contractor to a competitive bidding stage (Lantran 1990). It is likely that programmes to develop a CSA should last at least 5 years to allow assimilation and consolidation of the project objectives (Miles 1998). Although a CSA will not attempt to 'recruit' new contractors but assist those who have already started to operate, it should be seen as a long term initiative, particularly by financing agencies.

Regardless of the operating period there may be considered to be 5 main stages in initiating the CSA:

1. Develop an understanding of the operational framework governing the local construction industry
2. Determine the activities that the CSA will undertake and recruit additional staff if appropriate
3. Promote the CSA to the local construction industry and other stakeholders
4. Develop the national construction capability through CSA activities and initiatives
5. Review progress and refine activities undertaken by the CSA.

CSA activities

Although there are diverse roles that could be played by a CSA this paper will concentrate on the two primary problems:

- Lack of access to finance
- Poor contract procedures

In order to address these 2 issues there are three areas of operation proposed for the CSA to undertake:

- Registration and Classification
- Contractual measures
- Financial measures

The role that the CSA would undertake in these initiatives would vary from promotion or management of an initiative to an advocacy approach to potential clients or institutions associated with the construction industry framework. The three areas of operation are discussed in more detail below to highlight the specific activities the CSA could undertake. As each country's construction industry is unique it is impossible to make a general recommendation as to which initiatives should be implemented. It will be necessary to compare the in-country problems highlighted in the initial investigations before setting up the organisation with the 'solutions' provided by each initiative.

- Registration and Classification

While governments and Ministries of Works may be keen to open up work available to contractors by allowing them to tender indiscriminately, the overall effect usually has a negative effect on the small contractors due to their limited financial, material and technical resources. An open tendering system will not foster contractors 'loyalty' to the industry as they will enter and leave the construction sector depending on work availability. There is therefore a need to develop a register of contractors and to classify these contractors according to their ability to undertake different sizes and difficulties of jobs.

A register of small scale contractors will enable the targeting of resources to contractors who are committed to the industry and seeking to develop and expand their business. It will also facilitate the monitoring of contractors' progress and development to determine when support should be withdrawn, the contractor can operate at a higher contract level or a contractor's ability to undertake a specific project. The register would allow potential clients, including the government, to confirm the status of contractors and their suitability for work.

The objective of a classification system is to protect the client from inexperienced or unreliable contractors and reduce the workload of tender evaluation. A classification system effectively prevents contractors bidding for work if they do not meet certain experience and capacity criteria required to undertake the work. The CSA can categorise the contractors through a formal registration system into a series of classification levels according to their ability and resources.

The concept of "contractor accreditation based on classification is similar to the stipulation of contract conditions" as it attempts to match the work available to the ability of the contractors themselves. A contractor classification system would negate the need to submit a considerable amount of supporting documentation for each tender submission, as a potential employer would be able to refer to the contracting register and immediately assess a contractor's ability to undertake the work involved in their project. The initial inception of a registration and classification scheme would require a great deal of effort and place a significant onus on the regulating body. There will also be the associated monitoring and accreditation to be undertaken in the operation of the scheme. However, in the long term this system will reduce the complexity of tender and contract documents as the a large portion of the information will be provided by the data held on the contractors register.

The classification example below, from Singapore, is a basic form of prequalification where the contractor must possess the required skills and experience to bid for work. A client organisation could also impose additional requirements in order for a contractor to prequalify e.g. Level of turnover, number of trained supervisors however, there must be realistic reasons if this approach is adopted.

Grade	**Financial Grade** (S$ million)	**Track record** for construction and related work (S$ million)		Paid up capital (S$ million)
		Aggregate projects for three years	Or largest project value	
G1	0.1	0.1	0.075	0.01
G2	0.5	0.5	0.375	0.05
G3	1	1	0.75	0.1
G4	3	3	2.25	0.3
G5	5	5	3.75	0.5
G6	10	10	7.5	1
G7	30	30	22.5	3
G8	30 +	50	37.5	5

S$ = Singapore Dollars 1S$ = £0.40 Source: Miles and Neale 1991

Table 8.3 Example of a contractor classification scheme

In this example the contractors enter the system as G1 contractors and can progress up the levels until they reach G8, which represents a contractor able to undertake contracts with the country's and overseas standard contract documentation competing on the 'open market'. Contractors within grade G7 & G8 would certainly not qualify for assistance through a CSA and it is envisaged that the main support would be targeted at contractors in Grades G1 to G3 or G4. The contractors are not allowed to bid for work from a higher grade to the one in which they belong. The principle of a classification system protects both the client and contractor involved in the construction process. Clients are protected from employing a contractor who is not capable, through lack of resources or experience, to undertake the project, while on the other hand small emerging contractors would be protected from fierce competition by large well established contractors who could undercut the small contractor or even accept a short term loss in order to maintain their workload and keep staff and equipment employed. This approach may appear detrimental to a client when compared with a free market where it will be possible to construct the project at a lower cost. However, in the short term the large contractor with large overheads will seek to recoup his loss on the low bid through claims. In the long term the registration system will assist the development of contracting capability and hence provide more options for the client.

The classification system allows progressively more testing levels of contract in which greater risks and responsibilities are placed on the contractor. In the example above the level of performance bonds required and contract value are increased as the contractor gains experience.

If a contractor classification scheme is adopted for contractor development a clearly defined set of criteria must be established to determine:

1. How a contractor should be registered
2. When a contractor can or should move on to a higher level
3. When a contractor should be demoted or removed from the classification

The overriding factor for success in contractor classification schemes is the requirement of an open and fair system. Registration and classification is often most successfully carried out by an independent organisation such as a National Construction Council or a Contractors' Association. The initial registration of new contractors would be an easy

process as they would automatically be required to commence at the lowest level. However, there should also be a mechanism for existing contractors who wish to join the scheme to enter at a higher level depending on their experience. In order for the scheme to be successful the contractor must see that there is an opportunity to rise up the Grading in order to be able to undertake larger and potentially more profitable jobs. A contractor at a higher grade by definition has more financial resources and technical and managerial ability than a lower grade contractor. A rise in the Grade should therefore not just be a time serving exercise but be based on a contractor's ability taking into account the following criteria

- Financial capacity, based on their working capital, turnover and value of a assets
- Number of personnel including their experience and qualifications
- Number of years the company has been operating
- The turnover of the company in the preceding years
- The value of the equipment owned

Care must be taken with the final criteria above as it may encourage contractors to purchase unnecessary equipment and plant in order to rise a grade when more suitable equipment may be available for hire. In addition if the government's contractor development policy framework favours the use of labour based contractors, the final criteria above could preclude labour based contractors from rising to a higher grade. To prevent discrimination against labour-based contractors this criteria could be modified to; value of equipment owned, equipment hire charges incurred during a year or number of labourers on payroll.

Managing and operating the registration and classification system will require sufficient personnel and other resources to check applications and contractors' annual returns. If a checking procedure is not implemented the register will be open to abuse. Contractors may provide exaggerated information in order to be classed in a higher grade and have the opportunity of tendering for larger jobs which may be beyond their capabilities. If the registration system is to be successful it must be well regarded by the users (clients) and trusted as a realistic indication of a contractor's ability. Any application and checking procedure must therefore be transparent to ensure contractors are unable to abuse their grading level. Despite clear working practices classification system, in a few instances, will always be open to corruption as contractors may offer bribes to be placed in an inappropriate class where they perceive a better work potential.

Many small contractors have an erratic workload with long periods between contracts. The organisation in charge of administering the scheme should therefore have criteria for defining when a contractor is no longer operating as a business rather than waiting for work and hence removing them from the classification list.

There are a few pitfalls which have been encountered when contractor classification scheme have been implemented. In order to be successful all contractors should register in the classification scheme to prevent inexperienced and under resourced contractors from unfairly competing for work. Registration is most likely to be accepted by contractors if the scheme is promoted or adopted by the client organisation and contracts will only be offered to registered contractors. Clients will have the added security that they are offering work to contractors who are capable of completing their work. It would be counter productive to make registration mandatory however, widespread registration could be achieved by marketing the benefits, to potential clients, of employing a registered contractor.

During periods of low work availability, especially for higher value contracts, some large contractors have bid for work offered to lower grade contractors. They have underbid and "Downward Plundered" the work from small contractors despite their higher overheads in order to keep their equipment and labour working (Edmonds and Miles 1994). Although they often accept a loss on these jobs they are able, unlike small contractors, to absorb this loss for short periods to prevent laying off staff. It is therefore advisable to set lower limits, in addition to upper limits, that a contractor can bid to prevent "downward plundering" by larger firms. For example a Grade C contractor could only bid for work in that grade or one grade below, which would protect new contractors in grade A.

It should be reiterated here that if a prequalification and classification systems are to be successful they must be effectively managed to ensure that there is a strict set of criteria to determine at what level a contractor should prequalify and how he may rise, or be demoted, to a new level. Prequalification or classification criteria invariably involve monetary bands that should be frequently adjusted to take account of inflation rates.

In order to be effective the CSA must keep regular contact with the contractors to record the work that they are undertaking to ensure that they are registered at the appropriate level. Essentially the CSA will be undertaking a monitoring and administrative role maintaining the contractor register which can be made available to potential clients. By maintaining the register the CSA will have an effective means of assessing and controlling contractors' entitlement to access to other services described below.

The classification levels set for the registration of contractors will be dependent on the indigenous contracting capacity and experience. Nevertheless, regardless of the classification levels set it will be necessary to implement a 'mid entry' system where contractors with limited experience would be able to join the register at a level commensurate with their experience rather than at the lowest level.

- Contract Initiatives

There are a variety of initiatives that may be adopted to improve contracting procedures for small contractors.

Price preferences

In order to assist the development of small scale contractors, government agencies could reserve particular contracts for this target group. At first sight this option might seem an excellent solution to guaranteeing work and providing the new small construction firms with the work security that they require. Unfortunately there are many potential pitfalls associated with adopting this approach. There will have to be strict criteria for qualification for this reserved market which is likely to result in a strong resentment from contractors who do not qualify for the reserved market, especially those who fall just outside the selection criteria. The system will always be open to abuse and corruption by those who administer the scheme and contractors who 'create' new small scale companies to access the market. It is likely that a better solution to a reserved market would be a preference or inducement scheme which could be gradually phased out for larger contracts or as a small contractor becomes more experienced.

Price preferencing is easy to administer and allows work to be offered to all contractors but provides the target group with some additional support by modifying their tender price

when comparing it against other contractors. Under a price preference scheme any pre-qualified contractor can submit a bid for work. When the bids are assessed for price against each other the bids received from the target group would be reduced by an agreed notional percentage, representing the value to the client of promoting the target group. This percentage could be varied depending on the level of support required and could be reduced for higher priced contracts in order to gradually reduce the support to contractors as they bid for higher contracts. For example, a scheme in Northern Ireland provided for a 5% price preference for tenders where they would benefit employment in Northern Ireland (Watermeyer 1998) and through the Zimbabwe Government's Economic Structural Adjustment programme indigenous contractors are given a 10% advantage on government contracts (Moyo 1999). Although the bid price would be reduced for comparing tenders, the price paid to the successful contractor would be his original bid price. Table 8.4 offers a possible price preference structure for road maintenance contracts. A price preference system has the advantage that it allows all contractors to bid for small contracts and also forces emerging contractors to become more independent as they take on larger contracts. However, the scheme is still open to abuse and corruption as contractors who do not fulfil the preference criteria could have their bids adjusted.

Another option for a price preference scheme could be based on consistent quality in the contractors work. This scheme would be open to all contractors who would have there bid prices reduced for comparison purposes according to the quality of there previous work. The CONQUAS (Construction Quality Assessment System) developed by the Singapore Construction Industry Development Board and a group of public bodies provides a system of up to 5% price preferencing for contractors who consistently achieve a high standard of work. (Miles and Neale 1991)

Contract Value	Price Preference (contractor bid reduced for tender comparison)
Up to $10 000	10%
$10 000 - $25 000	5%
$25 000 - $50 000	3%
$50 000 - $100 000	1.5%
Over $100 000	0%

Table 8.4 Example Tender Price Preference for Target Group of Contractors

This measure would only be possible through government agencies where the government has an active policy towards small scale contractors as private clients would not be willing to pay more for their construction project. The CSA would be responsible for strict policing, on behalf of the government, of this initiative to ensure it was not open to abuse. They would also have to work with the client organisation to administer the scheme and assist with contract tender evaluation. The CSA would have to monitor the price preference levels and values and compare them against the classification bands. Adjustments to the levels and values would be necessary depending on local capacity, inflation, work availability and financial resources.

Joint ventures

The overall objective of classifying or rating contractors and packaging contracts is to increase the local contracting capacity. Small, simple contracts allow new contractors to gain experience without being committed to a large investment or the risks involved in undertaking a large project. While contractors are able to gain technical experience through working on small projects, it is considerably harder and will take far longer to improve their financial and risk management and tendering expertise. This learning process can be accelerated if inexperience contractors undertake joint ventures or sub-contracts with more established, larger contractors.

It is likely that a contractor would improve their business acumen more through a joint venture than a sub-contract, where the small contractor is essentially undertaking the same work but for a different client (the managing contractor). In a joint venture a contractor takes a full share in risk measurement and bidding but in a sub-contract the main contractor will typically give a price and says 'take it or leave it'. Sub-contracting should therefore be looked upon as a mechanism for the smallest and new contractors to gain experience. Joint ventures offer the less experienced contractor the opportunity to be involved with the various aspects of construction management (Kirmani & Blaxall 1988). Joint ventures may be initiated between a large and small local contractor or between a local and foreign contractor. There is often potential for a more successful outcome between two local contractors as they are more likely to understand the problems and constraints under which the other party is forced to work. In order for a successful joint venture to be achieved between a local and foreign contractor the problems of incompatibility in management style

and a lack of trust between each organisation must be overcome. Foreign contractors can often view local contractors as a liability especially if they are unaware of how they are likely to perform, which may reflect badly on themselves, while local contractors are often keen to lead a project despite their lack of contract management ability.

The CSA would act as an agency to bring together suitable joint venture partners by holding records of small scale contractors, through the registration scheme, and promoting the advantages of joint ventures to larger companies. It would also offer advice on the contractual agreement between the joint venture partners and provide an arbitration/mediation service if problems or disagreements occurred.

Contract packaging

Where small contracts are unavailable, large contracts may be split into smaller 'packages' which are more accessible to small contractors. (i.e. Contractors within levels A-C in the classification example described above) There are two ways of packaging contracts (Milne 1994):

Vertical contract packaging

Vertical contract packaging divides work up into small sections. For example, in a contract to construct 6 health centres/schools in a region the work could be split in to 6 smaller contracts to each build one health centre or school. Vertical contract packaging enables any contractor to bid on equal terms with each other for small contracts. The benefit that is likely to be obtained for small contracting businesses is that the size of the contracts are likely to be unattractive to larger contractors unless they can obtain 2 or 3 consecutive contracts. If vertical contract packaging is adopted larger contractors may be prevented from winning more than one or two contracts to eliminate this problem.

Horizontal contract packaging

Horizontal contract packaging is similar to vertical packaging however, rather than dividing contracts into smaller projects the work is divided into activities (Intech Associates 1992). This approach allows larger contractors to bid for more complex work and smaller contractors to bid for the smaller, simpler contracts, unattractive to the large contractors. As contractors expand their business they would be able to bid for and undertake more complex work that required more experience and resources.

The example below shows how a road maintenance contract could be horizontally packaged into four contract types.

- Simple contract

This contract would include grass cutting, culvert cleaning or de-silting and side, turnout and cut-off drain maintenance. To undertake this work a contractor would require the minimum investment in equipment as only a few simple handtools and a supervision vehicle would be required and a working knowledge of drainage and vegetation maintenance. The contract would not have any bonds or sureties and would be paid on a simple visual inspection to ensure that the work had been completed minimising the risk to the government. In order to be successful the contractor would need to hire and manage the workforce, ensure timely payment of wages and organise suitable handtools. This contract is essentially a labour only contract as the majority of the contract price would be spent on labour wages

- Technical contracts

These contracts would be offered to more experienced contractors who had some simple equipment, such as a compacting roller, gravel trailer and tractor or truck. The work would include pothole patching, resealing of pavements, regravelling small sections of road, small culvert reconstruction and possibly light regrading. The contractor would need to be more experienced in labour and equipment management compared to a contractor undertaking simple contracts as these contracts would be larger and involve a larger risk element. In order to enable contractors to move from undertaking simple contracts to technical contracts the use of hired or borrowed equipment should be allowed in order to qualify to tender.

- Gravelling and reconstruction contracts

These contracts would involve the regrading, reconstruction of road surface and regravelling extensive lengths of the road. The contracts would be let to contractors with experience of road maintenance and access to the equipment required to carry out regravelling work, either from ownership or through hire firms.

- Speciality contracts

These contracts would include bridge, culvert and other structural maintenance and reconstruction. The knowledge, experience and equipment required would be fairly specialised which would preclude the inclusion of this work in the other contracts.

Contractors working in this sector may have a range of experience and the contracts which they were offered would reflect his experience. It is likely that contractors entering this sector of work would have already undertaken construction projects in other construction sectors other than the road sector.

The key advantage of contract packaging is that it is much less open to abuse and corruption as all contractors are allowed to bid for any contract. The contract packaging system prevents resentment of 'selected' contractors and encourages contractors to expand their businesses as the incentive to remain small has been removed. The road authority is able to select the cheapest suitable bid and not have to justify selecting a price preference tender. The arguments against contract packaging are the increases in contract administration and work supervision required by the client. However, the CSA could advise firstly on how to split up the work based on the total size of the project and the range and numbers of contractors registered within the different classes. Secondly the CSA could assist the client in preparing the additional contract documents at a suitable level for the different types of work to be undertaken.

Biased contracts and unfair risks

In any contract there are inherent risks, especially in construction. The government's / client's tendency may be to off load all these risks onto the contractor. Frequently the client is in a better position to accept the worst risks by spreading them over a number of contracts, effectively insuring themselves against the risks. The client must accept that he may have to 'pay out' on one of the risks but he will have saved money by covering all the risks himself. The perceived theory of making the contractor responsible for all risks is that the client will get a better deal. In reality contractors would normally increase their bid price to take into account these risks resulting in the client paying well over the odds for a piece of work. There are then three possible outcomes;

1. The contractor makes a large profit if the risks priced for do not occur.
2. The contractor absorbs the loss from some of the risks due to the high price bid against all the possible risks
3. The contractor makes a large loss if all the risks occur, or in the worst case becomes bankrupt and is unable to complete the work.

Clearly outcomes one and three are not beneficial to the client especially if the contractor becomes bankrupt and the client has to make further payments to an additional contractor to complete the work. In addition, for outcome two the client is likely to have had to pay a high contract price for the contractor to absorb a number of losses due to risks. A contractor who is burdened with all the risks will always be looking to reduce site costs in order to provide himself with 'financial insurance' against any of the risks occurring. Alternatively the contractor may be unable to cost these risks and the client may appear to have obtained a good price. However, if the risks occur the contractor may become bankrupt and be unable to complete the work leaving a large bill for the client to complete the project. CSA should therefore advocate equitable risk sharing contracts promoting within government ministries and other client organisations the problems of off loading all the risks on the contractor.

Corruption

Any new policies should be accepted as open and fair by both the public and private sectors. In many countries there may be the potential for cartels, monopolies and corruption. Contracts must be awarded and contractors selected under a scheme which is open and fair preventing accusations that foul play has occurred. Various measures that can be implemented include;

- Public opening of tender proposals
- Selection of contractors by a tender board rather than individuals
- Selection of contractors by an agreed ranking framework rather than subjective decisions
- An observer from the Contractor Support Agency being invited to sit on the tender board.
- Prevention of one contractor having a large percentage of the total workload

In addition to sitting on the tender board the CSA can actively advocate and support anti corruption polices and measures, particularly those which affect small scale contractors.

Simplified tendering procedures

The majority of contracts are offered using an admeasurement contract, or more commonly known as a bill of quantities (BoQ). Completing the bill of quantities appears to present the majority of problems to contractors. Within the BoQ the total job is divided into specific work items which means that contractors will have to sort through the BoQ to find all the

work items that require a certain material and artisan. For example, they will have to determine the number of work items that require laid bricks and then determine a price for this work based on the price of bricks, bricklaying labour costs. These costs will then have to be distributed between all the work items that involve brick laying. For small projects a simplification of this system would be to produce a materials and labour list form the BoQ, and allow the contractor to insert prices into the labour and materials list, which would include a portion for overheads and profit, rather than have to distribute the costs into the BoQ (Edmonds and Miles 1984). This procedure will involve additional work for the client organisation that may not be justifiable on one-off projects however, for repetitive projects such as health centres and schools the additional cost for each individual project is unlikely to be very great. A client organisation would be able to request resources and advice from the CSA in order to prepare a materials and labour list form their project and tender documentation. This support initiative is only likely to be useful for the smallest contractors which will require the CSA to advise on suitable projects and highlight classification bands that may be targeted.

Contract pricing policies

Some of the problems associated with a BoQ contracting system that is commonly used have been discussed above. There are other contract payment systems that can be used to obtain a price for the project.

1. Schedule of rates.

A schedule of rates system is similar to a bill of quantities, as the contractor will return to the client a completed list of prices for undertaking different items of work. However, it is simpler than the BoQ system, for the contractor, as he will not have to divide the cost of carrying out work between the different items in a traditional BoQ. The schedule of rates system may be seen as a step between the materials list, described above and the full BoQ. It may also be possible for the client organisation to publish set rates for items that appear in the schedule in order to provide contractors with a guide when preparing their bid. It is likely that this approach would only be adopted for small projects undertaken by inexperienced contractors. In such a case the client would require assistance from the CSA to set realistic rates that would enable the contractor to undertake the work to a suitable standard and obtain a reasonable profit. A progression from the schedule of rates towards the use of a bill of quantities is the use of target rates. This is similar to schedule of rates but the contractor will be able to adjust the target figure up or down within a prescribed

limit set by the client. The contract would be awarded to the tenderer whose overall price is the lowest (Taylor 1996). This approach would still require assistance from the CSA, but would also assist contractors to prepare their own rates based on the guide figures.

2. Cost Plus fixed fee (or percentage fee)

This contract will pay a contractor the costs that he incurs undertaking the work plus a fee that the contractor defines in his bid. This contract system could also be modified for the contractor to be paid a percentage of the costs that he has incurred instead of the fixed fee. This contracting system is probably the simplest for contractors to bid for and for road authorities to evaluate tenders. However, the road authority will have to mobilise substantial supervisory resources during the execution of the work to verify the work undertaken by the contractor. It is clear that this contracting system is very susceptible to corruption and may be seen by unscrupulous contractors as 'a way to print money.' It would also be difficult for the CSA to provide assistance to the client if this system was adopted.

3. Lump Sum

A lump sum contract is a fixed price contract where the contractor will undertake the work for an agreed fixed price. The advantage of this contract is that the client is assured of the price to complete the project as many of the risks are transferred to the contractor. Although this contract appears highly desirable to the road authority its use is likely to result in disastrous results as small contractors are unable to calculate and finance the risks that they will be required to cover. The CSA should actively discourage the use of this form of contract for small scale contracting, unless the work context and risk is very clearly limited and defined.

Table 8.5 below summarises the advantages and disadvantages of the three types of contract discussed above. Although the lump sum and cost plus contracts may initially appear attractive methods for pricing work their disadvantages will outweigh the advantages. A system of BoQ, Schedule of rates or Materials/Labour costs are the only realistic pricing method that can be supported by the CSA.

Pricing Method	Advantages	Disadvantages
Schedule of Rates / BoQ	• Simplified schedule systems are easier for contractors to complete • Payments are only made for work done • Work can be altered and re-priced using the tender rates	• Effective supervision required by road authority to measure work done
Cost plus fixed fee/percentage	• Provide flexibility to modify the work to be undertaken - e.g. emergency work • Simplified tender procedures for contractor and road authority	• Very tight Supervision required by road authority to confirm cost of work completed • System open to abuse and corruption
Lump sum	• Price is fixed at the start of the project	• All risks transferred to the contractor • Contractors may rush work to increase profits • Very tight supervision required to ensure quality control

Table 8.5 Different contract pricing methods

Simplified contract procedures

Previous contractor development programmes have sought to simplify existing contracts by including additional parts and risks of the original contract documentation as the contractor became more experienced. The differing levels of contract approach was briefly described above in the section on classification. If this approach is adopted a clearly defined set of criteria must be established and maintained by the CSA to determine when a contractor can or should move on to a higher level. In addition if contractors are prevented from bidding lower than their 'level' newer less experienced contractors would be protected from the competition of the more experienced contractor for their first few contracts. The final level of this tiered system should be a contractor able to undertake contracts with the country's standard contract documentation. Apart from the contract value increasing through the levels the following other items could be altered to assist new contractors.

- Level of surety required
- % Mobilisation payment granted
- Lowest level uses a schedule of rates and lower levels use target rates before a Bill of Quantities is required as described above

- Level of technical assistance available
- Taxes and levies on staff, labourers and equipment
- Access to loans at preferential rates
- Removal of certain risks from the contractor e.g. unforeseen weather, errors in drawings
- Small penalties for late completion
- Responsibility for damage during construction from natural events
- Relieved of responsibility to detect errors in specs and drawings
- Penalties for late completion small
- Relieved of non wilful damage

(Edmonds and Miles 1984, Relf 1987, Kirmani & Blaxall 1988, Garnier & Imschoot 1993)

Although the above list is not exhaustive, the items above should not all be included, the choice being dependant on the type of contract that a specific country uses and advice from the CSA.

Within the context of developing small scale contractors simplified contracts can often be synonymous with equitable contract documents. The CSA may offer advice on the terms and conditions of the contract to achieve a workable document, but the client organisation is ultimately responsible for the contract conditions which will govern the work that a contractor undertakes. The client organisation should therefore be encouraged by the CSA to look upon the contractor as a partner in achieving the same ultimate goal. The CSA should assist the client organisation to ensure that contracts clearly define the roles and responsibilities of employers and contractors and methods for dealing with issues that include:

- Provision for price fluctuations
- Protection against unforeseen ground condition as and adverse physical conditions
- Compensation for late payments
- Realistic level of performance bonds and retention money
- On site supervision
- Vague or ambiguous specifications

Training programmes

As there are many different activities and skills required in contract and financial administration the most appropriate training delivery approach is likely to be through a modular programme. Each module could cover a different skill, for example site planning, tender preparation or financial management. There are a number of stages to complete in preparing a training programme (Hernes 1988).

1. Survey of contractors training needs
2. Assessment of existing training material
3. Development of modular training material
4. Technical and managerial support to prepare trainers
5. Promotion of training facilities

In the development of the modular training material it will be necessary to review the different training styles that can be adopted (Hernes 1988):

- Subject learning — Learning a particular subject through lectures, group work, exercises and discussions, making use of the participants' previous knowledge.
- Project work — Project work can be used to build on and put into practice skills learnt in subject learning sessions by providing topics to investigate and provide management solutions.
- Action learning — This style of learning requires participants to devise and develop a plan or procedure for undertaking a particular activity, such as tender preparation.
- Demonstrations — Following the teaching of basic theory and principles it will often be necessary to demonstrate the practices of a topic either on site or classroom demonstrations.
- Site based work — This mode of learning allows participants to consolidate their theoretical knowledge by practising the skills that they have previously learnt.

Different modules topics will require different proportions of each of training style to achieve the optimum learning environment.

There are also a number of other issues that need to be addressed when planning a training programme.

- Training location — Will the training be centrally located requiring contractors to travel to the training centre or spread out in the regions
- Training periods — How long will each training session last - a number of short sessions or concentrated in one block? The choice is likely to depend on training location and the length of time contractor's or supervisor's are able to leave their work place
- Trainers — In addition to being able to prepare and teach training modules, trainers must have a general understanding of the operation of the industry and knowledge of the problems and constraints that contractors work under.
- Follow up — Training course may be relatively short before the contractor returns or enters the open market. It is likely that he will have 'follow up' questions that arise from his work that he needs obtain answers. Consideration must therefore be given to short follow up seminars or workshops

Some basic training programmes may be provided by the CSA at minimal cost to contractors, however to ensure a realistic number of applications and participants the CSA should charge a fee for training courses. Regardless of the financial commitment required from contractors it is important that the course participants are aware of the training that they may expect and the skills that they will have at the end of the course. Contractors may already have on going jobs and releasing supervisors to participate in training courses still represents a risk and investment.

Financial Initiatives

Mobilisation payments

Mobilisation payments are made by the client to the contractor at the beginning of a contract to provide working capital at the beginning of a job. Typically mobilisation payments are up to 15% of the contract value which represents about 2 months pay on a 12 month contract. During the remaining life of the contract the client will deduct a percentage of the contractors monthly claim to cover the cost of the mobilisation payment. The

advantages of this scheme is that the contractor will not have to obtain large loans to commence work. The ultimate final price of the contract may also be lower due to the reduced finance costs incurred by the contractor. Mobilisation payment levels should be set to only meet the realistic start up costs of a project if they are not to encourage poor financial management (World Bank 1984). The argument often cited by government officials against mobilisation payments is the risk that the contractor may not use the money for the intended project or even run off with the money. It is unlikely that the contractor will intentionally default if this results in exclusion from the registration list and hence effectively being barred from undertaking further work. The mobilisation payments can also be made directly to the contractor's bank which may also assist the contractor to obtain credit facilities with the bank. One programme in Tanzania made mobilisation payments directly to equipment hire firms, to enable contractors to obtain equipment to start their contracts (Osei-Bonsu 1995). The CSA would play an advocacy role in promoting the use of mobilisation payments and then confirming the registration status of contractors to clients.

Loan guarantee schemes

Contractors often have problems supplying security or guarantees for their loans. There have been cases in the past where the CSA has actually taken on the role of the banks to provide loans or guarantees to contractors. The National Construction Council in Kenya is one example (ILO 1979) and SEDCO (Small Enterprise Development Corporation) (Cortes 1979) in another where a CSA has acted as a bank. This approach appeared to be working well until it was discovered that the CSAs had been granting loans that they were highly unlikely to recover. The lesson that should be learnt from these two organisations is that the CSA should not act as a bank itself. The CSA will have experts in construction practices and contracting, but not in banking. Banks will therefore be in a better position to actually manage loans with advice on the construction industry and contracting practices received from the CSA.

When contractors are undertaking a project through registration with the CSA, they may be able to obtain credit references or guarantee loans. The CSA would provide clear information to the bank regarding the type of work being undertaken, value and perceived risks involved. They would therefore in effect be able to guarantee the loan to the bank. The CSA would also have a role in monitoring the contractors' progress to ensure that they

did not intentionally default on the loan. This can be achieved by initially only offering small loans and requiring the contractor to build a credibility rating and requiring all payments to the contractor to be made through the bank where the loan is held. This scheme will require close cooperation between banks and the CSA as contractors will require loans quickly once contacts have been awarded and a mutual trust between the client, CSA and commercial banks, as each group is in effect controlling and responsible for a part of the others money.

It is a common contracting practice for contractors to submit a work certificate at the end of each month to claim payment for work undertaken in that month. Once this certificate is approved by the client or his representative it will then be forwarded to the accounts department for payment. There is often a few weeks delay between approval of this certificate and the contractor actually receiving payment. A basic form of loan guarantee scheme would therefore involve a CSA encouraging banks to provide short term loans to contractors providing the approved work certificates as 'collateral'.

Banking code of practice

The construction industry is a very large potential source of business for the banking industry. Banks see contractors as high risk businesses partly due to the nature of their business but also due to the way in which a contractor may manage his finances. For example contractors may withdraw the majority of their monthly payment within days of paying it into the bank (Relf 1987). In many cases there is a situation of both parties not understanding the problems and constraints that the other party has to operate with. This can often occur across the whole of the private sector creating a vicious circle (World Bank 1995c).

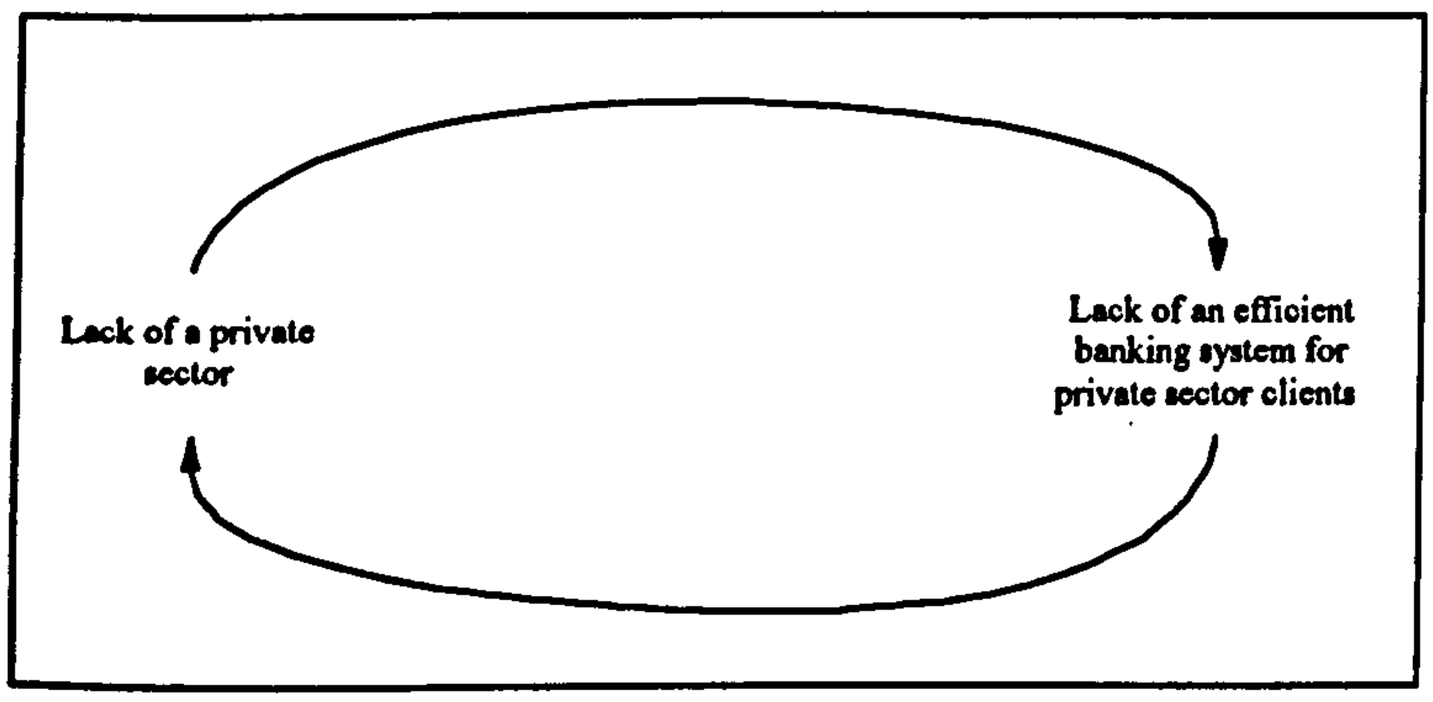


Figure 8.4 The private sector vicious circle

The CSA in cooperation with local banks could develop a code of practice for working with small contractors, which explains the services which they may offer and under what conditions. It may also be beneficial if the banks could produce information, assisted by the CSA, aimed at small contractors explaining the constraints under which banks can offer loans and how to apply for loans. A CSA would also be able to provide technical advice to commercial banks to help them appraise construction enterprises correctly (World Bank 1984). This information should be written in a suitable language for contractors and should prevent them applying for unrealistic loans. Additional information could also indicate the services which banks may offer and how they can be beneficial to contractors. This information should explain why the banks have to insist on certain restriction and selection criteria and could be endorsed by the CSA as being a fair and honest document

Establishment of Construction Banks

If the national banking industry remains reluctant to carry out business with contractors an option for the CSA would be to promote the setting up a Construction Bank. This bank would provide contractors and consultants with working capital to undertake their projects. The bank which would be a private sector managed institution would only offer loans the organisations working in the construction sector. In order to commence operation the Construction Bank would need to develop a financial reserve. This reserve may be built up through loans and grants from the national government and donor agencies. Contractors who are working and receiving payments could also invest in the bank. Contractors' investment would entitle them to larger loans in the future. The major disadvantage of a Construction Bank is the narrow lending base which can result in an increased risk of failure. Contractors 'investing' in the bank would be putting themselves doubly at risk.

Experience shows that the chances of default are minimised as contractors are borrowing from each other and know each other as members of the same profession. (TACECA 1997). It would also be considered socially unacceptable to default on payments with peer pressure ensuring loans are repaid. Any contractor who defaults on the Construction Bank without a good or fair reason would no longer be entitled to apply for further loans.

Although the CSA may offer advice and assistance in the setting up of a Construction Bank it is recommended that the bank would be a separate organisation to the CSA. The

Construction Bank would be handling large amounts of money requiring managers and staff with completely different skills to the CSA. A previous Contractor Development Agency, the Kenya National Construction Corporation, acted as a bank providing short term loan finance to provide contractors with working capital (ILO 1979). The errors that were made in offering these loans only became evident when the organisation started having financial difficulties. By the time accountants and bankers highlighted the poor banking procedures that had been implemented by the Corporation had made a large loss which forced it into bankruptcy (Miles 1982).

Scheduling of public sector spending

One of the most common problems experienced by contractors is a lack of work continuity. This problem is linked to poor financial planning and management of the client organisation. The key to solving this problem is the establishment of a steady level of planned work to give a 'background' work level. This will improve work continuity and provide a sound financial base for planning to ensure money is available to pay for work completed. Government departments form the majority of construction sector demand which can be as high as 80% of the total output (World Bank 1984).

The government of South Africa has recognised the need for scheduling public sector spending to:

- Stabilise the construction industry environment
- Provide a consistent, predictable spending pattern
- Encourage investment in productive production processes and human resource development (Department of Public Works 1997).

A background level of work would provide a basis for establishing the Ministry's minimum financial requirements. Other activities and projects could be added to the workload in a descending order of priority up to the budget allocation for each year. If further funds were available, possibly due to a delay or cancellation of a particular project, other activities with a lower priority could be carried out in place of this project up to the annual budget allocation.

When planning work the total annual budget must always be taken into consideration. Often the tendency is to prepare large programmes due to political pressure which far

exceed the available budget in an effort to increase public support. These large projects are also generally not accessible to the small scale construction sector, being undertaken by large foreign firms. It must be accepted that it is not possible to undertake all the work that is required immediately and a list which gives projects in order of priority must be drawn up. Coupled with a knowledge of the annual finance available this list could also indicate the likely waiting time for a project's implementation. If this list was made available, possibly through local government offices, to contractors it would assist them plan their own work and prepare bids for each item of work in their geographical area or specialism.

The weather patterns in some countries may also result in an annual cycle of work fluctuation if it is not possible to carry out work in the wet season. In order to maximise the potential working time and smooth the level of work availability as much as possible contracts could be tendered during the wet season to start at the end of the rains.

It may be possible to target funding to contractors in particular sectors. For example in Uganda the government policy is towards utilising local contractors for road maintenance (Musumba 1998). The contracts awarded are relatively small and only require limited resources which by default will favour small local contractors. Other countries have also adopted the use of local contractors for road maintenance and it is likely that other sectors, for example irrigation and small public buildings, could be targeted for maintenance or construction by local contractors.

It is unlikely that the CSA can play a major active role in this initiative as it would be politically unacceptable for them to assist to prioritise the required construction and maintenance work. They would be undertaking an advocacy role by meeting officials in different Ministries to suggest the implementation of changes.

Payment procedures

Apart from the lack of work continuity, delayed payments by government departments pose the largest problem to small scale contractors. Taylor (1996) highlighted the availability of timely payments to small contractors is the "killer assumption" in the design of a contractor development project. Although the main problem is the lack of available finance, payments may be delayed for a number of different factors even if finance is available. Firstly contract supervision is often poor and based in head offices which results in the contractor having

difficulties in obtaining and agreeing interim payment certificates. Once the payment certificate is agreed it has to go to the central ministry department for signing and then through the bureaucratic system to the treasury for payment. This system exacerbates the potential for a certificate to be delayed or even lost. Within the ILO's Construction Management Programme an investigation of the problems experienced by contractors in Ghana discovered that payments would take a minimum of 14 weeks to be credited to a contractor's bank account. Each payment certificate had to pass through 30 discrete approval stages before the payment cheque was issued (Miles and Ward 1991).

The obvious solution is to streamline the payment procedures through a rationalisation of the approval process in the client authority. Taylor (1996) suggests that the target for payments to small scale contractors should be within 2 weeks of submission of a certificate approved by the engineer. Although 2 weeks for payment may be optimistic any payment streamlining will ultimately reduce the overall cost to the government as contractors will not need to use higher rates in order to cover their finance charges as a result of late payments. This idea is far more easily discussed than implemented, however, an interim measure may be to pay interest charges on outstanding balances to contractors (as liquidated damages are claimed from contractors for late work). This measure would help contractors cover the potential losses that they would incur and help obtain an increase to their loan facility. It would also provide the incentive to government departments to implement faster systems to pay contractors.

In the longer term governments must implement alternative measures to ensure contractors are paid within a reasonable time. The problem is partly solved by ensuring that there is a dedicated source of funding for roads projects as discussed above. An obvious solution to streamlining the acceptance of payment certificates would be to decentralise the payment system to regional offices. Firstly, these offices have better access to work sites to agree payment certificates and government officials working in regional areas are more likely to know or at least be aware of the projects which are being undertaken. Secondly the long authorisation chain for certificates would be greatly reduced. Payment accounts may be set up with banks in regional areas to ensure that the necessary finances are available when certificates are submitted for payment.

Although the issue of late payments is one of the greatest constraints on the development of small enterprises there is very little that the CSA would be actively able to do except undertaking an advocacy role promoting the streamlining of payments and payment of compensation for delays.

Organisational structure

- Leadership and Staffing

All organisations require a 'Champion' (Peters 1997) to undertake their initiation and initial operation. This leader will be prepared to work hard to make the association a success and provide it with good foundations for future operation. If there is no obvious potential champion available it is unlikely that the establishment of a Contractors' Association will be a success. This champion should be supported by a group of managers who are also committed to the ethos of the organisation. They must be skilled in the tasks that they are required to undertake in order to ensure that the initial activities of the organisation are a success and to build on this success to develop a sustainable and effective management structure.

- Core Staff

Experience required for the core staff will vary depending on the roles the CSA will undertake. Staff are likely to require skills in training and advocacy roles in addition to a knowledge of the construction industry. The staff may be local or expatriate staff depending on the skills available in country. If expatriate staff are required their costs may be covered by donor assistance to the project and it is likely that one of their roles would be to train local staff with the necessary skills to run the CSA. The need for staff with practical experience can not be over emphasised. The failure of the National Construction Council in Kenya was partly due to the senior staffs' lack of practical experience (Miles 1982)

- Membership

The main issue to be addressed is should membership be voluntary or compulsory for small contractors? Contractors are unlikely to wish to be members if they will have to pay a subscription and perceive that they will not receive any benefit from their outlay. It would

also be difficult to legislate and police a compulsory membership system as contractors will find an alternative method of operation to avoid the legislation. The ideal solution would be for membership to be voluntary but the perceived members' benefits were great enough for contractors to want to join. This is likely to be achieved if the Contractors' Association runs an effective contractor classification and registration scheme. If the scheme was supported by the main client organisations (government departments) who would only offer work to registered contractors and membership of the association was necessary to be a registered contractor, the membership issue can be solved. The registration scheme would assist with the formation of links between the government and the individual contractors and assist with the flow and continuity of work providing that it was effectively managed.

Financing issues

There are 4 potential sources of finance for operating the CSA (Levitsky 1992):

- Membership fees
- User fees
- Government Support
- Donor Support

In order to become registered small scale contractors would be required to pay a registration fee. The level of this fee may alter depending on the size of the contracting company and hence the level of classification awarded. The minimum level of registration fee that would need to be charged should cover the costs of;

1. Processing the initial application for registration
2. Confirming the contractors' business details / characteristics
3. Annual monitoring and checking of the contractors' work
4. Reassessment and upgrading (where applicable)
5. General administration costs of the registration and classification scheme

The cost of running the classification and registration scheme will not be small. If the register is not going to be open to abuse by contractors a rigorous and transparent checking system would need to be implemented.

The registration fee may be set at a higher level to provide additional revenue to carry out other initiatives but to ensure that contractors accept the registration system and continue to

support the scheme they must perceive a benefit of being registered. While contractors may feel that they need to be registered to obtain work and hence pay the registration charges it will be necessary for them to perceive the costs provide value for money when compared with the registration scheme and other benefits that they receive. i.e. for the CSA to be successful there must be a willingness to pay in addition to an ability to pay by the contracting sector.

Certain services such as training or information and advisory support could be provided on a fee for use basis. This charge would not necessary cover the full costs for the use of the service, but would assist in meeting the total cost. Charging for these services will also provide them with a perceived value and hence are more likely to be accepted as proper, useful and worthwhile information.

It is important to highlight that a CSA cannot be financially self-supporting. While a percentage of the required finance may come form the contractors themselves in the form or registration fees and user charges it is unlikely that they will provide sufficient finance to undertake the initiatives described above. It will also be necessary to obtain finance from either national government or donor grants.

As government departments will be the main client to the construction industry they should look favourably on providing financial support to the organisation. It will be necessary for the government to realise the benefits of supporting the agency which will include for example the ability to avoid long and complex prequalification and tendering procedures. They should also assess the long term economic benefits of developing an indigenous construction industry rather than relying on foreign or quasi-national construction companies. Although the government may provide financial support it is important that this support is not tied or provided with conditions which will prevent the CSA being autonomous and managed by its staff.

Donor agencies through their development policies, may provide support to the organisation. Although it is unlikely that their development policies will have a direct mandate to promote the development of local contracting capacity, it will be necessary for them to realise the need for local small scale contractors to assist in achieving their social

policy objectives. Small local contractors will be the most appropriate organisations to construct small water systems and build local health centres or schools. In addition to direct financial aid donor agencies may also be able to provide technical support by seconding or financing technical staff to assist in managing particular initiatives discussed above.

Other issues

- Government

Government is, and is likely to remain, the predominant client for construction in most developing countries. The overriding factor in initiating change is therefore the commitment of the government at all levels. The government not only provides the majority of finance but also controls attitudes, policies, institutions and working laws. The foundations to initiating change must therefore be based on strong political stability and an eagerness or willingness to change.

A move from the traditional direct labour approach to construction and maintenance will require the government to take on the role of the consulting engineer or contract manager. It is likely that a semiautonomous group may form within the appropriate ministries which undertakes this role of design and contract management. This group may also eventually form the catalyst for the development of a private sector consulting profession. The task therefore in institution building within the government is to create an ability and develop that ability to supervise and administer contracts. (Lehobo 1998) The development of a contract administration section to the government ministries will require new personnel to undertake the different roles. It is however unlikely that new staff will be required as the downsizing of any direct labour operation is likely to provide sufficient personnel, albeit with retraining, to fill the new roles created by the contract administration section.

It may be necessary for the government to look at its whole political strategy as there will be constraints on both business development in general and the construction industry in particular that will need to be addressed if it wishes to develop the construction sector.

Business Development	Construction Industry Development
Poor banking systems	Long delays in payment
Lack of a legal system	Lack of consulting profession
Foreign exchange restrictions	Scarcity of trained workforce
taxation system	Absence of design codes
Inefficient transportation systems	Lack of suitable contract procedures

Table 8.6 Constraints to economic development

- Donor Agencies

Donor Conditionalities

In many cases donor funded projects may have procurement terms which require domestic (donor country) sourcing or supplies, goods or services. When a country, like Tanzania, depends heavily on donor funding for implementing construction projects there may be limited opportunity for local businesses to benefit from the available contracts. This will impact negatively on the development of the local construction industry. A lack of knowledge of the procurement procedures on the side of the local firms may act as a barrier to accessing donor funded projects. This means that donor countries may use indirect means of preventing local firms from winning tenders for donor funded projects.

Tanzanian Civil Engineering Contractors' Association (TACECA): Workshop on Local Capacity Building, 1997

Essentially, international technical assistance can be delivered in four different ways (Miles and Neale 1991);

1. A window on the world: Access to accumulated international experience through the executing agency responsible for delivering the assistance
2. Fellowships and study tours: Provision for direct contact through job exchanges and face to face meeting with individuals to create linkages with established institutions in other countries

3. Equipment and Publications: Direct assistance in the procurement of materials to obtain items for teaching, research and consultancy which may not be readily available in the country concerned
4. International expertise: Provision of short or long term foreign specialists to provide counterpart training and improve the capacity of the institution.

An appropriate mix of the four inputs must be used to suit the particular needs of the new institution and its staff.

Where technical assistance is required, it is important to ensure that it is properly defined and that provision is made for a transfer of skills so that the system becomes sustainable without continuing resource inputs.

Criteria for success

The ultimate success criteria for the organisation will be to "work itself out of a job" (Edmonds and Miles 1984) i.e. to provide a suitable framework for new contractors to continue to enter the profession. It will never be possible for all new contractors to be successful as the nature of the contracting business involves an element of risk and some businesses will fail. The objective of the organisation is to increase the contracting capacity in the country and not the capacity of individual contractors to undertake larger projects. The success of the CSA could therefore be measured by the number (or increased number) of contractors at each level in the registration grading system. Ofori (1991) suggests that success may be measured by "the number of firms that they have groomed to maturity". Alternatively the progress could be assessed from results of questionnaires or other surveys addressed to the organisation's stakeholders (Clients, contractors, other 'construction institutions'). These surveys could be undertaken at various intervals in the life of the CSA to determine the direction and activities that should be given a higher priority.

The funding for the organisation will not be available for an indefinite period and will therefore require the 'winding up' of the organisation once the contracting capacity has been increased. The CSA may develop into or establish a Contractors' Association, as discussed below, but this organisation would be separately controlled and financed from the original CSA.

It was mentioned above that contracting can be a risky business and some contractors will become bankrupt. This situation must be accepted when reviewing the success of the organisation and determining the level of support required by contractors. 100% success rate in the retention of the contractors who become registered should be classified as a failure, as it is not possible for every contractor to be successful. It will be necessary for the organisation to determine when a contractor has been successful or not and therefore remove or reduce their entitlement to support. Setting the criteria for removing support from a successful contractor will be straightforward as the contractor will move to higher levels in the registration and classification scheme and hence automatically be entitled to less support. However, an unsuccessful contractor will remain at the same position in the grading system and therefore continue to receive support. The CSA should therefore have additional criteria to determine when support should be withdrawn or reduced to a contractor who is showing little sign of developing their business. This criteria is likely to be based on a selection of variables which will include:

1. Quantity of support given (value in terms of cost and/or time)
2. The timeframe that the contractor has been receiving support

The withdrawal of support will encourage contractors to become self supporting and develop their own business or remain trading as small enterprise and allow the CSA support to be directed to other emerging contractors.

In order to be successful the organisation must be market driven. This will require it to respond to the needs of all the stakeholders in the whole of the country or region in which it will operate. The three main stakeholders in the construction industry are:

1. Contractors
2. Government
3. Client

- Contractors

Small scale contractors are the primary stakeholders in the development of the CSA however, they must recognise the need for the CSA to be approved and supported by the other stakeholders in the industry. Contractors are primarily interested in developing their own business rather than in industry in general. The Management of Appropriate Road

Technology (MART) project highlighted the primary concerns for small scale contractors in their bid to survive in the industry (Miles 1996a).

1. Start up business
2. Registration (Trade License)
3. Classification
4. Management ability
5. Possess facilities
6. Hold a bank account
7. Marketing ability
8. Job continuity
9. Understand the government's budget cycle

If the CSA is to be successful it must remain long term goal oriented (for the whole construction industry) although this may be achieved through short term inputs (to individual contractors).

- Government

To be successful the Association must be accepted by the Government as an organisation 'to do business with'. Governments realise the need to open dialogue with the contracting industry and are therefore unlikely to ignore any organisation that truly represented the interests of its whole membership. However, the government must accept that the organisation is an autonomous body which is set up to represent its membership and therefore may at times criticise government policies and legislation

For Contractor Support Associations to be successful they must be recognised and receive mutual regard and respect from both contractors and government organisations. It is important from the contractors view point that a Contractors' Association is seen as being independent from the government. While the value of support from government should not be underestimated it is necessary for the organisation to be financed, staffed and managed separately from any government body in order to be an autonomous body which is not controlled by government.

- Client

Although client will often be synonymous with government it will be possible to distinguish between the government department which is supporting or promoting the CSA and the department requiring a construction project to be undertaken. It was outlined in the introduction to this paper that the development of the private construction sector should not place significant additional risks on the client. The operation and success criteria of the CSA must ensure that this requirement is met.

In their book *Building for Tomorrow*, Miles and Neale propose list of nine criteria which are required for institutional success:

1. Strong and knowledgeable leadership
2. Pronounced practical orientation
3. Closest possible links with client base
4. Interdisciplinary and problem orientated approach
5. Coherent and balance portfolio of intervention methods (training , consultancy, research and information services)
6. Flexibility in reacting to new situations, needs and challenges
7. Competent and motivated staff
8. Operational autonomy
9. Impact judged according to actual results achieved by clients served.

They also examine the role four different institutions have played in the development of the construction industry in their respective countries. From the analysis of these organisations they show that successful organisations score highly on all nine criteria. These criteria may serve as a useful checklist particularly in the early initiation stages of a CSA.

Conclusions

Each country is different, while there may be common features between different countries analysis of their problems will identify specific problems and causes which will result in the proposal of unique menu of solutions. There are no standardised 'programme packages', each country or region will need to develop their own programme framework depending on the current economic, social and political environment. The objective of a truly free competitive construction sector is to provide a level playing field for all contractors to

compete on equal terms. While 'areas' may be targeted for support careful consideration must be given to the effect on parties who may be adversely affected by what may be support to a minority group.

A word of caution. The business world by its very nature has successes and failures. Regardless of any policy framework which is initiated all small businesses can not be expected to succeed. The CSA policy framework can not be expected to 'mother them all', but must have various levels of support policies and be realistic in accepting some businesses will be unsuccessful and fail. It must promote a free market and a competitive environment for the growth of the private construction sector.

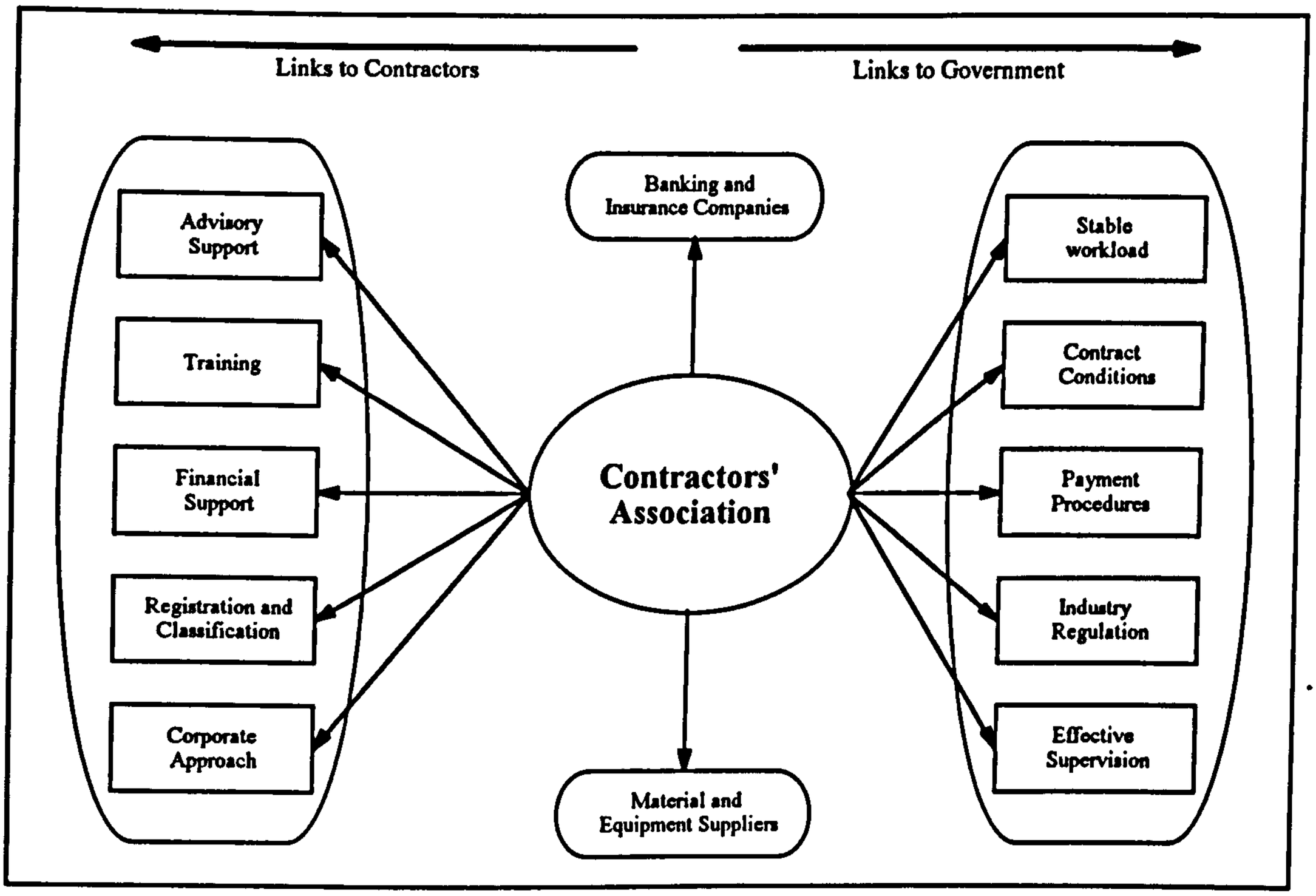
- Towards a Contractors' Association

As the contracting sector expands there will always be small contractors who require the services and support of a CSA. However, this factor alone does not justify the continued existence of an organisation like the CSA as its overall aim is to develop the contracting sector and not individual contractors. Although this main objective will have been achieved by assisting individual small contractors it existence in form described above can not be sustainable on economic grounds. A move must be made to develop an organisation which can continue to provide a service to all contractors, but is at the same time self sustaining by internal funding

A Contractors' Association could offer a link between the individual contractors and clients or government departments, providing one voice to the government representing contractors and a dissemination route for information and feedback to contractors from government departments. The diagram below highlights the roles that a Contractors' Association can play in the development of all contractors and the construction industry.

Contractors' Associations are able to provide direct assistance to their membership by offering fee for use information services and training. They can also take over and administer the registration and classification system that was originally initiated by the CSA. By acting a one body through the Contractors' Association it may be possible for contractors to promote a corporate approach to solving the problems faced by the industry.

The Contractors' Association can also continue to foster links with banks and suppliers in order to facilitate contractors' access to finance, material and equipment resources.



Based on Edmonds and Miles 1984

Figure 8.5 Model for a Contractors' Association

As the CSA is phased out there should be an established contracting sector and contracting procedures which should itself facilitate the development of future small contracting enterprises. The Contractors' Association would represent the whole contracting sector and finance its operation solely from membership and user fees.

Chapter 9.

Review of the CSA Model

Introduction

Chapter 8 outlined a model for a Contractor Support Agency which was proposed as the 'mechanism' suggested in the hypothesis. It was therefore necessary to review this outline model to determine if it proved the hypothesis. The previous chapter of this study was published as a working paper, which also contained summaries of the initial investigations of the problems facing small scale contractors and the institutional problems that they face operating in their local environment. This working paper was sent out with a questionnaire for review by experts in the sector. Further discussion of the review methodology is contained in the chapter on research methodology. The questionnaire, which is reproduced in Appendix 3, asked a range of questions to investigate the potential for success of the CSA and determine if it would meet and prove the hypothesis. The questions that were asked are summarised below:

1. The respondent's work experience by region
2. Perception of small scale contractors' problems
3. Range of assistance options to small scale contractors
4. Timeframe for provision of support
5. Applicability of a CSA; by region and construction sector
6. Operational issues
7. Potential for success.

In addition semi-structured interviews to review the model and roles of a support agency were held with 3 experts who have extensive knowledge of the sector. These interviews allowed issues to be investigated in more detail than was practical with the questionnaire. The interviews also provided an opportunity for review of more general issues that were pertinent to small scale contractors.

The questionnaire and interviews allowed the hypothesis to be tested and clarified issues that were not clearly defined in the previous chapter. The responses to the questionnaires are discussed below, followed by the issues raised in the interviews. The chapter concludes with a discussion of the results and conclusions that may be drawn.

Results of the questionnaires

- Perception of small scale contractors problems

Recipients of the questionnaire were provided with the 10 most common problems facing small scale contractors, determined in the initial phase of the study and suggested by Adams (1997). They were asked to rank the severity of these problems as they perceived them to exist. The questionnaire also provided space to list one or two additional problems if the respondent felt that important problems were not included. The rank of the severity of problems determined by the questionnaire responses is shown in the table below along with the rank of these problems determined from the initial phase of the study.

Rank (from questionnaire)	Problem	Rank (from initial phase of study)
1	No work continuity	4
2	Bank finance difficult to obtain	1
3	Long delays in receiving payment	1
4	Contractors inability to prepare tenders	6
5	Lack of skilled labour and staff at all levels	6
6	Vague and impractical specifications	10
7	Poor tender documents	-
8	Complex and unsuitable contract documents	3
9	Poor registration and classification system	4
10	Inadequate supervision and QA by the client	8

Table 9.1 Problems Facing Small Scale Contractors

It can be seen that there is very little correlation between the ranks of the problems addressed from the two different methods. However, it is worth noting that the two most common problems discovered in the initial phase of the study were ranked 2nd and 3rd overall by respondents to the questionnaire. The highest ranked problem from the questionnaire was ranked 4th in the initial study

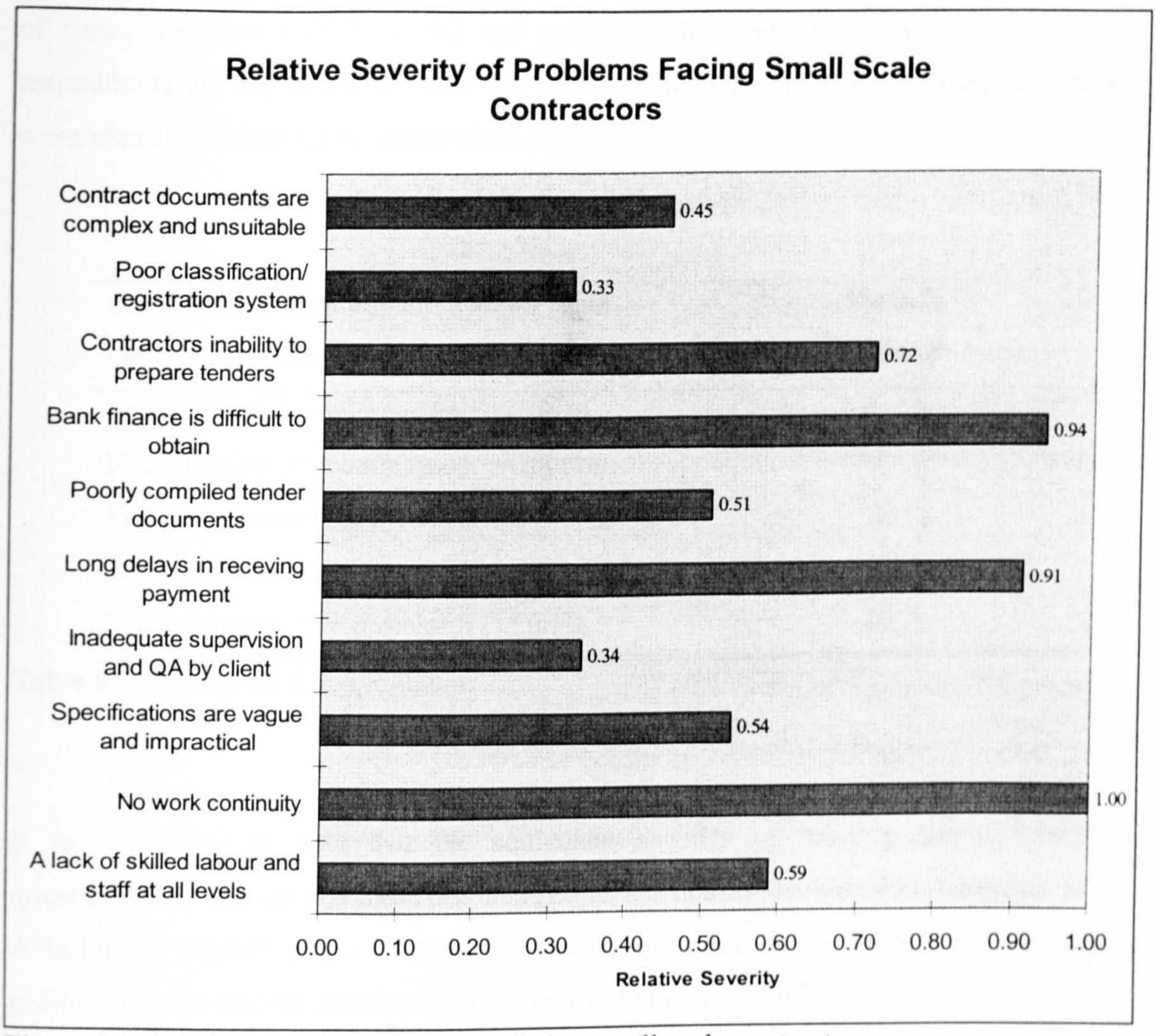


Figure 9.1 Relative severity of problems facing small scale contractors

Figure 9.1 indicates the respondents' perception of the relative severity of the different problems. The highest ranked problem, 'no work continuity' has been given a rating of one, while the other problems have severity ratings relative to 'no work continuity'. The problems broadly fall into 3 groups. The most severe problems include; *no work continuity, bank finance is difficult to obtain, long delays in receiving payment* and *contractors inability to prepare tenders*. The middle group includes; *a lack of skilled labour, poor or inappropriate specifications, tender and contract documents*. The least severe problems are *inadequate supervision by the client* and a *poor classification/registration system*.

Approximately two thirds of the respondents listed additional problems which they perceived to be a problem for small scale contractors. Problems that were cited a number

of times are shown in Table 9.2 and problems that were cited by only one or two respondents are contained in Table 9.3. Both tables also show whether these problems were identified in the initial phase of the study.

Additional commonly cited small scale contractors problems	Rank (from initial phase of study)
Lack of commercial/management skills	6 & 16
Nepotism/cartels/commission/corruption	-
Failure to reinvest in the business	-
Equipment issues	10
Unrealistically low successful bid price	16

Table 9.2 Commonly Cited Problems

It is interesting to note that the equivalent severity of these problems based on questionnaires that include these problems ranks corruption just below *no work continuity*. A failure to reinvest in the business has a rank equivalent to the *contractors inability to prepare tenders* and the remaining problems would be ranked 6th.

Other problems cited in questionnaires	Rank (from initial phase of study)
Hassle in pursuing payment	-
No facilities for provision of sureties	13
Contract packages too great value	-
Subcontracting to foreign contractors not possible	-
Lack of proper organizational structure	-
Contractors and contract administrators [clients] are not equal partners	-
No court legal scheme for claims against government	-
Cost awareness [by contractors]	-
Poor communication between client and the engineer	-
Poor on-site quality control	8
Lack of government policy in construction sector	-
Inadequate training facilities	-
Poor site management	-
Poor contract preparation (inadequate quantities)	-
Inappropriate project selection	-

Table 9.3 Other Cited Problems

In addition to ranking the problems facing small scale contractors, respondents were asked to indicate, whether they thought that the problem might be addressable by a CSA. Figure 9.2 shows the percentage of respondents who believed that a CSA could address the problems included on the questionnaire.

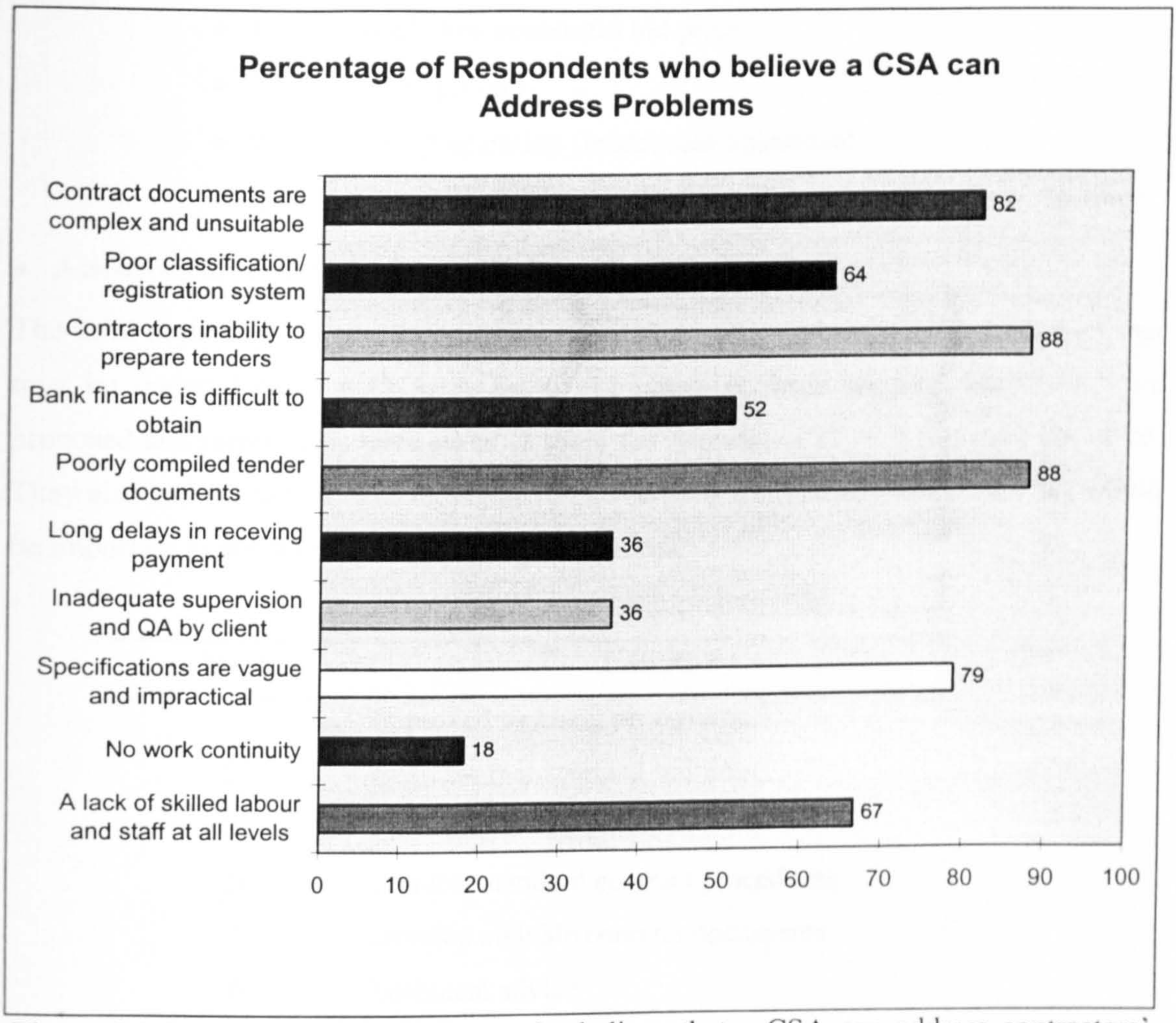


Figure 9.2 Percentage of respondents who believe that a CSA can address contractors' problems

The problems which are most likely to be addressable by a CSA are *poor or unsuitable specifications, tender and contract documents and contractors' lack of ability to prepare bids*. Only 18%, 52% and 36% of the respondents respectively believed that the three highest ranked problems would be addressable by a CSA.

Approximately half of the additional problems that were specified by respondents were believed to be addressable by a CSA. Problems which could be addressed include:

- Hassle in pursuing payment
- Provision of sureties
- Lack of commercial/management skills
- Poor on-site quality control
- Equipment issues

- Unrealistically low successful bid price
- Poor site management
- Poor contract preparation (inadequate quantities)
- Inappropriate project selection

- Assistance to small scale contractors

The third section of the questionnaire investigated the potential options for initiatives that may be undertaken by a CSA. A list of 12 potential, wide ranging, initiatives were proposed and respondents were asked to score the importance of each initiative out of 10. They also had the option of including up to two additional initiatives which they felt would be important to assist the development of contractors.

Rank	Initiative
1	Improved payment procedures
2=	Business management training
2=	Financial advice
2=	Promote standard contract procedures
5	Develop suitable contract documents
6	Technical advice
7	Legal advice
8	Equipment hire service
9	Promotion of small enterprises
10	Registration system
11	Direct financial assistance
12	Materials cooperative

Table 9.4 Rank of importance: Assistance initiatives

From the ranked list of initiatives it can be seen that the top half of the list only contains financial or contractual initiatives. The results of the questionnaires also show that material co-operatives and direct financial assistance are given a significantly smaller importance than the other initiatives. Previous CSAs which have attempted to provide direct financial assistance to contractors have been unsuccessful and frequently become bankrupt (for example Miles 1982, Cortes 1979).

Other initiatives proposed by respondents are outlined in Table 9.5 below. However, a number of initiatives proposed by respondents may be categorised under one of the initiatives listed on the questionnaire. For example business management training could include initiatives 9 (Contract administration & management - duties of contractors) and 15 (Communication skills training) from Table 9.5. It may be argued that initiatives; 1, 2, 4, 7, 8, 9, 12 and 15 from the table could also be included within initiatives proposed on the questionnaire.

	Other initiatives proposed by respondents	Importance
1.	Regular payment after assessment of work done	10
2.	Liaison with client organisation	10
3.	Quality assurance programmes	10
4.	Advice on costing bids	10
5.	Development of local consulting sector	10
6.	Openness to public	9
7.	Credit schemes	9
8.	Communication with implementing agencies	9
9.	Contract administration & management - duties of contractors	8
10.	Incentive in contract	8
11.	Market price monitoring	7
12.	Equipment costing advice	7
13.	Training [unspecified]	6
14.	Technical training (on site)	5
15.	Communication skills training	5
16.	Mentorship	2

Table 9.5 Initiatives proposed by respondents

The second half of this section, of the questionnaire, reviewed the contractual and financial initiatives proposed in the chapter 8 of this study. Respondents were asked to provide two scores out of 10 for each initiative. Firstly, how useful the initiative would be in assisting small scale contractors and secondly, how easy it would be for a CSA to implement the initiative. The questionnaire provided space to add two additional initiatives that

respondents felt were important. Figure 9.3 on the following page indicates the 'usefulness' and 'implementability' of each initiative. It can be seen that the most useful initiatives are considered to be the hardest to implement and a number of the less useful initiatives would be likely to be relatively straightforward to implement.

Table 9.6 lists the additional initiatives that were suggested on the completed questionnaires. A large proportion of these initiatives do not fall in the contractual or financial categories. Other initiatives are similar to those listed on the questionnaire. For example, introduce wage and material advances are equivalent to mobilisation payments.

Respondent Cited Initiatives	Usefulness	Implementability
Market price monitoring	10	7
Guidelines of equipment costing	10	7
Develop quality assurance programmes	10	10
Networking with other contractors	7	7
Promote equipment pool	10	
Ensure training facilities are available	7	
Promote the use of local consultants	10	5
Introduce wage and material advances	10	9
Continuous mentorship	9	9
Assist in actual contract management	9	5

Table 9.6 *Initiatives* listed by respondents

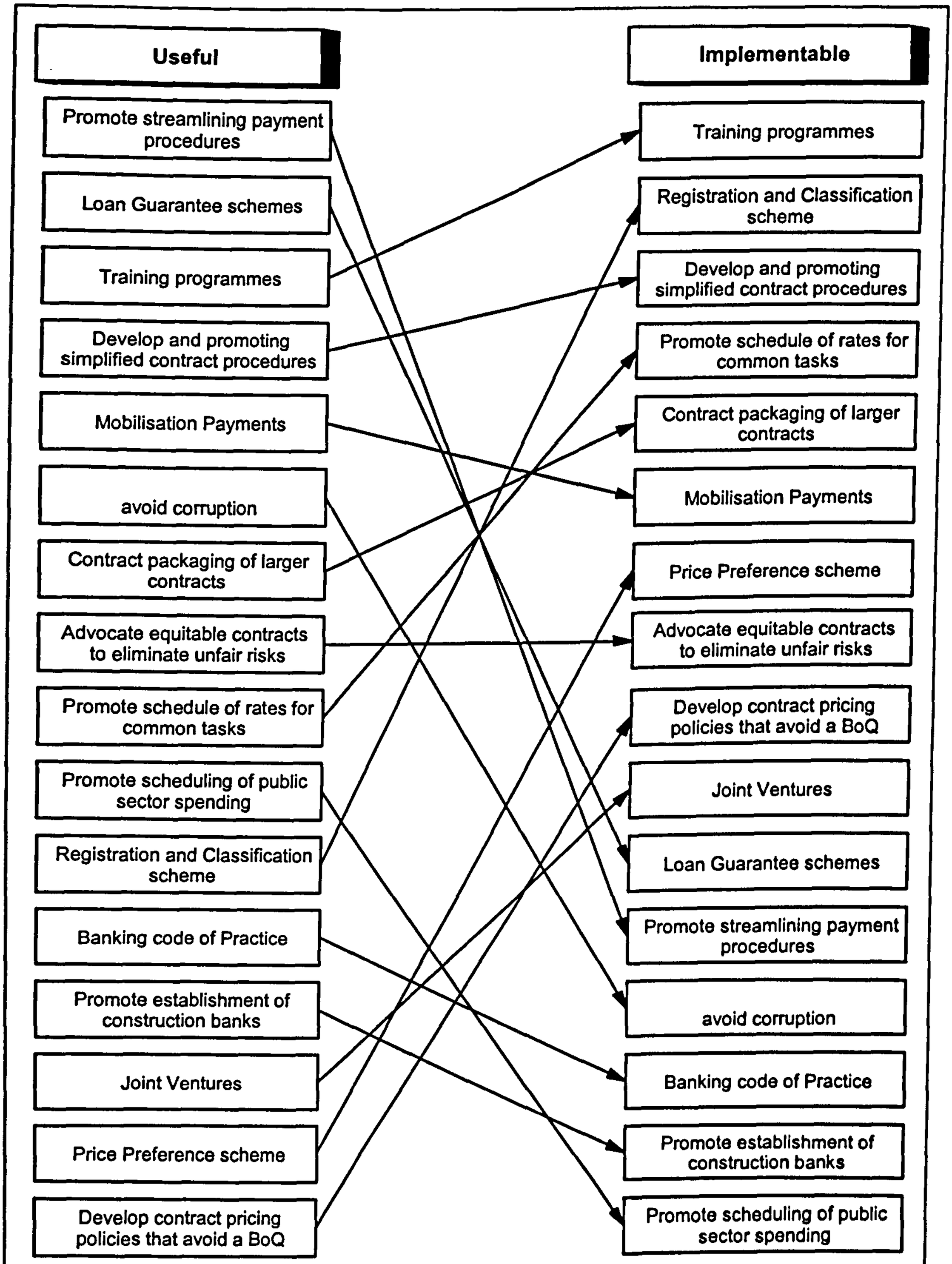


Figure 9.3 Usefulness verses applicability of a CSA

- Timeframe for a CSA

The model for a contractor support agency suggested that its role was "to work itself out of a job" (Edmonds and Miles 1984). It will be necessary for a CSA to provide support to a large number of contractors in order to raise the local contracting capacity. The model did not provide evidence regarding the length of time contractors would need support and maximum length of time that support should be provided. The questionnaire provided a list of time periods and asked respondents to indicate the standard period that contractors would require support in order to increase their ability to operate efficiently.

In any commercial environment some businesses will not be successful and eventually fail (Miles 1997). A maximum period of support should therefore also be applied for each contractor to ensure that the financial resources of the CSA are being used as effectively as possible. Respondents were therefore also requested to indicate the maximum period of support that should be offered to contractors who have shown little signs of developing their business. Figure 9.4 indicates the length of support that should normally be required by contractors (light grey bars) and the maximum length of support that should be provided (dark grey bars).

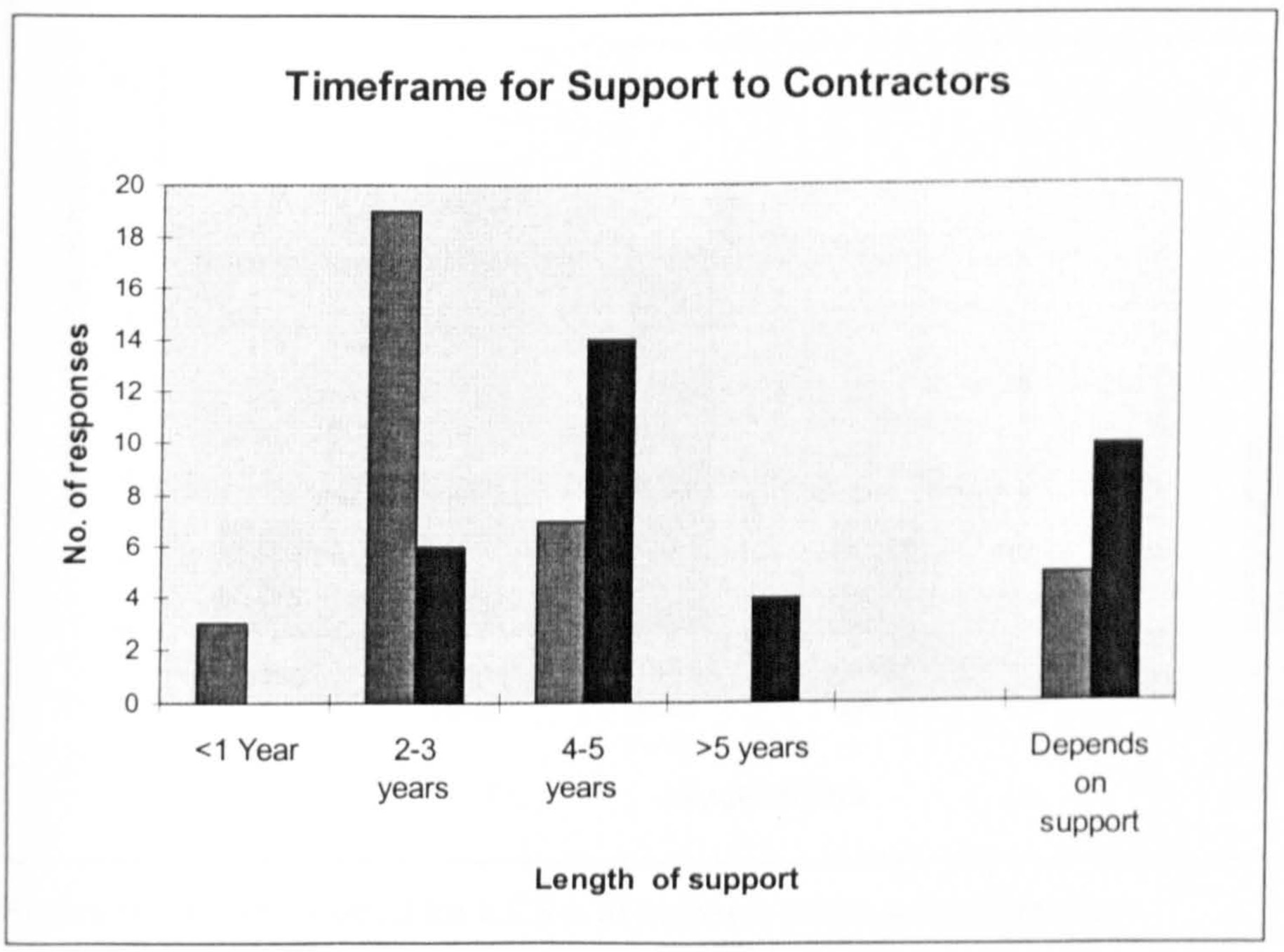


Figure 9.4 Timeframe for support to contractors

The responses suggest that the standard length of support to be provided should be 2-3 years and the maximum length of support should be approximately another 2 years. 15% and 30% of the respondents indicated that the standard and maximum length of support would depend on the type of support given to contractors.

Although the results suggest that two or three years appear to be the standard time required to develop an individual contractor, the objective of a CSA is to develop the contracting capacity of the whole industry. The questionnaire provided a second range on time periods and requested respondents to indicate the length of operational time required for a CSA to significantly increase the capacity of the small scale contracting sector to undertake construction projects. Figure 9.5 suggests that a CSA would have to operate for at least 10 years in order to increase construction capacity.

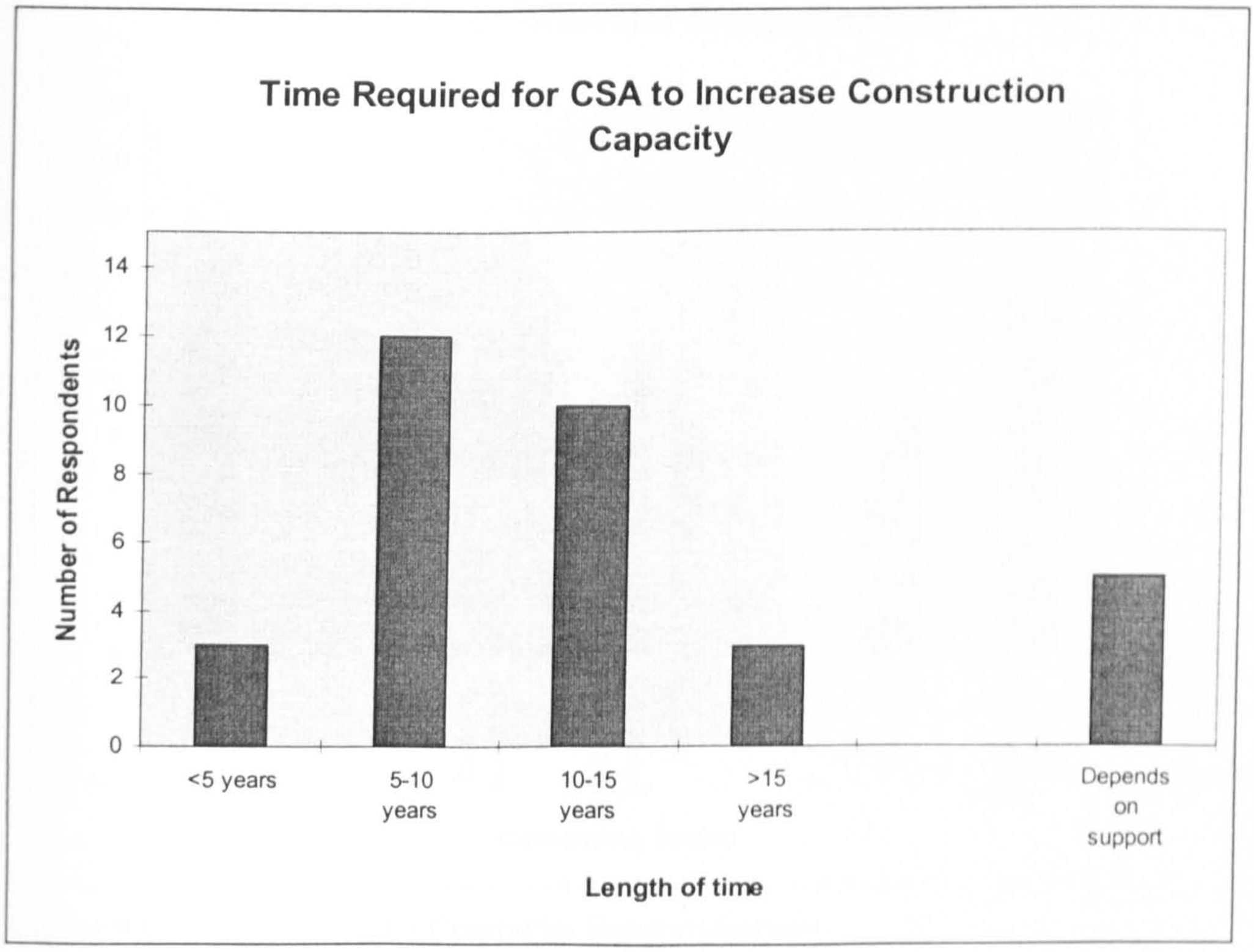


Figure 9.5 Time required for a CSA to increase construction capacity

- Applicability of a contractor support agency

The hypothesis of this study suggests that the support mechanism for developing small scale contractors should be transferable to different developing countries. The outline model for a CSA in the previous chapter and contained in the working paper issued with the questionnaire, highlighted how investigations should be undertaken in each country or region to clearly identify the initiatives which should be adopted. However, it did not highlight the different construction sectors or regions in which a CSA could be used to develop contracting capacity. The questionnaire requested respondents to indicate the contracting sectors that could be developed through the use of a CSA and the regions where a CSA could increase contracting capacity. The questionnaire provided two lists, one comprising construction sectors and a second containing world regions. Respondents were requested to indicate where a CSA would be able to increase small scale contractors' ability to undertake construction projects.

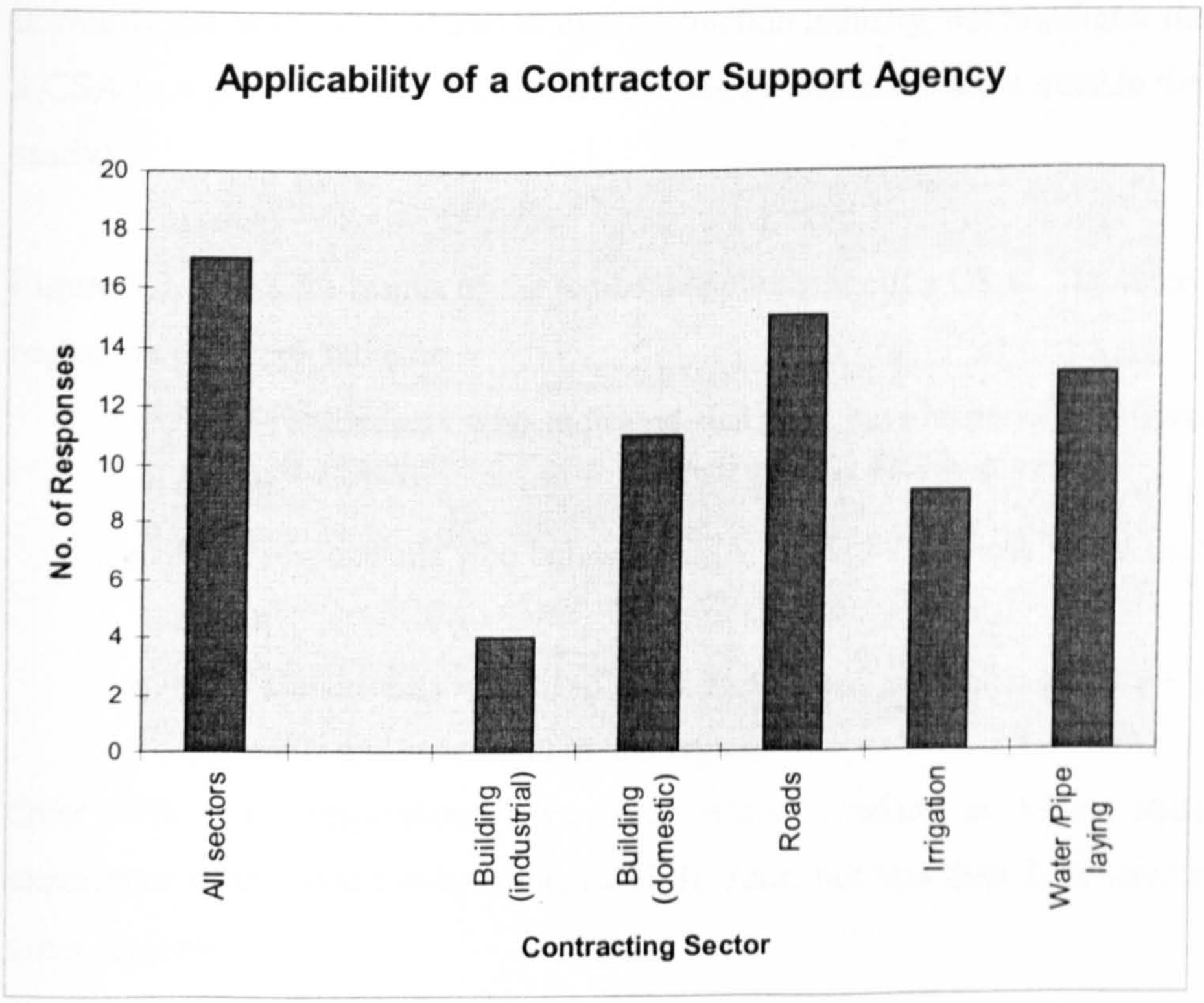


Figure 9.6 Applicability of a Contractor Support Agency

Figure 9.6 shows that a CSA should be able to increase contracting capacity in virtually all sectors. The one sector where it may not be fully successful is in the construction of

industrial buildings. The questionnaire gave the option of suggesting other sectors in addition to 'all sectors' and the 5 sectors listed. Respondents proposed six other sectors:

1. Urban upgrading
2. Public works
3. Rural development
4. Manufacturing
5. Sewerage
6. Maintenance

The first 3 sectors in the list above are general classifications which may include work in any contracting sector and may therefore be considered similar to 'all sectors'. Maintenance is a construction activity which should be undertaken in all sectors and may therefore be included either in 'all sectors' or in each of the individual construction sectors. Sewerage is also similar to water and pipe laying. The only additional sector which can not be assigned to a sector specified on the questionnaire is manufacturing. This sector would normally not be considered part of the construction industry, but highlights the potential for a CSA to support other small scale contracting businesses (a topic outside the scope of this study).

Figure 9.7 shows the results of the regional applicability of a CSA. The three bars for each region on the graph indicate:

- % of respondents who indicated that they have experience of working in that region
- % of respondents who believe a CSA would be applicable and successful in the region
- % of respondents who have work experience and believe that a CSA would be applicable and successful in that region.

Over 50% of the respondents have experience of working in Africa, about 40% have experience of the Indian subcontinent and SE Asia, but less than 20% have experience in other regions.

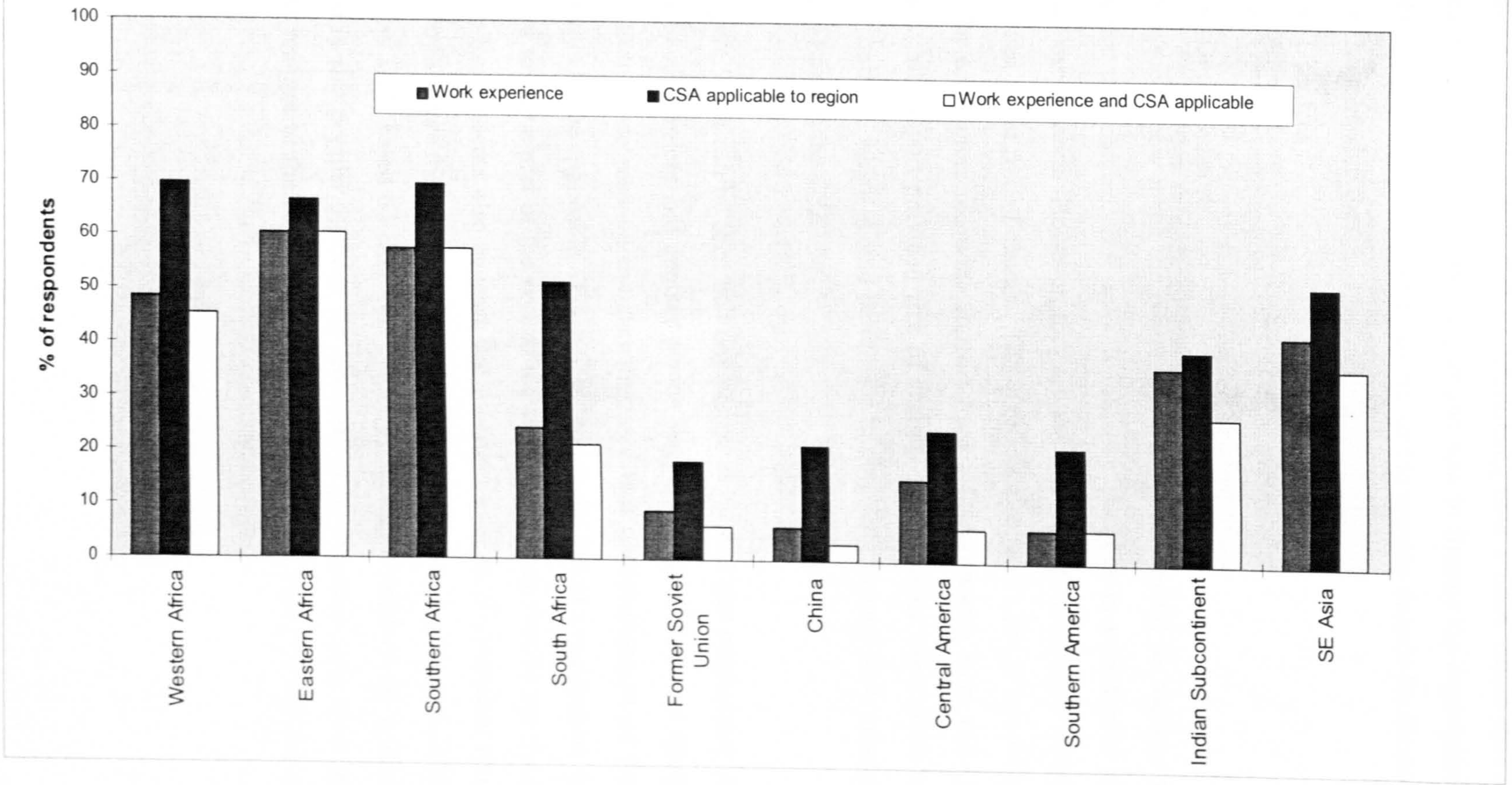


Figure 9.7 Regional applicability of a CSA

- CSA operational issues

Two issues which are important in determining how a CSA would operate are; how to select contracting businesses for support and how to finance the organisation. The model highlighted 4 different sources that may be used to provide finance for the organisation:

- Membership fees
- User fees
- Government Support
- Donor Support

The key issue is how much the contractors themselves should be required to pay for the services that they receive. It is unlikely that they would be in a position to pay for the full cost of all the services. However, they are unlikely to respect or value advice and support that has been given free of charge. The questionnaire gave a list of ten different charging options for contractors receiving support from a CSA, ranging from full charges for all services to all support provided free of charge. Respondents were asked to indicate the option, or options, which should be utilised in obtaining finance from contractors towards the cost of running the CSA.

From Figure 9.8 it can be seen that one person suggested that contractors should pay the full cost of all services and another person suggested that all services should be free of charge. Both these respondents also indicated that partial payment of the cost of the service may also be applicable Financing through the use of a registration fee and asking contractors to pay a part of the cost of the service that they receive are the most popular methods. Respondents also suggest that a certain amount of assistance should be given free of charge before the contractor has to start paying for support from the CSA. Payment on a sliding scale based on either the contractor's classification or the amount of support requested is also popular methods for determining the financial input from the contractor. However, charges to the contractor set according to their ability to pay are not a popular option.

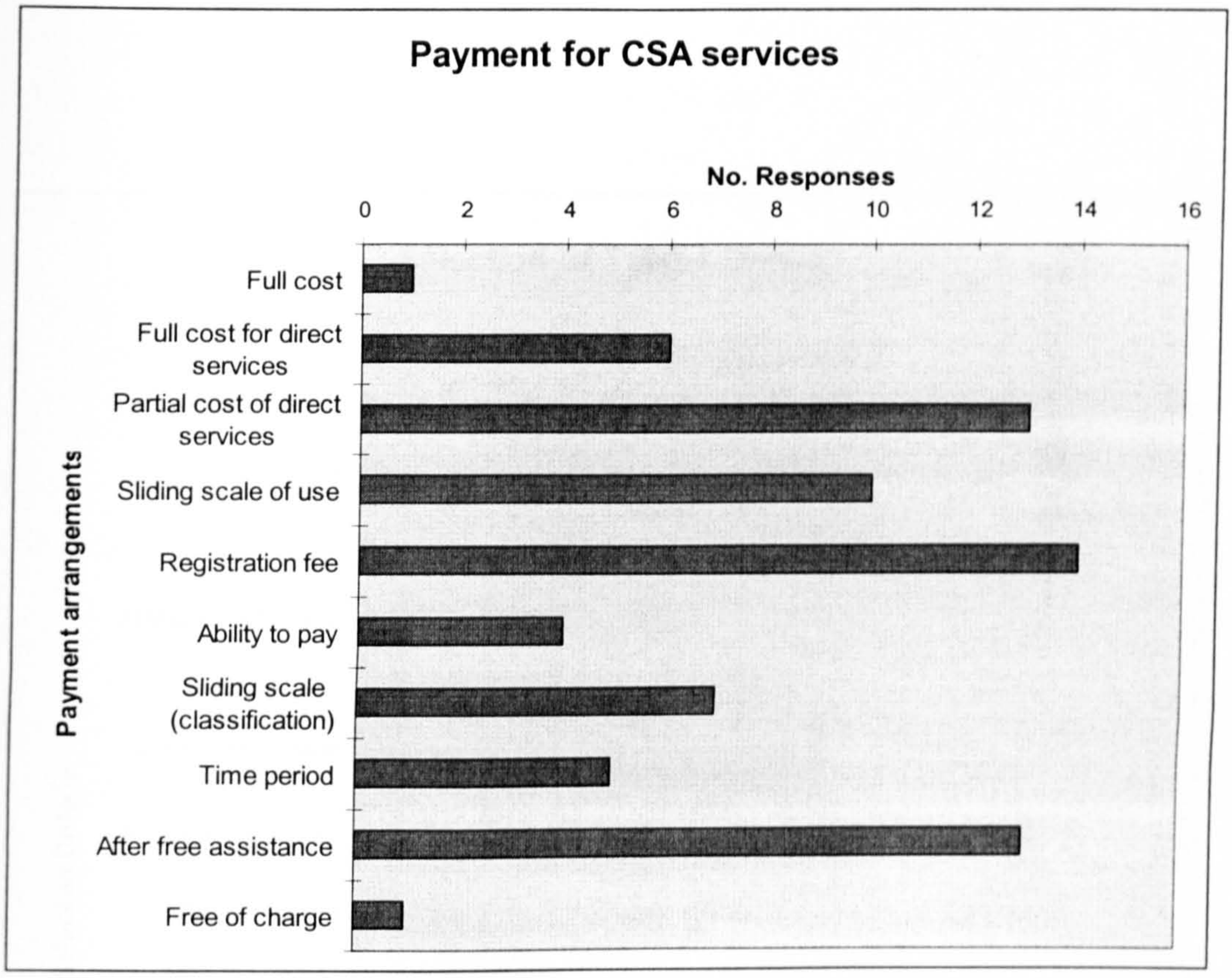


Figure 9.8 Payment for CSA services

The questionnaire also investigated how contractors should be selected for support. Six different options were proposed on the questionnaire, which included supporting all contractors. The questionnaire also provided space for respondents to add an additional factor which should be used in selecting contractors. Figure 9.9 shows that the most important factor in selecting contractors is their potential for growth, although a significant proportion of respondents also believe that all contractors should be supported.

The opinions of respondents who indicated selection criteria of *recently registered* and *low turnover* varied significantly with ranges stated from 2-5 years from registration and the bottom 15-75% of contractors, in terms of turnover.

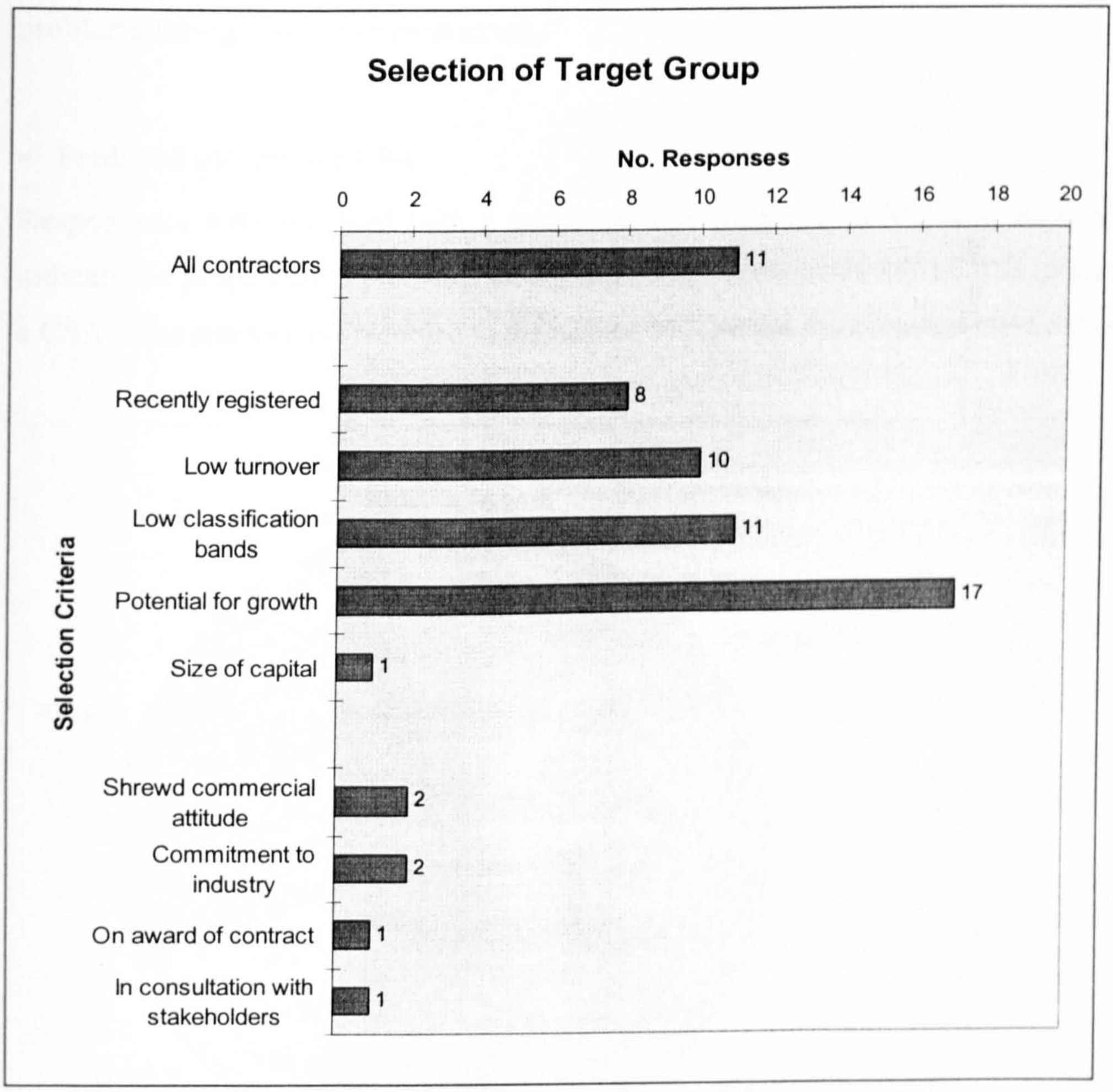


Figure 9.9 Selection of CSA target group

Respondents provided 4 additional selection criteria which are included at the bottom of the graph in Figure 9.9. It may be argued that a shrewd commercial attitude and a commitment to the industry could be classified in the potential for growth category. One respondent suggested that support should be provided once a contract was awarded. However, this approach may be too late as obtaining work appears to be one of the biggest problems facing small scale contractors.

- Predicted success of a CSA

Respondents were provided with a graduated line from 0 to 100% and were asked to indicate the proportion of problems facing small scale contractors that may be addressed by a CSA. The results were recorded to the nearest 5% and are shown in the pie chart below.

Figure 9.10 Predicted success of a CSA

The pie chart shows that 83% of respondents believe that a CSA may be more than 50% successful at solving the problems affecting small scale contractors with 76% of respondents believing that a CSA would be between 50 and 80% successful. The average potential success of a CSA calculated from the questionnaires was 55%.

Interviews

- David Hammond

Background and Experience

David Hammond has been working in the engineering training sector for over 25 years. He has predominately worked in the countries of the Indian Sub-continent, including 8 years in Sri Lanka where he ran the World Bank Construction Industry Training Project (CITP) and helped to develop ICTAD (Institute of Construction Training and Development). In the last 10 years Hammond has also worked in Singapore and a number of Eastern Bloc countries.

Small Scale Contractors' Problems

Hammond has seen different constraints on construction industry development in the different countries where he has worked. In the Eastern Bloc, as countries move from a centrally controlled to a free economy, few contractors or clients have any experience or understanding of tender and contract procedures. There is also a lack of maintenance culture which is exacerbated by the lack of finance available for maintenance.

The problems highlighted in Eastern Bloc countries are also evident in the Indian Sub continent. In addition, Hammond highlights that these countries suffer from a shortfall of artisan skills and suitably qualified and/or experienced construction supervisors. Civil wars, for example in Sri Lanka, have also had the largest impact on the smaller contractors.

Assistance to Small Scale Contractors

There are two main areas of assistance that Hammond believes are required to develop the local construction industry; the development of national construction standards and training courses to develop individuals and companies skills to meet these standards. National standards are required for the different construction industry artisans who may be certified to various levels of skill from a basic to an advanced standard. Companies, through the collective experience of their supervisors and managers, should also meet a national standard of skill in tendering, construction management and supervision. (For example, within a construction programme in Singapore contractors could not bid for work until they had attended a tender preparation course).

Timeframe for Support

The momentum required to kick start the construction industry development can not be sustained for a long period of time by the organisation charged with developing and managing the training courses. Hammond believes that following the development of national standards, training support must be provided for at least 4-5 years in order to have a significant impact. He highlights that in his experience the training agency can operate at a high capacity, "150%", for a maximum of 4 years and then at a lower capacity for another 2-4 years. After this time he suggests that there should be a significant increase in construction capacity, although there will still be the need for additional training due to the natural progression of people out of the industry.

Applicability of a Contractor Support Agency

There is a need for a national series of standards and associated training courses in the construction sector throughout the whole world. Hence, an agency to develop these standards and to operate recognised and accredited national training courses will also be required. Although the standards, construction skills and associated training courses will vary throughout the world the role and applicability of the construction agency will remain unchanged.

Hammond also stressed the need for support from the government to assist the formation of an agency and provide the necessary legislation for it to succeed.

Organisational Structure

The most important element for the success of the organisation is a person or group of people to "drive the organisation forward". In the early stages of forming the organisation expatriate staff may assist local staff. However, the long term "commitment of local staff is the most important element in the success and structure of the organisation". Hammond has cited cases where local staff have lost their enthusiasm following the departure of the expatriate staff, when their workload has increased and they are not fully rewarded for their endeavours. This has resulted in the key staff leaving for better rewarded jobs overseas.

The organisations with which Hammond has been involved have generally been divided into sections according to the different construction trades. The trainers running the courses should not only be proficient in the particular trade but they should also have received suitable "training of trainers" instruction. Remuneration for the training staff should also be at a suitable level to ensure that good staff are retained.

Finance

It is highly likely that either the individual or their employer will have to meet the cost of attending training courses. Traditionally training courses have lasted 3-4 years with small amounts of training contact each week to achieve an artisan qualification. This approach has been financially unsustainable for either a contractor or an individual and their family. The organisation must provide shorter courses which provide suitably qualified artisans and supervisors. Hammond outlined a new scheme in India which reduce the 3 year tradesman course to 12 weeks by increasing teaching contact time, eliminating irrelevant elements of the syllabus and improving teaching methods.

Shorter training courses which are more likely to be completed by students will also provide an improved cash flow for the operation of the agency.

Views on a CSA

Hammond explained that the need of a standards and training agency was the most important element in developing the construction industry. Although its actual activities, standards and approach will vary from country to country the general principles will be the same world-wide.

Hammond also outlined some additional factors that were important or affected the development of the construction industry. The main employer of the construction industry particularly in developing countries is the government. There must therefore be a stable economy for the industry to develop requiring the government to have money to "put into" the industry. The industry will also require banks and insurance services to be able to function effectively, which will only be available in a stable economy.

The construction industry is "driven by social and economic needs of a country" but where there is a need to assist the development through the use of an industry development organisation, the government has also "got to want it to work" and must therefore provide the necessary support.

In many countries a better understanding of the contract and planning processes are required from both the contractor and the client. This issue may not be able to be fully addressed by the organisation proposed by Hammond. Finally, the construction industry is a casual employer. Labour will only be available and interested in developing artisan skills when the potential remuneration is better than employment elsewhere or it reduces the need to cultivate their fields for subsistence agriculture.

- Robert Petts

Background and Experience

Robert Petts is a civil engineer who worked in "mainstream" civil engineering for 8 years before moving into the labour-based technology sector in 1978. He has worked in anglophone Africa, Bangladesh, Cambodia and the Baltic States. For the last 10 years he has undertake a considerable amount of work in promoting intermediate tractor technology as a sustainable method for developing both small scale private contractors and direct labour organisations.

Small Scale Contractors' Problems

Petts views the public sector as being the biggest problem facing the private sector. This is primarily due to the fact that the public sector either does not understand the contracting system or individuals exploit the position that they hold in the public sector. He indicates that small contractors are not on a level playing field, having to deal with corruption, backhanders and "having the right connections". If the contractor is "not willing to play ball" with the system he will rapidly find himself without work. Contractors are also unable to challenge a client in court, as they will also find themselves without work. Large contractors on the other hand, either foreign or local, are able to deal with, or afford the backhanders that may be required to win work, treating it as part of the project cost.

He also indicates that the small scale contractor is, in general, undercapitalised, with limited technical and managerial expertise. Small contractors do not have the ability to cost up work and calculate operating costs in order to determine if their work is profitable.

Assistance to Small Scale Contractors

Petts suggests that there is a range of different initiatives that could be undertaken by a CSA. These fall into the two categories of training and advocacy. Currently contractors find it very difficult to access suitable training courses for their needs. It will therefore be necessary to address the training needs of contractors through the provision of courses covering technical, management and market assessment issues. Petts suggests that if contractors were able to assess the market in which they are proposing to work they would realise that it is, in many cases, currently unviable. This situation highlights the need for the second role of the CSA; advocacy, providing Contractors with a "voice in the local scene". This voice may be provided by a contractors association however, it can frequently be dominated by one or two large contractors. Representation is required which provides "safety in numbers" but also addresses the views of all (or the majority) or small contractors. The additional problem frequently encountered in existing contractors associations, which look good on paper, is that the organisation becomes a political entity in itself. An important advocacy task will be to address the "can of worms" of legislation surrounding contracting conditions. Existing contracts, such as FIDIC, are frequently inappropriate for contracts with small contractors. Standard contracts, are required which are fair to both sides and will stand up to a legal challenge.

Petts believes that a CSA can assist in addressing the corruption issues. Although it will be very difficult, he suggests that the organisation will need to be able to liaise with politicians and the media to promote good practice and publicly raise issues. It will never be able to eliminate corruption, but may be able to reduce it to a manageable level where a contracting business may operate successfully.

Timeframe for Support

Donor agencies frequently have a short, 2-3 year timeframe with only a few programmes extending to a maximum of 5 years. In order for sustainable change to be achieved Petts believes the construction sector requires support for a 5-10 year timeframe. The length of

time individual contractors will require support will vary. In some countries where a contracting sector already exists most contractors will only require short term support. However, in countries where there is little contracting experience a large amount of detailed support will be required for a longer term. A CSA will need to be flexible in its approach and review the different ways of providing subsidised services.

Applicability of a Contractor Support Agency

A CSA will be applicable to all contracting sectors, particularly the building sector where there is the greatest potential for work for small scale contractors. In many countries there is little experience of contracting in the agricultural sector. However, the potential for agricultural contractors, particularly those with a small amount of mechanised plant, is great in many regions. A CSA may assist the development of agricultural contractors and/or the development of a civil contractor into both the agricultural and civil sectors.

A CSA could have benefits in all regions [Africa, Asia, and E Europe] however, the needs or services provided will be very different due to the difference in culture and economic status of these regions. For example in Eastern Europe there is no profitability or costing culture within either the public or private sector, a "throw back to the communist regimes". It will not be possible to "franchise out" a standardised CSA model as an intelligent and informed tailored model will be required. This can only be achieved by assessing a region or country's requirements on an individual basis.

Organisational Structure

The organisational structure of the CSA will be dependent on the market analysis of the needs of the particular country or region and the services to be delivered to meet these needs. It is likely that a range of skills will be required. Some of these skills are likely to be available locally resulting in the employment or hiring of local staff. Other skills may need to be imported either on a short or long term basis.

Membership of the organisation should not be compulsory for contractors. However, the CSA will have to be able to "offer a package to contractors so that they feel that they can

not afford not to be a member". Petts indicated that he felt strongly that contractors should not get something for nothing. They should be required to contribute to the services according to their individual circumstances and the benefits that they expect to receive. Petts believes that contractors will be willing to pay for the services of a CSA providing that they can see the benefits. It is likely that the CSA will have to clearly present the benefits to all stakeholders including the contractors. As the CSA will help in setting up a national contracting capacity which will benefit the government it will be reasonable to expect the government to contribute to the operating costs. As both contractors and governments have a very short term outlook, it will be necessary for the CSA to demonstrate that it can provide benefits both in the long and short term.

Finance

Small contractors are all very short capital, have little access to funds or obtain loans at crippling interest rates. A CSA can alleviate this situation in two ways. Firstly, it can promote methods for reducing the capital requirements of the contractor. This may be achieved through the promotion of labour and intermediate equipment based technologies. The CSA can also encourage the development of plant hire businesses. Petts highlighted that out of a group of 25 contractors attending a training course in Cambodia none of them owned any equipment. They all hired in the equipment when it was required.

Secondly, the CSA can make representations to clients in order to speed up the payment process. For example it could start by promoting payment within a 3 month timescale and then work towards a 1.5 - 1 month payment period.

Petts believes that money is available, albeit in limited amounts, but it is frequently being misspent by government departments. A catalyst and/or seed money is required to get "the ball rolling".

Views on a CSA

Petts Petts believes that a CSA could make a valuable contribution to developing the contracting sector. He says that contractors themselves are not able to improve their situation, primarily due to their lack of resources and suitable contacts. It will be necessary for an outside organisation to provide assistance.

He also highlights the needs of the client organisation suggesting that there is a big change in culture required for the public sector moving towards the supervision of contractors rather than their own labour forces. He believes that the same agency/association [CSA] could provide support to the public sector. This would be subject to a careful need assessment and the confidence of all parties that the organisation can provide impartial advice.

The main aim of the organisation would be to create confidence within all stakeholder groups of the contracting sector. This will require the CSA to encourage both parties to the contract (client and contractor) to respect each other and deal in a fair way on a level playing field.

- David Stiedl

Background and Experience

David Stiedl has been working on civil engineering projects in developing countries since the early '70s, spending about 70% of his time overseas. He has worked on projects addressing the issues of contractors since 1985 and has been particularly active in the promotion of labour based contractors for the last 8 years. Stiedl is the former director of the ASIST programme which has provided institutional support to the adoption of labour intensive approaches to infrastructure provision. In many cases this has involved supporting the development of small scale contractors.

Small Scale Contractors' Problems

The two key problem areas highlighted by Stiedl were client and financial issues. Small scale contractors have a severe shortage of financial resources which has led to the promotion of labour based approaches by organisations like ASIST in order to reduce the capital requirement of these businesses. Unfortunately the capital requirement versus the financial burden of a labour based approach is still too onerous for many small contractors to operate successfully.

Contractors have only one main client; the government, which is not accustomed to dealing with small contractors. The government can manage a few large contracts utilising expert support and internationally recognised contracts such as FIDIC, but they do not have suitably trained, or sufficient, staff to let relatively large numbers of small contracts. Client organisations frequently view all contractors as attempting to "rip off" the client and therefore do not supervise or manage the contracts in a fair way. There has also been a very little attempt to develop small scale universally acceptable contracts which would be endorsed by major civil engineering institutions. This results in a situation where the current contracts aim to provide the most protection to the client from the contractor rather than vice versa. The client is significantly more powerful than the contractor and could "annihilate" the contractor if desired. Currently contracts let to small scale contractors only operate on donor funded projects. Contracting schemes have not been independently started by governments and existing schemes have frequently failed following the ending of donor support.

Assistance to Small Scale Contractors

Following the discussion of the two problems outlined above Stiedl indicated that these two issues needed to be addressed. He was convinced that a "parastatal animal" for providing loans, particularly at a distorted market rate, was not the correct approach. He also indicated that the issues of credit schemes are a huge topic and a potential "minefield". He believed that they have frequently not been investigated fully when existing projects have sought to address the financial issues of small scale contractors.

Stiedl's experience shows that in many countries adopting a contracting approach a Contractors Association(s) is formed. However, in many cases, although the Association has clear ideas on what it should do it does not have the resources, knowledge or ability to achieve any of its goals and therefore does not support the contractors. It is therefore necessary to formalise the support that contractors require and seek to develop a means to provide that support. A CSA "can form a part, but only a part" of this enabling environment. It will be necessary to interface with the client as well as the contractor which will result in institution building of the client organisation. The enabling environment should also ultimately develop a truly competitive market rather than a contract for each contractor.

Timeframe for Support

Stiedl believes that the timeframe required to support and develop the contracting sector will depend on the existing experience or practice of contracting or contractors. Nevertheless he believes that a "good 5 years" of general support will be required to get a "nucleus of contractors" to be able to achieve a workable market. From his experience in Africa Stiedl believes that 10 years is required to "really be up to speed". The key issue of support timeframe is the business mentality of the potential contractors. Stiedl suggests that it is far more important for the contractor to be an entrepreneur than an engineer. He believes that contractors can be taught the technical knowledge required to be a contractor relatively easily and quickly however, it will take far longer, or be impossible, to teach the relevant entrepreneurial skills required to be a contractor.

Applicability of a Contractor Support Agency

Stiedl highlighted that "very little has been done in this area" [i.e. the development of a CSA as proposed in the previous chapter.] He believes that there is a role that a CSA can play in both Africa and Asia. He feels that this role will be different in these countries and regions primarily because the Asian continent and culture is more prone to adopting the practices and principles of contracting.

As the vast majority of Stiedl's experience is in the road sector he did not feel suitably qualified to make comments on the applicability of a CSA in other sectors. He did indicate that as the contracting problems would be similar in other sectors he thought that a CSA would also be able to provide support.

Organisational Structure

Stiedl is convinced that a CSA would need to draw very strongly on local expertise. He highlighted that the main requirement of anybody working in the organisation was not their engineering knowledge, but their understanding of customs, legal issues and business culture of the country or region in which the CSA was operating. He believed that the CSA should have a skeleton staff with a good experience of contracting. They should also not have an "ILO ideological manner". This skeleton staff would be predominately supported

by a network of local entrepreneurs. Expatriate staff may be used to "kick off" the organisation but they are not a 'sustainable solution" in the medium or long term.

A key area of operation and support to small contractors would be through a management contractor approach. Stiedl feels that there is often limited work for the large local contractors and believes that these contractors may see a benefit in acting on a mentorship or management contracting role for small contractors.

Finance

Within the construction sector there is a huge potential market available to small contractors, particularly on maintenance contractors in all sectors. Funding is also theoretically available within the government. The main problem that the government [Ministries executing construction work] faces is that they do not know "how much and when the finances are coming and therefore can not prepare contracts with any certainty".

Stiedl believes that contractors will not be willing to assist in the financing of CSA's operation. While contractors may pay a small fee to the organisation they will not commit a significant proportion of their profits. Contractors will take a more short term view, preferring to spend their money on something such as a new car. The majority of small scale contractors are not 'sophisticated enough" to calculate that it may be beneficial to spend an element of their profits investing in training.

Views on a CSA

Stiedl believes that there is a role for a CSA to play in the development of the contracting sector. However, he also points out that contractors or a CSA can not create a market, they can only respond to it. With the correct market contractors will respond to the demand and may be supported by a CSA. A contracting market can only be achieved if a contracting mentality is developed within the client organisation.

Discussion of results and conclusions

The interviews and responses to the questionnaires suggest that a CSA could make a significant improvement in a small contractor's ability to obtain and carry out construction work. The previous chapter did not suggest that a CSA could solely solve all the problems facing small scale contractors. However, it could play a major role in developing contractors' capacity. The questionnaire results also suggested that there are some problems that would be very difficult for a CSA to address which include; lack of work continuity, scheduling of public sector funding and promoting transparency to avoid corruption. The interviews also highlighted public sector issues as a major problem facing small scale contractor development. These primarily included a lack of client understanding of contract and tender procedures, and corruption or irregularities in the public sector. The interviewees did not believe that the model proposed in chapter 8 could address these issues. However, it was suggested that additional divisions of the organisation may be developed to address the client issues. Nevertheless, despite the problems highlighted by the interviews and questionnaires the results suggest that a CSA can provide support to the small scale contracting sector enabling contractors to increase their construction capacity.

- Operational issues

The questionnaire reviewed the problems facing small scale contractors and suggestedpotential initiatives. Question 3 confirmed the initial findings of this study that financial and contractual problems were believed to be the most important issues to be addressed. However, the questionnaires showed that, in general, the most severe problems were considered the hardest to address. It may therefore be useful to assign a priority index to each of the problems in order to assist in deciding which problems a CSA should target with its limited resources.

A simple priority index may be defined as:

The severity of the problem (relative to the worst problem)

X

the percentage of the problem which can be addressed by a CSA.

For the list of problems given in question 2 of the questionnaire the priority indices are given below.

Problem	Priority Index
Lack of skilled labour and staff at all levels	0.39
No work continuity	0.18
Vague and impractical specifications	0.42
Inadequate supervision and QA by the client	0.12
Long delays in receiving payment	0.33
Poor tender documents	0.45
Bank finance difficult to obtain	0.48
Contractors inability to prepare tenders	0.63
Poor registration and classification system	0.21
Complex and unsuitable contract documents	0.37

Table 9.7 Problems facing contractors: Priority indices

The table of priority indices suggests that a contractor's inability to prepare tenders should be given the highest priority. Initiatives with a priority index of 0.4-0.5 should be given a second level priority and the other initiatives the lowest priority.

The interviewees indicate a number of high priority issues determined by the questionnaires as areas to be addressed by the CSA. Both Hammond and Petts suggest that training would be an important activity of the CSA, which would allow the *contractors inability to prepare tenders* to be addressed. Hammond's suggestion of national standards would also, coupled with the training schemes he proposed, allow the CSA to address *lack*

of skilled labour and staff at all levels. The priority work areas of advocacy [Petts] and client issues [Stiedl] do not directly correlate with the high priority indices suggested by the questionnaire results. However, it may be argued that these two work areas would assist in addressing all the issues in Table 9.7 except; *lack of skilled labour, bank finance difficult to obtain* and *contractors inability to prepare tenders.* Stiedl indicates that addressing the financial constraints of the contractors is an important area of work for a CSA. However, he admits that he has no definite solutions to this issue. Petts suggests that the main solution will be to reduce the capital requirements of a contractor, through the CSA promoting labour based approaches and developing an equipment plant hire scheme.

The questionnaire reviewed the potential contractual and financial initiatives suggested in the model for a contractor support agency. It may also be possible to define a priority index to these initiatives to facilitate the decision making process in selecting initiatives to implement.

The priority index may be defined as:

$$\frac{\text{Usefulness score of the initiative}}{\text{X}}$$
$$\text{Implementability score of the initiative}$$

The priority indices for the initiatives given in question 3 are shown in the table overleaf.

CSA Initiatives	Priority index
1. Registration and classification scheme	47
2. Price preference scheme	28
3. Joint ventures	24
4. Contract packaging of larger contracts	40
5. Advocate equitable contracts to eliminate unfair risks	34
6. Promote 'transparency' to avoid corruption	26
7. Promote schedule of rates for common tasks	42
8. Develop contract pricing policies that avoid a BoQ	23
9. Develop and promoting simplified contract procedures	53
10. Training programmes	60
11. Mobilisation payments	41
12. Loan guarantee schemes	34
13. Banking code of practice	23
14. Promote establishment of construction banks	43
15. Promote scheduling of public sector spending	16
16. Promote streamlining payment procedures	33

Table 9.8 CSA initiatives: Priority Indices

Although the priority indices for contractors' problems and assistance initiatives can be useful in deciding where to target the CSA's resources, the priority indices shown above could not be used in determining the work of a specific CSA. The results from the questionnaires were based on respondents' opinions on the general principles of a CSA and will therefore not be specific to one country or region. All 3 interviewees would not propose specific initiatives for the CSA to implement as they felt that each organisation would be country specific. Nevertheless a number of more generic initiatives were proposed by the interviewees that appear in the priority index based on the questionnaire results. Petts and Hammond suggested the use of training programmes, the highest ranked priority. Petts also suggests an advocacy role for the CSA which has a low priority index based on the questionnaire ranking. Stiedl suggests one option for developing small scale contractors would be the use of a management contractor scheme, a form of joint venture. The previous chapter of this study outlined the investigations that should be carried out before initiating a CSA. Priority indices could be calculated based on the findings of these initial investigations, an approach supported by the interviewees.

In addition to deciding the tasks or initiatives that should be undertaken by a CSA it is also necessary to determine which contractors should be supported. The questionnaire results suggest that all small scale contractors should have the potential to benefit from the services of a CSA. With the limited resources available to the CSA, however, it will be necessary to target the contractors with 'potential for growth', an approach which also agrees with the questionnaire results. It would therefore be necessary to determine how all small scale contractors can be assisted or how to select contractors with growth potential.

Respondents provided 2 suggestions for measuring growth potential; shrewd commercial attitude and a commitment to the industry. However, these criteria would be difficult to measure. Stiedl also suggests that it is far more important for contractors to be entrepreneurs than engineers. It may be possible to review contractor's existing growth to obtain an indication of their future growth however, it may also be argued that contractors who have a large existing growth do not need to receive support. Alternatively it may be possible to carry out an aptitude test of contractors to assess their growth potential. Hammond cited an example in Singapore where contractors could not bid for work unless they had attended a tender preparation course. This approach clearly benefits all small contractors and will assist those with shrewd commercial attitude to succeed however it may be argued that it is not a cost effective approach. One respondent to the questionnaire suggested that selection of contractors should be undertaken in consultation with stakeholders. While this is a very laudable approach it could be very difficult to achieve. At the inception of the CSA it may not be practical to 'reach' sections of the small scale contracting sector.

The section of the questionnaire which investigated financing of the organisation, indicated that a registration fee is a popular method for receiving finance from contractors for the organisation. The payment of a registration fee could be used to maintain a list of 'all contractors' that should receive support from the CSA and finance a predetermined amount of support.

There are two elements of financing an organisation; the direct costs of providing a service and the indirect costs or overheads which can include support staff salaries, office rent and

running costs. The questionnaire asked respondents to indicate all contractor payment options that should be used. The results of this section of the questionnaire agree with the result of the 'target group of contractors' section. Contractors should be required to pay a registration fee to the CSA which would entitle them to a specific amount of free assistance. Respondents also indicated a strong preference for contractors being required to pay a partial cost of the direct services that they receive, although it was not possible with the limited length of the questionnaire to investigate the proportion of the costs that should be paid for by the contractor.

The interviewees had a complete spectrum of opinions on the willingness of contractors to assist with the financing of the organisation. Stiedl did not believe contractors would be willing to make a contribution to finance the organisation, but Petts believes that contractors would invest in the organisation if the advantages were clearly explained. Hammond explains that the costs of training courses would normally have to be met by the contractors and should therefore be kept to a minimum in order for the organisation to be financially viable.

Sliding scale charges, based on usage or classification, were also reasonably popular methods for charging contractors, but again it was not possible in the limited length of the questionnaire to investigate the modalities for implementing these financing methods. From the questionnaire results charges to the contractor set according to their ability to pay are not a popular option. This is a little surprising as in many development projects, particularly in the water sector, charges set according to an ability to pay is considered one of the most appropriate financing regimes (WELL 1998). Petts indicates that contractors have a very limited ability to pay due to the financial burdens of their interest payments on their capital investments.

It is likely that different initiatives would have to be financed in different ways, as some initiatives would not be able to generate any direct financial resources. The previous chapter highlighted the need during initial investigations to review the financial resources and willingness to pay for services by contractors which should also be taken into account when determining the charging regime for a new organisation. The interviewees provide

additional weight to this approach as their opinions on a contractor's willingness to pay vary.

The questionnaire only addressed the charging options for contractors themselves. The results of the questionnaire agree with statements in the previous chapter which state that the CSA will require external support from either government departments and/or donor agencies. The charges levied on contractors will partly be dictated by the level of external funding that can be raised. Both Petts and Stiedl believe that Government funding is available. Petts suggests that some finances are currently being misspent.

- Timeframe of support

The results from the questionnaire suggest that contractors would normally require 2-3 years of support and should not be provided with support after 4-5 years. Nevertheless it is assumed that they would still pay a registration fee to remain on the register and receive a minimal level of support. The questionnaire results also suggest that a CSA would have to operate for a period of approximately 10 years in order to significantly increase construction capacity. All 3 interviewees believe a minimum of about 5 years is required to initiate a development of the contracting sector. Petts and Stiedl also suggest that 10 years would be more appropriate. However, Hammond suggests that the organisation would be "burnt out" after 7-9 years of operation. In a country or region with minimal contracting experience an operating period of 10 years implies that a CSA would only 'see' 2 or 3 batches of contractors in its lifetime. Contractors may join the CSA at any time, for example, having started a business or after they perceive the advantages of membership and would therefore not join in batches. However, the CSA would be providing support to each contractor for about one third of its life span. This operating timeframe implies that a large number of contractors will be receiving support at the same time if construction capacity is to be increased which may have significant resource implications for the organisation. The number of construction contracts available will also determine if the speed of growth in construction capacity suggested by the interviewees and responses to the questionnaire can be achieved. For example, Stiedl states that a CSA can not create a contracting demand but only respond to a demand.

- Applicability to other sectors

The questionnaire suggests that the CSA would be applicable for the majority of construction sectors except the industrial building sector. This view agrees with the interviewees' suggestion that all contractors can be supported in all sectors. Petts suggests that the building sector offers the best opportunities. Stiedl argues that as the problems facing contractors are similar in all construction sectors the CSA will have a construction industry wide applicability. It is possible that small scale contractors would be able to undertake small industrial building contracts which would be of similar complexity to domestic/public buildings. However, small scale contractors would normally not be expected to have the specialist knowledge to carry out larger industrial projects. This sector may therefore be considered not applicable to small scale contractors, regardless of support from a CSA, with projects undertaken by large contractors outside the scope of support from a CSA.

- Regional applicability

The study received a low number of responses to the questionnaire from people who had worked in the former Soviet Union, China and the Americas which limits the conclusions that can be drawn on the applicability of a CSA in these areas. However, Petts and Hammond both have experience of working in former Eastern Bloc countries. They both believe that a CSA could play a role in developing the construction industry in these areas. Approximately three quarters of the respondents indicated that a CSA would be applicable in all, or a proportion of, the regions that they had worked in. The remaining quarter indicated that a CSA would be applicable to regions in which they had not worked.

The responses to the questionnaire suggest that a CSA would be applicable and successful throughout the whole of Africa, including South Africa. 94% of respondents who have worked in Africa indicate that a CSA would be successful in all the African regions.

The results of the questionnaire also suggest that a CSA could have a role in the development of the construction sector in SE Asia and on the Indian Subcontinent. 75% and 85% of respondents respectfully who have worked in these two regions suggest that a CSA would be applicable in these regions.

Hammond, Stiedl and Petts believe that there is a role for a CSA to play in all the regions that they have worked. Hammond indicates that there is a need for an organisation to set and monitor construction industry standards and provide training through out the world. Petts and Stiedl both argue that a CSA would be applicable in both Africa and Asia (Petts also argues that it would be of benefit in E Europe) however the role it would play in these different regions would vary significantly.

Chapter 10.

Conclusions

Introduction

This chapter highlights how the study has supported the hypothesis:

There is a mechanism for supporting the majority of the small scale construction sector resulting in an increase in construction capacity which through small adaptations will be transferable to different developing countries.

It also outlines the limitations of the study. A number of recommendations are made as a result of the study. These are either due to issues raised by interviewees or questionnaire respondents or other factors highlighted in the study. Finally areas of further work as a result of the study are discussed.

Support for the hypothesis

Chapter 5, Problems, Difficulties and Constraints, outlined the problems that are faced by small scale contractors attempting to compete for work in the private construction sector. Chapter 7, The Institutional Framework of the Construction Sector, also outlined the problems encountered in developing countries where the construction industry support framework did not exist or was very weak. This chapter also highlighted how these problems were being addressed by different institutional support initiatives. Chapter 6, A Review of Contractor Development Projects outlined how contractors had been developed through training and institutional support projects. Finally Chapter 8, A Model for a Contractor Support Agency and the review of the model discussed in Chapter 9 described in detail an appropriate institutional support mechanism.

The hypothesis specific to this study is restated above. The initial stage of this study contained in Chapters 5 to 7 defined the constraints and operating conditions that the support mechanism would have to comply with. This initial phase of the study also contributed to the model for a contractor support agency proposed in Chapter 8. This model was proposed as the mechanism suggested in the hypothesis. The interviews with, and questionnaires that were sent out to, experts in the sector were designed to review and test the model and hence support the hypothesis. The review of the interviews and questionnaire results contained in Chapter 9 showed:

1. That the model proposed was broadly correct as a mechanism to provide support to the small scale contracting sector which will increase their capacity to undertake construction

projects. 83% of the respondents to the questionnaires believed that the CSA outlined in Chapter 8 could solve at least 50% of the problems facing small scale contracting businesses. All interviewees thought that a CSA could provide support to the small scale contracting sector.

2. The problems experienced by contractors highlighted in the initial phase of the study were confirmed by the results of the questionnaires and interviews.
3. The model could be successful in developing small contractors in all the construction sectors that would normally be open to contractors of this size in developing countries.
4. The model appears to be transferable to various developing areas of the world with regionally appropriate support initiatives.

These results strongly support the hypothesis.

Limitations of the study

The most obvious limitation to the study is that the model has not actually been physically tested. It may be argued that the hypothesis can not be fully proved as valid unless the model is actually tested in a country or region. The problems of physically testing the model were discussed in the research methodology Chapter. Firstly, the timeframe and financial resources required to trial the CSA were not available for this study. Secondly, even if the model were trialled in a country or region, it would still not be possible to show that the agency would be viable or appropriate to other developing countries.

There may also be some reservations about the reliability of the study due to the limited number of questionnaires that were sent out and received. This issue was also discussed in the research methodology Chapter of this study. It highlighted that a balance was required between a limited number of high quality responses from 'good quality' respondent and a large number of responses from respondents with a limited knowledge of the sector. The research methodology indicated how the limited number of high quality respondents was chosen. The interviews undertaken after the questionnaire survey improve the validation of the model as they provide a further, first hand, in depth review of contractor support mechanisms that have been previously attempted. Nevertheless the fact that the study is based on the opinions of a limited number of interviewees and questionnaire respondents should not be overlooked when reviewing the study. The study aimed to gauge the opinions of people

from different perspectives, although the conclusions may be criticised for having a limited cross section of contractors surveyed for the study.

The limited number of questionnaire respondents coupled with their regional work experience has provided limited data on the applicability of a CSA in the following regions:

- Former Soviet Union
- China
- Central America
- Southern America

Although the two interviewees with experience in the Former Soviet Union suggest that a CSA would be beneficial in this region it is difficult for the study to draw definitive conclusions on the applicability of a CSA in the above regions. However, results obtained indicate a CSA may be suitable in these regions.

A common research criticism of closed and/or short questionnaires is the ability to draw out all the useful information from the respondents. The reasons for choosing this type of questionnaire were outlined in the research methodology chapter. The interviews were undertaken after analysis of the questionnaire results in an attempt to overcome the shortcomings of these types of questionnaires.

One of the major issues in initiating and operating a CSA is the financing of the organisation. The study investigated the applicability of different charging methods that may be applied to contractors according to their ability to pay. However, it was not able to investigate the contractors' willingness to pay or the potential financial requirements or resources that would be available from other sources.

The working paper set out with the questionnaire, which was similar to Chapter 8, outlined the difference between a Contractors' Association (CA) and a Contractor Support Agency (CSA). The responses received indicated that a limited number of respondents did not recognise the difference between a CSA and a CA. This may be due to the inadequate explanation provided in the working paper or may also be due to the grey area in defining the

difference between these different organisations. For example the following feedback was received from Markland who received the working paper via Strom of NORAD.

> My definition of a Contractors Association is the following:
>
> - Champion the concerns of contractors, as defined by themselves, acting as a pressure group interacting with Government and other major clients, banks and equipment suppliers
> - Coordination with local and regional training providers for the fulfilment of contractors training needs
> - Establishment of bulk purchase arrangements for the supply of suitable tools and equipment
> - Limited ability to provide technical support, but more importantly, the capacity to refer contractors to sources of support

Markland 1999

The organisation described in the box above could also be defined as a CSA. However, it may be possible for a Contractors Association to undertake the tasks assuming that suitable training providers other sources of technical support exist.

Recommendations from the study

The study has highlighted the need for support from all the stakeholders, particularly the government if any form of contractor support organisation will be successful. In some cases respondents have actually suggested that the impetus should come from the government, or more specifically (Markland 1999) from the Ministry of Public Works. One respondent from an African country's Ministry of Works highlighted the limitation on the success of a CSA would be the "rigidity of the public sector system" and two of the interviewees suggested that the contractors' main problem was the public sector. It was also suggested by another respondent that the ability of the organisation to focus on government financial regulation and procedures would be crucial for the success of the organisation. The issue of work availability is also a significant factor in the successful development of an indigenous contracting sector. These two issues may be considered to be interrelated as the following measures may be

implemented by government agencies, albeit supported or advised by a CSA, if they wished to develop the local contracting sector:

- Suitable packaging of public works contracts
- Development of appropriate specifications and contract procedures
- Stream-lining payment procedures
- Scheduling or provision of public sector spending
- Proper compliance of conditions of contract rather than enforcement in one direction (e.g. interest on late payments).

These are all measures that would be targeted at the contracting sector, providing support to a large number of contractors.

Chapter 8 outlined a wide range of initiatives that may be promoted to relieve the financial and contractual constraints faced by contractors. Individual feedback received from respondents suggested that other support initiatives in other fields were also important to address. This feedback confirms the need to modify the 'mechanism' suggested in the hypothesis to make it applicable to different areas and to involve contractors in the scoping process wherever possible. In addition to performance criteria outlined in the initiation section of Chapter 9, a CSA will need clear end objectives when it is set up to define its activities and tasks that should be undertaken.

Chapter 7, The Institutional Framework for the Construction Sector, outlined that another problem with the construction industry in developing countries was the lack of engineering consulting firms. The proposed model for a CSA did not address this issue, but it should not be overlooked if the local contracting sector is to be developed. Chapter 7 also suggested that in the short to medium term government clients would act as consulting firms as they will already have in-house design experience from force account operations. Lehobo (1998) highlighted the need for training in the government agencies to adapt to their new contract supervisory role. Stiedl and Petts suggested during their interviews that the CSA or its sister organisation should train government agency staff in contract management and supervisionary tasks. Although this particular issue is not within the scope of this study Appendix 4 proposes the institutional development process required in government agencies in order for them to be able to undertake a contract supervisory role.

This study has proposed the establishment of one organisation to undertake a range of different tasks. The perceived advantages of one organisation are the reduced overhead required by one organisation and the time required to initiate the organisation and enable it to fulfil its intended roles. Nevertheless, a number of respondents to the questionnaire suggested implicitly or implied that the potential roles for a CSA could be divided between a number of organisations. Markland (1999) suggests that the constraints affecting contractors could be addressed by 2 organisations:

1. a body driven by the small contractors themselves - a Contractors Association
2. the client, which will continue to be the Ministry of Public works in the majority of cases

However, Markland's Contractors Association, described in the box above, suggests an organisation beyond the capacity of small scale contractors to establish. Other questionnaire respondents express concerns about creating a parastatal or 'QUANGO' bureaucracy which could be expensive but ineffective. These issues should be considered before establishing any specific organisation.

This study has highlighted the advantages of utilising the private sector but it must be stressed that it downsizing the direct labour capacity should be done with care as there will always be a demand for work to be undertaken by this method. This may include emergency repair work which is required to be undertaken quickly and can not wait for a contract to be prepared and tendered before work commences. There will also always be work that is unattractive to private contractors due to work location or the nature of the work making it high risk and therefore unlikely to be profitable (Kirmani and Blaxall 1988).

Further Work

This study was initiated with the intention of providing definitive solutions to the constraints affecting small indigenous contractors. This was clearly an ambitious task which the study may not have fully achieved, but nevertheless it has made some significant steps forward. The study has contributed to knowledge by compiling and synthesising existing data on the construction industry in developing countries and contractor support initiatives. It has also 'contributed to knowledge' by investigating experts opinions from around the world on the

feasibility and applicability of different contractor support initiatives. There are, however a number of further areas for investigation which may be pursued as a result of this study:

- Wider scope of support initiatives

The study highlighted that contractual and financial issues should be given the highest priority in providing support. Nevertheless the mechanisms for providing support in other sectors should be investigated. Some questionnaire respondents highlighted other issues were important in their particular experience or working region. Hammond indicated that in his experience skills standards and training were the most important areas to address.

- Review of existing Contractors Associations and Contractor Support Agencies

Previous Chapters of this study highlighted that documentary material about previously unsuccessful CSAs is limited. However, in the majority or cases, staff from these organisations should still be traceable and could be interviewed to gain information about the 'do's and don'ts' of running these organisations. Hammond, an interviewee, is an example of one of these staff members who assisted in the founding of ICTAD in Sri Lanka. Contractors Associations exist in some form in many countries. Further investigation of these organisations could be undertaken to determine their capacity and/or ability to undertake the initiatives outlined in the model for a contractor support agency, or the support that would be required for them to take on additional initiatives.

- Discussion with contractors

One of the questionnaire respondents suggested that consultations should be undertaken with contractors before initiating a CSA. Although this study has been able to contact some contractors, generally through construction councils, it has consulted relatively few. Further discussions should be held with contractors to highlight the specific problems that they encounter. If this option is adopted Ward's (1997) caveat (contractors will not openly talk about their business affairs) must be taken into account.

- Funding issues

The questionnaire investigated the issues of contractors' payment for services received. However, Chapter 8 indicated that a CSA can not be self funding from membership and user fees alone. Chapter 8 suggested that additional financial support could be provide by governments and donor agencies. Donor agencies are tied to the funding cycles imposed by their governing bodies. Investigations should therefore be undertaken to determine how these funding cycles would match the timeframe for support required by the CSA which were discussed in Chapter 9. The model for a contractor support agency working paper and questionnaire was sent to a number of personnel in donor organisations. Further contact could be made with these people to gauge the likelihood of donor agencies supporting a CSA and the restrictions or constraints that they would impose if support was provided.

Chapter 11.

References and Bibliography

Abbott, P., 1985, *Technology Transfer in the Construction Industry: Infrastructure and Industrial Development* (special report no.223), Economist Publications, London.

Adams, O., 1997, *Contractor Development in Nigeria, perceptions of contractors and professionals*, Construction Management and Economics, Vol.15, pp95-108.

Adams, O., 1998, *Indigenous Contractors' Perceptions of the Importance of Topics for Contractor Training in Nigeria*, Habitat International Vol.22, No.2, pp.137-147.

Allal, M., Edmonds, G., 1977, *Manual on the Planning of Labour Intensive Road Construction*, International Labour Office, Geneva.

Andersson, C.A., Neale, R., Miles, D., Ward, J., 1994, *Improve your Construction Business: Pricing and Bidding* (handbook and workbook), International Labour Office, Geneva.

Andersson, C.A., Neale, R., Miles, D., Ward, J., 1996a, *Improve your Construction Business: Site Management* (handbook and workbook), International Labour Office, Geneva.

Andersson, C.A., Miles, D., Ward, J., 1996b, *Improve your Construction Business: Business Management* (handbook and workbook), International Labour Office, Geneva.

Andersson, C.A., Beusch, A., Miles, D., 1996c, *Road Maintenance and Regravelling (ROMAR)* (handbook and workbook), IT Publications, London.

Antoniou, J., Gutherie, P., deVeen, J., 1990, *Building Roads by Hand*, Longman, UK.

Ashong, E., 1996, *The development of a labour based road programme involving the private sector: the Ghana Experience*, 5th ASIST Regional Seminar (22-26 April 1996, Accra), ASIST Nairobi.

Ashong, E., 1998, *Labour based roadworks: Private sector developments*, in Larcher P. (ed), Labour-Based Road Construction: A state of the art review, IT Publications, London.

Auerhan, J. et al, 1985, *Institutional Development in Education and Training in Sub-Saharan African Countries*, World Bank, Washington.

Austen, A., Neale, R. (Ed), 1986, *Managing Construction Projects: A guide to processes and procedures*, International Labour Office, Geneva.

Barwell, I., 1996, *Transport and the Village: findings from Africa village level travel and transport surveys*, World Bank, Washington.

Bentall, P., Twumasi-Boake A., Watermeyer R., 1995, *Labour based contracting: A study to develop guidelines for project formulation and implementation*, (unpublished report Vols.1-3), International Labour office, Geneva.

Bentall, P., Beusch, A., deVeen, J., 1999, *Capacity Building for Contracting in the Construction Sector*, International Labour Office, Geneva.

Bridge S., O'Neill K., Cromie S., 1998, *Understanding Enterprise, Entrepreneurship and Small Business*, Macmillan Press, London

Burns P., Dewhurst J., 1996, *Small Business and Entrepreneurship*, 2nd ed, Macmillan Press, London

Capitanio, A., 1991, *The EDF and African Roads*, The ACP-EEC Courier, No.123, January-February 1991.

Carillo, P., 1994, *Technology Transfer: A survey of international construction companies*, Construction Management and Economics Vol.12, No.1, pp.45-51.

Carter S., Jones-Evans D., 2000, *Enterprise and Small Business: Principles, Practice and Policy*, Prentice Hall, Harlow, UK

CIRIA, 1989, *The CIRIA UK Construction Information Guide*, Construction Industry Research & Information Association, London.

Connerley, E., Schroeder, L., 1996, *Rural Transport Planning*, World Bank, Washington.

Cooper, L., 1984, *The Twinning of Institutions: Its use as a Technical Assistance Delivery System*, (Technical paper 23), World Bank, Washington.

Cortes, J., 1979, *SEDCO: An approach to developing the local construction industry*, International Labour Office, Geneva.

Cotton, A., Sohail, M., Tayler, W., 1998, *Community Initiatives in Urban Infrastructure*, WEDC, Loughborough University, UK.

Coukis, B., 1984, *Labor-based construction programs: A practical guide for planning and management*, World Bank, Washington.

CSIR, 1993a, *Southern Africa Construction Industry Initiative: South Africa*, (country position paper), CSIR, South Africa.

CSIR, 1993b, *Southern Africa Construction Industry Initiative: Swaziland*, (country position paper(, CSIR, South Africa.

De Veen, J., 1980, *The Rural Access Roads Programme: Appropriate technology in Kenya*, International Labour Office, Geneva.

Dept. Public Works, 1997, *Creating and Enabling Environment for Reconstruction, Growth and Development in the Construction Industry*, Green Paper, Department of Public Works, Republic of South Africa.

DFID, 1995, *Institutional Development*, DFID Technical Note No. 14, http//152.60.200.132/ws3_intranet/procedures/TN14.htm (17/12/97)

Dhir, M., 1995, *Construction and Maintenance of rural roads by the public and private sectors*, (unpublished report), International Labour Office, Geneva.

Dickson, D., 1988a, *Improve Your Business: Handbook*, International Labour Office, Geneva.

Dickson, D., 1988b, *Improve Your Business: Workbook*, International Labour Office, Geneva.

Donaldson, D., 1995, *Privatization: Principles and Practice*, International Finance Corporation, World Bank, Washington.

Drewer, S., 1982, *The Transfer of Construction Techniques to Developing Countries*, Lund University, Lund, Sweden.

Easton, G., 1992, *Learning from Case Studies*, Prentice Hall, London.

Edgcomb E., Cawley J., 1993, *An Institutional Guide for Enterprise Development Organisations*, SEEP, New York

Edmonds, G., deVeen, J., 1992, *A labour based approach to roads and rural transport in developing countries*, International Labour Review, Vol.131.

Edmonds, G., Howe, J., 1980, *Roads and Resources: Appropriate technology in road construction*, IT Publications, London.

Edmonds, G., Miles, D., 1984, *Foundations for Change*, IT Publications, London.

Edmonds, G., Ruud, O., 1984, *Labour based Construction and Maintenance: Some indicators of viability* (CTP 39), International Labour Office, Geneva.

Fink, A., Kosecoff, J., 1985, *How to conduct surveys*, Sage Publications, London.

Fowler A., Campbell P., Pratt B., 1992, *Institutional Development and NGOs in Africa: Policy Perspectives for European Development Agencies*, Intrac, Oxford

Fransen, J., Mason, D., 1998, *Community Contracting*, in ASIST Bulletin No. 7 July 1998, ASIST, Nairobi.

Gansen, S., 1982, *Management of Small Construction Firms*, Asian Productivity Organisation, Tokyo.

Garnier, P., Imschoot, M., 1993, *The administration of labour intensive works done by contract*, International Labour Office, Geneva.

Geneva Group, 1986, *How to run a small development project*, IT Publications, London.

Gidman, P., Blore, Lorentzen, Schuttenbelt, 1995, *Public-Private Partnerships in Urban Infrastructure Services*, (UMP working paper 4), UMP (UNDP/World Bank), Washington.

Guthrie, P., 1983, *Labour Construction Unit Technical Manual*, Government of Lesotho, (unpublished report), Scott Willson, Basingstoke, UK.

Habitat, 1994, *The community construction contract system in Sri Lanka*, Habitat, Nairobi.

Hagen, S., Relf, C., 1988, *District road improvement and maintenance programme in Malawi*, International Labour Office, Geneva.

Handy, C., 1985, *Understanding Organizations*, Penguin, London.

Harper, M., 1984, *Small Business and the Third World*, Wiley & Sons, Chichester UK.

Harral, C. et al, 1986, *An appraisal of Highway maintenance by contract in Developing Countries*, World Bank, Washington.

Heap, A., 1987, *Improving Site Productivity in the Construction Industry*, International Labour Office, Geneva.

Heggie, I., 1995, *Management and Financing of Roads: an agenda for reform*, World Bank, Washington.

Henley, J., 1981, *Some management and human aspects of labour based construction work*, in ICE, (1981) Appropriate Technology in Civil Engineering Conference, Institution of Civil Engineers, London.

Henley, J., 1984, *Road Maintenance and the use of Small Scale Contractors in the Central African Republic*, International Labour Office, Geneva.

Hernes, T., 1988, *Training Contractors for results: A guide for trainers and training managers*, International Labour Office, Geneva.

Hernes, T., 1987a, *Feeder Roads Improvement and Maintenance by contract*, International Labour Office, Geneva.

Hernes, T., 1987b, *Interactive Contractor Training* (3 module package), International Labour Office, Geneva.

Hillebrandt, P., 1985, *Economic Theory and the Construction Industry*, MacMillan, London.

Hindson, J., 1983, *Earth Roads: Their construction and maintenance*, IT Publications, London.

HMSO, 1971, *Small Firms – Report of the Committee of Inquiry on Small Firms* (The Bolton Report), HMSO, London

Hodges, J., 1996, *Engineering Research for Developing Countries: ICE Unwin Memorial Lecture*, (unpublished transcript), Institution of Civil Engineers, London.

Howe, J., Bryceson, D., 1993, *Women and Labour based roadworks in Sub-Saharan Africa*, IHE, Delft.

Howe, J., Muller, H., 1998, *Postgraduate/Undergraduate course on Labour-based Road Engineering*, Course Notes, International Labour Office, Geneva.

Hussain, I., Nwune, T., Obi, A., 1992, *Introduction of Labour-based Construction Technology in Nigeria: Field Demonstration and Experiences*, (unpublished report), National Directorate of Employment, Lagos, Nigeria.

ICE, 1996, *Civil Engineering Procedure* (5th ed), Thomas Telford, London

ICE, 1998, Institution of Civil Engineers Home Page, *www.ice.org.uk* , 17/11/98.

ILO, 1979, *An approach to the development of an indigenous construction industry*, Management Case No.1, International Labour Office, Geneva.

ILO, 1979, *National Construction Corporation: An Approach to the development of an indigenous Construction Industry*, International Labour Office, Geneva.

ILO, 1981, *Guide to tools and equipment for labour based road construction*, International Labour Office, Geneva.

ILO, 1983, *Management training for the construction industry in developing countries*, International Labour Office, Geneva.

ILO, 1987a, *Employment Policy and Job Creation in and through the Construction Industry*, International Labour Office, Geneva.

ILO, 1987b, *Botswana Contractors Training* (Report on project BOT/86/MO1/SID), International Labour Office, Geneva.

ILO, 1992a, *Skill requirements, training and retraining in the building, civil engineering and public works*, International Labour Office, Geneva.

ILO, 1992b, *The Rainmaker*, International Labour Office, Geneva.

ILO, 1993, *From want to work: Job creation for the urban Poor*, International Labour Office, Geneva.

ILO, 1997, *Employment Intensive Programme Infrastructure and Transport Programmes in Rural and Urban Areas*, International Labour Office, Geneva.

Intech Associates, 1992, *Development of the Private sector: Road maintenance W. Uganda*, (unpublished report), Ministry of Works, Transport and Communications, Uganda.

Intech Associates, 1994, *International Road Maintenance Handbook*: (Vols.1 – 4), Transport Research Laboratory, Crowthorne, UK.

Irwin, G., 1975, *Roads and Redistribution: Social costs and benefits of labour intensive road construction in Iran*, International Labour Office, Geneva.

IT Transport, 1999, *Community Participation in Road Maintenance: The Arusha Community Contractors Programme*, (unpublished report for DFID), IT Transport, Ardington, UK.

Jennings Peter, 2000, *Personal Communication*, Loughborough University Business School

Johannessen, B., 1993, *Labour based technology: A review of current practice*, (Report on proceedings of Zimbabwe Institution of Engineers), International Labour Office, Geneva.

Jones, T., 1984, *The Kenya Maintenance study on unpaved roads: Optimum maintenance strategies*, (LR1112), TRL.

Jones, T., Petts, R., 1991, *Maintenance of Minor Roads using the Lengthman Contractor System*, in PTRC, Planning and management of roads in developing countries, PTRC, London.

Karanja, F., 1998, *Labour based contractor training project in Kenya*, in Larcher P (Ed), Labour-Based Road Construction: A state of the art review, IT Publications, London.

Kirk, J., Miller, M., 1986, *Reliability and Validity in Qualitative Research*, Sage Publications, London.

Kirmani, S., 1988, *The Construction Industry in Development: Issues and Options*, World Bank, Washington.

Kirmani, S., Blaxall, J., 1988, *The Construction Industry in Development: A strategy for Bank assistance*, World Bank, Washington.

Kubr, M., 1982, *Managing a Management Development Institution*, International Labour Office, Geneva.

Kvale, S., 1996, *Interviews: An introduction to Qualitative Research Interviewing*, Sage Publications, London.

Lal, D., 1978, *Men or Machines*, International Labour Office, Geneva.

Lantran, J., 1990, *Developing domestic contractors for road maintenance in Africa*, World Bank, Washington.

Lantran, J., 1991, *Contracts for road maintenance works agreements by direct labour*, World Bank, Washington.

Lantran, J., 1994, *Managing small contracts: Practical guidance on how to manage small contracts for public works and services*, World Bank, Washington.

Lantran, J., Lebussy, R., 1991, *Setting up a plant pool*, World Bank, Washington.

Lehobo, A., 1998, *Transforming the Labour Construction Unit from an Executing to a Contract Supervisory Agency*, in Larcher P (Ed), Labour-Based Road Construction: A state of the art review, IT Publications, London.

Lemunge, N., 1980, *Report of workshop on Financial Constraints on Development of Small Contractors in Eastern and Southern African Countries*, International Labour Office, Geneva.

Lemunge, N., 1997, *Equipment for Road and Bridge Construction*, in Proceedings of the Annual Roads Convention (September 1997), National Construction Council, Dar es Salaam.

Levicki C., 1984, *Small Business: Theory and Policy*, Croom Helm, London

Levitsky, J., 1992, *Private sector membership associations and support for SME's*, Small Enterprise Development, Vol.3, No.1

Levitsky, J., 1993, *Innovations in the financing of small and microenterprises in developing countries*, International Labour Office, Geneva.

Loraine, R., 1992, *Construction Management in Developing Countries*, Thomas Telford.

Marshall, 1989, *Labour-based Contractor Training for Rural Roads in Tanzania: A Project Proposal*, (unpublished report), International Labour Office, Geneva.

MART, 1995, *Management of Appropriate Road Technology (MART) Bulletin No.1*, Institute of Development Engineering, Loughborough, UK.

McCleary, 1976, *Equipment versus employment*, International Labour Office, Geneva.

McCutcheon, R., 1985, *The use of donkey drawn carts in labour intensive road construction in Botswana*, (CTP 42), International Labour Office, Geneva.

McCutcheon, R., 1988, *The District Roads Programme in Botswana*, Habitat International, Vol.12, No.1, pp.23-30.

McCutcheon, R., 1989, *Labour-Intensive Road Construction in Africa*, Habitat International, Vol.13, No.4, pp.109-123.

McCutcheon, R., 1990, *Labour intensive road construction and maintenance in Africa: An introduction*, Civil Engineer South Africa Vol. 32, No11

McCutcheon, R., 1995, *Employment Creation in Public Works Labour-intensive Construction in Sub Saharan Africa*, IHE, Delft.

Meredith, G., Nelson, Neck, 1992, *The Practice of Entrepreneurship*, International Labour Office, Geneva.

Miles, D., 1978, *Accounting and Book-keeping for the Small Building Contractor*, IT Publications, London.

Miles, D., 1979, *Financial Planning for the Small Building Contractor*, IT Publications, London.

Miles, D., 1980, *The Small Building Contractor and the Client*, IT Publications, London.

Miles, D., 1982, *Technical Analysis of the Kenya National Construction Corporation (NCC)*, International Finance Corporation (unpublished report), World Bank, Washington.

Miles, D., 1983, *Methodologies for the delivery of support to the domestic construction industries in developing countries*, ICE Proceedings pp.1007-1112.

Miles, D., 1990, *The Construction Industry in Nepal: Practices, problems and needs*, (CIP/2), International Labour Office, Geneva.

Miles, D., 1993, *The Impact of the ILO Construction Management Programme on the Development of Small Construction Enterprises*, International Labour Office, Geneva.

Miles, D., 1995a, *Constructive change: Managing international technology transfer*, International Labour Office, Geneva.

Miles, D., 1995b, *International project marketing*, International Labour Office, Geneva.

Miles, D., 1995c, *Training across boundaries: promoting international small enterprise development*, Cross Cultural Management, Vol.2, No.3.

Miles, D., 1995d, *International experience in developing private sector infrastructure capacity*, paper presented at ACSP-Detroit Conference 1995.

Miles, D., 1996a, *A Decade of Small Contractor Development in Asia: Lessons from project experience*, Public Works Management and Policy, Vol.1, No.3.

Miles, D., 1996b, *Promoting Small Contractors in Lesotho: Privatisation in Practice*, Proceedings of the ICE, Vol.114, Issue 3, pp.124-129.

Miles, D., 1996c, *Effective Technical Cooperation for Construction Industry development*, CIB - Beijing international conference.

Miles, D., 1996d, *The Client/Contractor Relationship in Labour-based Construction and Maintenance*, 5th ASIST Regional Seminar, (April 1996, Accra), ASIST, Nairobi.

Miles, D. (Ed), 1996e, *Towards Guidelines for Labour Based Contracting: A Framework Document*, (MART working paper No. 1), Loughborough University, UK.

Miles, D., 1997, *The Development of Intermediate Construction Enterprises* (Phd Thesis), Loughborough University, UK.

Miles, D., 1998, *Evaluating International Development Projects*, International Journal of Theory, Research and Practice, Vol.4, No.4.

Miles, D., deVeen, Clifton, 1997, *The development of labour-based contracting for roadworks; Lessons from Ghana, Mozambique and Lesotho*, International Workshop on Rural Infrastructure (19-23 May 1997), World Bank, Washington.

Miles, D., Neale, R., 1991, *Building for Tomorrow: International Experience in Construction Industry Development*, International Labour Office, Geneva.

Miles, D., Neale, R., 1997, *Patterns in Diversity: An International Training System Typology,* 1st International Conference on Construction Industry Development, Singapore 1997, National University of Singapore.

Miles, D., Vaid, K., 1991, *A Strategy for the China International Contractor's Association: CHINCA*, International Labour Office, Geneva.

Miles, D., Ward, J., 1991, *Small Scale Construction Enterprises in Ghana: Practices Problems and Needs*, (CIP/1), International Labour Office, Geneva.

Miles, D., Ward, J., 1998, *Integrating Infrastructure and small enterprise development within low-income communities: The Khuphuka concept*, (MART working paper no. 12), Loughborough University, UK.

Milne, C., 1994, *Guidelines for emerging contractor development*, Development Bank of South Africa.

MoW, 1991, *National Construction Industry Development Strategy*, Ministry of Works, Tanzania.

Moyo, P., 1999, *The Learning organisation and the Construction Industry: A survey of the Indigenous Building Contractors of Zimbabwe*, Unpublished paper, Department of Civil Engineering, National University of Science and Technology, Zimbabwe.

Mueller, D., 1986, *Measuring Social Attitudes: A handbook for Researchers and Practitioners*, Teachers College Press, New York.

Musumba, W., 1998a, *A Sustainable Capacity for Road Maintenance using Local Small Scale Contracting*, in Larcher P (ed), Labour-Based Road Construction: A state of the art review, IT Publications, London.

Musumba, W., 1998b, *Development of the Local Contracting Industry*, Workshop on Strategy for District and Urban Roads 29-30th Oct 1998, Ministry of Works, Housing & Communications, Uganda.

Nachmias, C., Nachmias, D., 1990, *Research Methods in the Social Sciences*, Edward Arnold, London.

Neale, R., 1987, *Construction Management and Technology: A Bibliography for Developing Countries*, Gower, UK.

Neale, R., Miles, D., 1989, *Use of Local Contractors and Consultants*, in PTRC Planning and management of roads in developing countries(seminar proceedings), PTRC, London.

Neck, P., Nelson, R., 1987, *Small Enterprise Development: Policies and Programmes*, International Labour Office, Geneva.

Nelson, R., 1986, *Entrepreneurship and Self-Employment Training*, Asian Development Bank, Manila.

Ngubane, S., Haylett, M., Alcock, N., 1997, *Institutionalising Rural Water*, in Pickford (ed), Proceedings of the 23rd WEDC Conference, Loughborough University, UK.

Ofori, G., 1991, *Programmes for Improving the performance of Contracting firms in Developing Countries*, Construction Management and Economics, Vol.9, No.1, pp.19-38.

Ofori, G., 1993, *Research on construction industry development at the crossroads*, Construction Management and Economics Vol.11, No.3, May, pp175-185.

Oliver, P., 1997, *Research for business marketing and education*, Hodder & Stoughton Educational, London.

Opoku-Mensah, E., 1995, *Enhancing equipment loan repayment for small scale labour-based contractors*, at 5th Regional ASIST Seminar, (April 1995, Accra), ASIST, Nairobi.

Opoku-Mensah, E., 1996, (Chairman of Ghanaian Contractors Association), *Personal Communication.*

Osei-Bonsu, K., 1995, *Labour based road rehabilitation and maintenance in Tanzania: The involvement of the Private Sector*, (unpublished report), International Labour Office, Geneva.

Perry, J., Thompson, P., 1981, *Appropriate construction management*, in ICE, (1981) Appropriate Technology in Civil Engineering Conference, Institution of Civil Engineers, London.

Peters, 1997, *Thriving on Chaos: Handbook for a management revolution*, Pan Books Ltd., London.

Petts, R., 1994, *Who needs equipment?* in ASIST Bulletin No.3, Aug 1994, ASIST, Nairobi.

Petts, R., 1997, *Agricultural Tractors in Roadworks*, (MART working paper No. 7), WEDC, Loughborough University, UK.

Phillips, S., McCutcheon R., Emery S., Little R., Kwesiga M., 1995, *Technical analysis of the employment creation potential of a national public works programme*, 3rd Quarter, SAICE Journal.

Picard L., Garrity M. (eds), 1994, Policy Reform for Sustainable Development: The Institutional Imperative, Lynne Rienner, Boulder, USA

Pratt, B., Loizos, P., 1992, *Choosing Research Methods; Data collection for Development Workers*, Oxfam, Oxford, UK.

Prokopenko, J., 1992, *Human resources management in economies in transition: The East European Case*, International Labour Office, Geneva.

PTRC, 1989, *Planning and Management of Roads in Developing Countries* (seminar proceedings), PTRC, London.

Rausch, E., 1994, *Road Contractor Promotion and Employment Generation in Africa*, GTZ, Eschborn, Germany.

Relf, C., 1987, *Planning and Management of Roads in Developing Countries*, International Labour Office, Geneva.

Relf C., AustenA., & Miles D.,(eds) 1987, *Guidelines for the development of small scale construction enterprises*, International Labour Office, Geneva.

Rimmer, M., 1996, *Tanzanian Integrated Roads Project, in Sector Investment Programmes in Africa: Evidence from Case Studies*, Oxford Policy Management.

Riverson, R., Gaviria J., Thriscott S., 1991, *Rural Roads in Sub Saharan Africa: Lessons from World Bank Experience*, (SSATP project report), World Bank, Washington.

SCAF, 1992, *Small Contractors Action Forum: Workshop on Small Contractor Finance*, Development Bank of South Africa (unpublished report).

Sesani Projects (PVT) Ltd, 1999, *Study of the small-scale construction sector in Zimbabwe*, for the Intermediate Technology Development Group (unpublished report May 1999)

Shah, V., 1993, *Building her future: Guidelines for encouraging women's participation in construction industry development projects in India*, International Labour Office, Geneva.

Sibanda, G., 1999, *Creating an Enabling environment for small-scale contractors*, in ASIST Bulletin No.9, ASIST, Nairobi.

Silverman, J., (unknown date), *Technical Assistance and Aid Agency Staff: Alternative techniques for greater effectiveness*, (Technical paper 28) World Bank, Washington.

Simpson, J., 1981, *The management and organisation of a labour intensive rural road construction programme in Kenya*, in ICE, (1981) Appropriate Technology in Civil Engineering Conference, Institution of Civil Engineers, London.

Stanworth J., Westrip A., Watkins D., Lewis J., (eds) 1982, *Perspectives on a Decade of Small Business Research: Bolton 10 Years on*, Gower, Aldershot, UK

Stiedl, D., 1996, *The Role of ASIST*, at 5th Regional ASIST Seminar, (April 1996, Accra) ASIST, Nairobi.

Stock, E., 1996, *The Problems facing labor based road programs and what to do about them*. Evidence from Ghana, (SSATP working paper 24), World Bank, Washington.

Stock, E., deVeen, J., 1996, *Expanding Labor-based Methods for Road works in Africa*, World Bank, Washington.

Storey D., 1994, *Understanding the small business sector*, Routledge, London

TACECA, 1997, *Workshop papers on Local Contractors Capacity Building* (Sep 1997), Tanzanian Civil Engineering Contractors Association, Dar es Salaam.

Taylor, G., 1996a, *Force Account or Contractors?: A comparison of Kenya and Ghana*, 5th ASIST Regional Seminar, (22-26 April, Accra), ASIST, Nairobi.

Taylor, G., 1996b, *A study of labour based contracting in Zambia*, (unpublished report), IT Transport, Ardington, UK.

Theocharides, S., Tolentino, A., 1991, *Integrated strategies for small enterprise development: A policy paper*, International Labour Office, Geneva.

Thompson, J., 1991, *The EDF and African Roads*, The ACP-EEC Courier, No. 123 Jan-Feb 1991, pp63-68.

Twumasi-Boake, A., 1996, *A Study of Labour based Contracting*, 5th ASIST Regional Seminar, (22-26 April, Accra), ASIST, Nairobi.

Uphoff N., 1986, *Local Institution Development: An analytical sourcebook with cases*, Kumerian Press, West Hartford

Vaid, K.N., 1999, *The Construction Industry in Nepal: The challenge of manpower development*, NICMAR, Mumba, India.

VanVelson, J., 1981, *Development: a new technology*, in ICE, (1981) Appropriate Technology in Civil Engineering Conference, Institution of Civil Engineers, London.

Ward, J., 1997, (Director of Khupuka development charity) *Personal Communication: Discussing the difficulties of obtaining complete information form Small Scale Contractors.*

Ward, J., 1998, *Institution Building for Small-scale Contractor Development in South Africa: A case study*, in Larcher P (Ed), Labour-Based Road Construction: A State of the art review, IT Publications, London.

Ward, J., 1998, *From Dependency to Autonomy: An Afrocentric Approach to Small Scale Contractor development in South Africa*, in Larcher P(Ed), Labour-Based Road Construction: A state of the art review, IT Publications, London.

Ward, P., 1979, *Organisation and Procedures in the Construction Industry*, MacDonald & Evans, Plymouth.

Watermeyer, R., 1993, *Labour intensive, labour based and community based construction: There are differences*, Siviele Ingenieurswese, Julie 1993, pp15-17.

Watermeyer, R., 1997, (Director: Soderlund & Schutte), *Personal Communication: Discussing procurement strategies.*

Watermeyer, R., 1998, *The use of Public Sector Procurement as an Instrument of Social Policy*, (Unpublished paper) - Soderlund & Schutte Inc., Johannesburg, RSA.

WELL, 1998, *Guidance manual on water supply and sanitation programmes,* WEDC (on behalf of DFID), Loughborough University, UK

Wells, J., 1986, *The Construction Industry in Developing Countries: Alternative strategies for Development*, Croome Helm, London.

WEP, 1977, *Study on the use of Labour intensive methods for the Indus Super Highway*, International Labour Office, Geneva.

WEP, 1984, *Road Construction and Maintenance: Choice of technology in developing countries*, International Labour Office, Geneva.

World Bank, 1983, *The Construction Industry in Developing Countries*, World Bank, Washington.

World Bank, 1984, *The Construction Industry: Issues and Strategies in Developing Countries*, World Bank, Washington.

World Bank, 1988, *World Development Report*, World Bank, Washington DC.

World Bank, 1991, *African Universities: The Way Forward* (Findings 10), <www.worldbank.org/AFTDR/findings/english/find10.htm> (13th June 1996).

World Bank, 1993, *Putting the Private Sector on Track* (Findings 9), <www.worldbank.org/AFTDR/findings/english/find9.htm> (13th June 1996).

World Bank, 1994, *Development Report: Infrastructure for Development*, Oxford University Press, UK.

World Bank, 1995a, *Small Enterprise Responses to Liberalization in Five African Countries* (Findings 42), <www.worldbank.org/AFTDR/findings/english/find42.htm> (13th June 1996).

World Bank, 1995b, *Commercializing Africa's Roads: Transforming the Role of the Private Sector* (Findings 32), <www.worldbank.org/AFTDR/findings/english/find32.htm> (13th June 1996).

World Bank, 1995c, *Private Sector Development in Low Income Countries*, World Bank, Washington.

Yin, R., 1984, *Case Study Research; Design and Methods*, Sage Publications, London.

Young, R., 1993, *Policy biases, small enterprises and development*, Small Enterprise Development. Vol.4, No1, pp4-15

Appendices

Appendix 1:

List of Experts Receiving Working Paper and Questionnaire

FIRST MAILING	
Name	**Company Name/Country**
Director	National Construction Council, Tanzania
Mr S.Y. Abubakar	Ministry of Works & Transport, Nigeria
Dr S.K. Ampadu	L-B Road Engineering, Ghana
Mr Claes Andersson	Independent Consultant, Belgium
Mr C.D. Antwi	DFR, Ghana
E.N.K. Ashong	Department of Feeder Roads, Ghana
Mr P.H. Bentall	Independent Consultant, U.K.
Mr A. Beusch	Independent Consultant, Switzerland
Mr F. Blokhuis	ILO, Zambia
Mr M. Broadbent	Independent Consultant, U.K.
Mr John Clifton	Independent Consultant, Portugal
Mr J.J. de Veen	ILO, Switzerland
Mr Wilma Van Esch	ILO Pol/Dev, Switzerland
Jan Fransen	ILO/ASIST, Kenya
Mr Hamish Goldie-Scott	Scott Wilson Kirkpatrick & Co Ltd, U.K.
Mr Ian Heggie	Africa Technical Department, USA
Professor John Howe	IHE Delft, The Netherlands
Ms M. Jennings	Holy Ghost College, Ireland
Mr A.T. Lehobo	Labour Construction Unit, Lesotho
Dr G.P. Metschies	Deutsche Gesellschaft fur Technische, Germany
Mr Werner Meyer	HELVETAS, Nepal
Mr Th. Michels	Stichting Crow, The Netherlands
Engr W.E. Musumba	Ministry of Works, Transport & Communications, Uganda
Mr Robert Petts	Intech Associates, U.K.
Professor T. Rwebangira	University of Dar es Salaam, Tanzania
Mr M. Shone	CTA, ASIST-ASIA, Thailand
Mr David Stiedl	Independent Consultant, U.K.
Mr T. Tessem	ILO/ASIST, Zimbabwe
Mr Alex Tumasi-Boakye	Department of Feeder Roads, Ghana

Charles Walimbwa	Labour Based Contractors, Uganda
Mr John Ward	Khuphuka, South Africa
Mr Ron Watermeyer	Soderlund & Schutte Inc., South Africa
Mr T. Wetteland	AFTES, USA

SECOND MAILING	
Name	**Company Name/Country**
The Director	Central Road Research Institute, India
The Director	Indian Roads Congress, India
Mr B.G. Ariga	Ministry of Public Works & Housing, Kenya
Mr G. Banjo	World Bank, Zimbabwe
Professor Deryke Belshaw	University of East Anglia, U.K.
Mr Wiboon Boonyatharokuk	Asian Institute of Technology, Thailand
Professor Bayou Chane	Addis Ababa University, Ethiopia
Mr Vixay Chansavang	National University of Laos, Laos
Mr Barry Coomber	Zimbabwe Building Contractors Association, Zimbabwe
Mr Geoff Edmonds	IT Transport, U.K.
Ms Priyanthi Fernando	Intermediate Technology, U.K.
Mr Goni Lawan Gana	NIGETIP, Niger Republic
Mr R. Geddes	Scott Wilson, U.K.
Mr P. Goovaerts	UNDP Office, Uzbekistan
Mr S. Hagen	NORAD, Norway
Mr Rubaiyat Nurul Hasan	LGED Bhaban, Bangladesh
Mr Seydou Idani	Alpha Consulting & Training, Burkina Faso
Mr Bruno Illi	Norconsult A.S., Kenya
Mr L. Karlsson	SIDA, Sweden
Mr Immanuel Kimambo	RMI/RTTP, Tanzania
Mr Mike Knowles	Independent Consultant, Australia
Mr M. Koumare	UN Economic Commission for Africa, Ethiopia
Ms Maria Kuiper	ILO/SAMAT, Zimbabwe
Professor R.D. Little	University of Natal, South Africa
Ms Christina Malmberg	The World Bank, USA
Professor R. McCutcheon	University of the Witwatersrand, South Africa
Mr Austin C. Muneku	Zambia Congress of Trade Unions, Zambia
Prof. R Neale	School of the Built Environment, U.K.
Mr George Ofori	National University of Singapore, Singapore

Mr E. Opoku	OPM Construction, Ghana
Mr Nori T. Palarca	IRAP/ILO, Philippines
Mr V.B. Pandit	National Institute of Construction Management and Research, India
Dr Danang Parikesit	Faculty of Civil Engineering, Indonesia
Mr K.P. Pischke	KFW, Germany
Mr John Riverson	The World Bank, USA
Mr J. Runji	Ministry of Works, Transport & Communications, Namibia
Mr D. Sahle	Labour Construction Unit, Lesotho
Mr Quamrul Islam Sidduque	Ministry of Local Government, Rural Development & Cooperatives, Bangladesh
Mr Ornulf Strom	NORAD, Norway
Mr Sven-Ake Svensson	Embassy of Sweden, Cambodia
Mr Moctar Thiam	European Commission, Belgium
Mr Helmut Watzlawick	Independent Consultant, Switzerland
Professor B.K. Yanney	University of Zimbabwe, Zimbabwe

Appendix 2:

Problems and Constraints Affecting Small Scale Construction Enterprises

Labour	
1	Labour must be employed (on books) to bid for work
2	Lack of skilled labour / staff at all levels
3	Labour does often does not receive minimum wages
4	Difficulty in retaining experienced staff
5	Labour laws too stringent on contractor for labour-based work
6	Lack of understanding of employee safety and welfare
7	Lack of management manpower (especially knowledge of risk management)
8	Unskilled foreign workers competing openly for work
9	Skill gap between senior supervisors and artisans
10	Lack of consulting profession
11	Poor wages in public sector
12	Personnel management

Equipment	
1	There is a lack of small plant and equipment
2	The government plant hire system is too centralised
3	There is a lack of equipment for hire
4	Delivery times for equipment are too long
5	Ineffective use of plant, tools and equipment
6	Difficulty in obtaining spare parts / maintenance
7	Lack of equipment support services
8	Transporting materials and equipment

Materials	
1	Short measures in cement bags
2	Lack of local quality
3	Quarry stone is all assigned to government contracts
4	Material suppliers are not informed when large contracts are put out to tender
5	Government controls monopoly on material supplies
6	Large contractors stock pile when supplies are short / inadequate stocks
7	Parastatal monopolies control material imports (don't know what and how much to import)
8	Material suppliers will not offer credit to small scale contractors
9	Inadequate arrangements for purchasing, handling and storage of materials
10	Restricted purchasing power
11	Lack of confidence and trust between contractors and suppliers
12	Delays and shortage of supply
13	Lack of manufacturers of building material
14	Poor quality of local materials
15	Poor materials control on site

Education and Training	
1	Training courses are overprotective and spoon feed contractors
2	Training schemes only improve artisan skill and do not address management skills
3	Central tender boards are inexperienced in construction complexities
4	Lack of contractors' ability to prepare tenders / estimates and bids
5	Lack of retraining of government staff in contract administration
6	Lack of expertise in planning and programming
7	Lack of financial and cost control ability
8	General lack of business skills
9	Lack of training facilities
10	Contractors lack experience in asphalt work
11	Lack of understanding of technical drawings and specifications
12	Unfamiliarity with contract documents and legal aspects / claims
13	Contractor not familiar with labour based work

Contract Procedures	
1	Contract documents are over complex and unsuitable for the work
2	Conflicts of interest: consultants assist contractors and are also members of the tender board (corruption)
3	Unregistered artisans are taking contractors' work
4	Contractors are worried about being blacklisted for claiming their contract rights
5	Contract documents are biased against the contractor
6	Tender results are not published
7	Contractors are awarded work outside their registered areas
8	Low grade contractors' work is being undertaken by high grade contractors
9	Work is unevenly shared between contractors
10	Consultants view legitimate claims as personal litigation
11	Contracts are awarded to companies who bid too low (lowest tender)
12	There is no warning of contract suspension
13	Contracts are awarded to foreign contractors in preference to local
14	Contract documents are not in the local language
15	Level of assets required to bid is too high
16	Cost + fixed fee is used by unscrupulous to print money
17	SSC are unaware of their legal rights
18	Consultants offer work without proper contract documentation
19	Difficulty to become registered/ prequalify
20	Construction contracts are used for maintenance work
21	Long delays in contract award which makes resource planning difficult
22	Cumbersome prequalification procedures
23	Client unwilling to re-negotiate revised deadlines due to unforeseen delays etc.
24	Lack of a strong legal system
25	Incomplete contract documentation

Technical	
1	There is little or no on-site supervision / quality control
2	Contractors are blamed for storm damage
3	There is no system for examination of faults
4	There are insufficient meetings between client, consultant and contractor
5	Work is condemned at a late stage
6	No independent checks on work or arbitration
7	Drawings are supplied late
8	Specifications are vague, over complex and/or impractical (usually foreign codes)
9	Inadequate supervision of sub-contractors
10	Designs are biased towards plant based techniques
11	Lack of information available to maintenance contractors due to lack of overall planning and road registers
12	Lack of information on labour productivity
13	Lack of reliable power supplies
14	Lack of building and design codes
15	Designs are changed by the client during construction

Financial	
1	Long delays in receiving payment
2	Contractors are not paid the interest due on late payments
3	Retention money is withheld when project funds run out
4	Mobilisation fees have been withdrawn / do not exist
5	The payment method needs to be streamlined
6	The cost of perishable materials is not met when the work is suspended
7	The period for payment is 60 days
8	Tax deducted by the client is too high / not paid to the government
9	Tender documents are expensive to obtain
10	Bank finance is difficult to obtain
11	Bank interest charges are very high
12	Difficulty in obtaining performance bonds / guarantees and their cost
13	Bond levels are set unrealistically high
14	Lack of accounting and auditing of local government leads to 'financial irregularities'
15	Level of collateral is very high
16	There is no provision for price fluctuations / poor estimates
17	Extreme lack of capital / Access to working capital
18	Banks will only issue performance bonds once the contract is signed
19	Lack of foreign exchange to purchase and import equipment and materials
20	Payments withheld as a guarantee against poor workmanship
21	Assets offer poor collateral
22	Delays in payments at end of the financial year
23	Size of contract prohibitive to small contractors
24	Very small profit margins
25	Lack of bridging finance
26	Banks consider contracting high risk
27	Bureaucratic bank loan application procedures discourage small contractors
28	The administration costs to banks for small loans is very high
29	Foreign exchange limitations

Other	
1	It is difficult to rise in the grading system
2	There is very little private sector work
3	No work continuity
4	Lack of publicity for small jobs
5	Contractor grading system is open to abuse
6	Tribal loyalties
7	Work is dominated by foreign firms
8	Lack of co-ordination between government departments responsible for construction
9	Contractors still have the Public Works Department mentality to working - the longer it takes the more work there is.
10	Difficulty in reaching the potential market
11	Poor site layout and organisation
12	Inadequate office management
13	Poor credibility throughout the rest of the industry
14	Too many contractors chasing too few jobs
15	Lack of government involvement in small contractor development
16	Lack of unity and representation at national level
17	Unrealistic expectations
18	Political unrest
19	Projects are geographically spread out which requires efficient logistics and communication
20	Management difficulties due to the weak economic and structural base
21	Restrictions on imports
22	Cumbersome customs procedures
23	Inefficient public transport system
24	Lack of appreciation of construction's role in the economy
25	Absence of responsible government department for development of the construction industry
26	Lack of contractors' association
27	Public image
27	Company organisation

References providing information on problems and constraints affecting small scale construction enterprises

Country	Author	Title	Date
Ghana	Miles D & Ward J	Small scale Construction Enterprises in Ghana: Practices, Problems and Needs	1991
Ghana	IHE	Contractor Development Case Study, Post Graduate Course in Labour-Based Road Engineering	1994
India	Dhir M.	Construction and Maintenance of Rural Roads by the Public and Private Sectors	1995
Nepal	Miles D.	The Construction Industry in Nepal: Practices, Problems and Needs	1990
Nigeria	Adams O	Contractor Development in Nigeria: Perceptions of Contractors and Professionals	1997
S&E Africa	Lemunge N	Financial Constraints on Development of small Contractors in South & East Africa	1980
S. Africa	CSIR	Country Position Paper: Southern Africa Construction Industry Initiative	1993
S. Africa	Ward J	From Dependency to Autonomy: An Afro centric approach to small scale contractor development	1995
S. Africa	Miles D, Ward J	Integrating Infrastructure and Small Enterprise Development within Low Income Communities: The Khuphuka concept	1998
Sri Lanka	Edmonds G. & Miles D.	Foundations for Change	1984
Swaziland	CSIR	Country Position Paper: Southern Africa Construction Industry Initiative	1993
Various	Perry J	Appropriate Construction Management	1980
Various	Ganesan S.	Management of Small Construction Firms	1982
Various	ILO	Management Training for the Construction Industry	1983
Various	Abbott P	Technology Transfer in the Construction Industry	1985
Various	Harral C et al	An appraisal of Highway Maintenance by Contract in Developing Countries	1986
Various	Relf C	Guidelines for the Development of Small Scale Construction Enterprises	1987
Various	Kirmani S & Blaxall J	The Construction Industry in Development: A Strategy for Bank Assistance	1988
Various	Garnier	The Administration of Labour Intensive Works done by Contract	1993
Various	Levitsky J	Innovations in the Financing of Small Scale Enterprises in Developing Countries	1993
Various	Miles D (ed)	MART Working paper 1 (Annex 5)	1996
Zambia	Taylor G	Study of Labour based Contracting in Zambia	1996

Appendix 3

Contractor Support Agency Questionnaire

Contractor Support Agency Questionnaire

The aim of this questionnaire is to gauge experts' opinions on the role a Contractor Support Agency (CSA) can play in the development of the indigenous contracting sector in low and middle income countries. It also seeks to clarify and quantify some of the issues raised in MART Working Paper 14 *"A model for a Contractor Support Agency"*. The responses to these questions should represent your own views which will not require you to read the working paper.

1. About yourself

Name *(optional):* _____

Areas that you have worked in *(please tick all that apply)*

Western Africa (inc. Sahel)	❑	Eastern Africa	❑
Southern Africa (exc. South Africa)	❑	South Africa	❑
Former Soviet Union	❑	China	❑
Indian Subcontinent	❑	SE Asia	❑
Central America	❑	South America	❑

2. Small Scale Contractors' Problems

The problems shown in the table below are often cited as reasons for the lack of success of small scale contractors.
In column 1: Rank these problems in order of severity to contractors (1 is the highest)
In column 2: Indicate which of these problems you feel may be addressed through initiatives undertaken by a CSA by placing a tick against appropriate problems

Problems facing SSC	**Column 1** Severity of problem *(rank 1-12)*	**Column 2** Do you think that this problem can be addressed by a CSA ? *(tick applicable problems)*
1. A lack of skilled labour and staff at all levels		❑
2. No work continuity		❑
3. Specifications are vague, over complex and/or impractical (based on foreign codes)		❑
4. Inadequate on-site supervision &/or quality control by the client or engineer		❑
5. Long delays in receiving payment (over 1 month)		❑
6. Tender documents are poorly compiled and difficult to follow		❑
7. Bank finance is difficult to obtain		❑
8. Contractors lack ability to prepare bids and complete tenders		❑
9. Poorly managed or non existent classification, registration or prequalification system		❑
10. Contract documents are over complex and unsuitable for the type of work		❑
11. Other *(specify)*		❑
12. Other *(specify)*		❑

3. Assistance to Small Scale Contractors

The list below suggests possible initiatives that may be undertaken by a Contractor Support Agency. For each initiative give a score between 1 and 10 of how important that initiative is to assist the development of small scale contractors. *(10 = very important, 1 = not important at all)*

Potential initiatives	Importance	Potential initiatives	Importance
Business management training		Legal advice	
Improved payment procedures		Financial advice	
Develop and maintain a registration system		Development of suitable contract documents	
Promotion of the image of small construction enterprises		Operate an equipment hire scheme	
Materials co-operative		Promotion of standard contract procedures	
Technical advice		Direct financial assistance	
Other initiative *(specify)*		Other initiative *(specify)*	

The list below provides a range of initiatives that a Contractor Support Agency could undertake to address the **contract and financial** problems faced by small scale contractors.

In column 1: indicate how useful the initiative would be in assisting small scale contractors *(10 = very useful, 1 = not useful at all)*

In column 2: indicate how 'implementable' the initiative would be *(10 = very easy, 1 = very difficult)*

Initiatives	Column 1 How useful *(score 1-10)*	Column 2 How implementable *(score 1-10)*
1. Registration and Classification scheme		
2. Price Preference scheme		
3. Joint Ventures		
4. Contract packaging of larger contracts		
5. Advocate equitable contracts to eliminate unfair risks		
6. Promote 'transparency' to avoid corruption		
7. Promote schedule of rates for common tasks		
8. Develop contract pricing policies that avoid a BoQ		
9. Develop and promoting simplified contract procedures		
10.Training programmes		
11.Mobilisation Payments		
12.Loan Guarantee schemes		
13.Banking code of Practice		
14.Promote establishment of construction banks		
15.Promote scheduling of public sector spending		
16.Promote streamlining payment procedures		
17.Other (please specify)		
18.Other (please specify)		

4. Timeframe for support

How long would a typical contractor have to receive support from a CSA in order to significantly increase their ability to operate efficiently? What should be the maximum length of time that a contractor could be provided with support? (*Tick the 2 appropriate boxes)*

Standard length of support required to develop contractor		Maximum length of support that should be provided
❑	Up to one year	❑
❑	2 - 3 years	❑
❑	4 - 5 years	❑
❑	More than 5 years	❑
❑	Depends on the type of support offered	❑

How long would the CSA have to be operational in order to significantly increase the capacity of small scale contracting sector to undertake construction projects ? *(Tick the appropriate box)*

up to 5 years	❑	10 - 15 years	❑	Depends on the type of support offered	❑
5 - 10 years	❑	> 15 years	❑		

5. Applicability of a Contractor Support Agency

Which contracting sectors do you feel that a CSA may support ? *(Tick all sectors that apply)*

All sectors	❑	Roads	❑
Building: Industrial	❑	Irrigation	❑
Building: Domestic	❑	Water supply and pipe laying	❑
Other construction sectors (please specify).....	❑		

The tasks and activities that a CSA will be required to perform (outlined in questions 3 above) will vary for different regions, how applicable and successful could the general principles of a CSA be in the following areas at increasing the capacity of small scale contractors to undertake construction contracts?
(Tick all that apply)

Western Africa (inc. Sahel)	❑	Eastern Africa	❑
Southern Africa (exc. South Africa)	❑	South Africa	❑
Former Soviet Union	❑	China	❑
Indian Subcontinent	❑	SE Asia	❑
Central America	❑	South America	❑

6. How should the Contractor Support Agency operate ?

How should the target group of contractors be selected for support from the CSA ?

(tick all that apply)	Comments
All contractors	❑
Contractors who have been recently registered	❑ State maximum length of registration.....
Contractors at the bottom of the table in terms of turnover	❑ State what % of the bottom of *the table*.....
Contractors in the lower classification bands	❑
Contractors who demonstrate potential for growth	❑
Size of paid up contractors capital	❑
Other factor	❑ Please specify.....

Should contractors be required to pay for the services of the CSA?
(Tick all boxes that apply)

Yes full cost of all services	❑	Yes through a registration fee	❑
Yes full cost for direct services	❑	Yes on an ability to pay sliding scale	❑
Yes partial cost of direct services	❑	Yes on a sliding scale based on classification	❑
Yes on a sliding scale	❑	Yes after a specified time period	❑
No All services should be free of charge	❑	Yes after a specified amount of free assistance have been given	❑

On the scale below indicate the proportion of problems facing a small scale contracting business that may be addressed by a CSA. *(0% no problems addressed, 100% all problems addressed)*

0% 25% 50% 75% 100%

This section has been left blank for any other comments you may wish to make

Appendix 4

Institutional Development of Government Agencies

The institutional building process, although a process discrete from developing the private sector, must be carried out in parallel to the development of the contracting procedures and implementation of private sector executed construction work. There may be considered to be seven steps in the institutional building process (Ngubane et al 1997). Each of the stages is a discrete process that must be undertaken in order to achieve the institutional building process. They must also be followed sequentially although it is possible for one stage to start before its predecessor has finished.

The 7 Stages of Institution Building
1. Initial Contact and Research
2. Set up Institution Building Steering Committee
3. Initial Capacity Building
4. Scoping of Project
5. Establish Institutional Structures
6. Secondary Capacity Building
7. Mentorship and Monitoring

The first stage is to discuss the issues and receive support from the senior management in the organisation. If the senior management are not supportive or are only likely to pay lip service to the changes then the development process is unlikely to be successful and the project must be seriously reviewed. Research must then be undertaken within the organisation to analyse its level of resources, and to determine its strengths and weaknesses, the extent of the changes required and level of support that will be needed.

It is essential that the institutional development process is 'owned' by the organisation itself and not imposed by an outside body. An institution building steering committee should be set up which will oversee the institutional building and change process (Lehobo 1998). This committee should be accountable to the organisation's director and be primarily made up of members of the organisation. Facilitators involved in the institutional building process may be included in an advisory role but should not have control of the committee. The initial task of the committee is to plan the institutional process within the organisation which will not include the actual development of the contract management programme. The

committee should then meet regularly to review the change process, highlight where problems occur and initiate solutions to these problems.

The initial capacity building stage is to ensure that all the members of the government agency understand the theories of contract administration and contract procedures. It is not necessary for them at this time to understand their own roles within the system but only to have a general understanding of the process. It is likely that this stage could take a long time especially if the government agency is a large organisation, although the steering committee along with facilitators would be able to move on to the fourth stage before this stage had been completed. The most appropriate method for undertaking the initial capacity building at this stage is likely to be a series of seminars aimed at different levels of staff in the government agency.

The fourth stage of the institution building process is to reconcile the resource requirements of the contract administration project and future requirements for undertaking contract management with the capacity within the government agency. It is essential at this stage that the contract administration implementation project is fully detailed and designed to ensure that the institutional building process is able to provide the necessary capacity for all aspects of the project. This will be the main period in the institutional building process where close links will have to be made with the implementation project. It essential that this process is carried out thoroughly as the additional requirements highlighted may include the need for additional staff in regional offices to manage contracts or an improved communication procedure between the regional and main offices of the government agency.

Following the design and scoping of the contract implementation project it will be necessary to define the institutional structures (organisational and tasks) that will be needed to manage and supervise the contracts which will be let by the agency. These are the roles which will be required for the management of the actual contract administration and not the institution building process which is overseen by the separate committee. It will be necessary to define the different roles that will be undertaken by staff members which will include job descriptions and tasks involved with each contract administration job. When the institutional structure is being determined it may be useful to build on the existing skills of different jobs from the existing structure to define new roles that staff can move into. It will

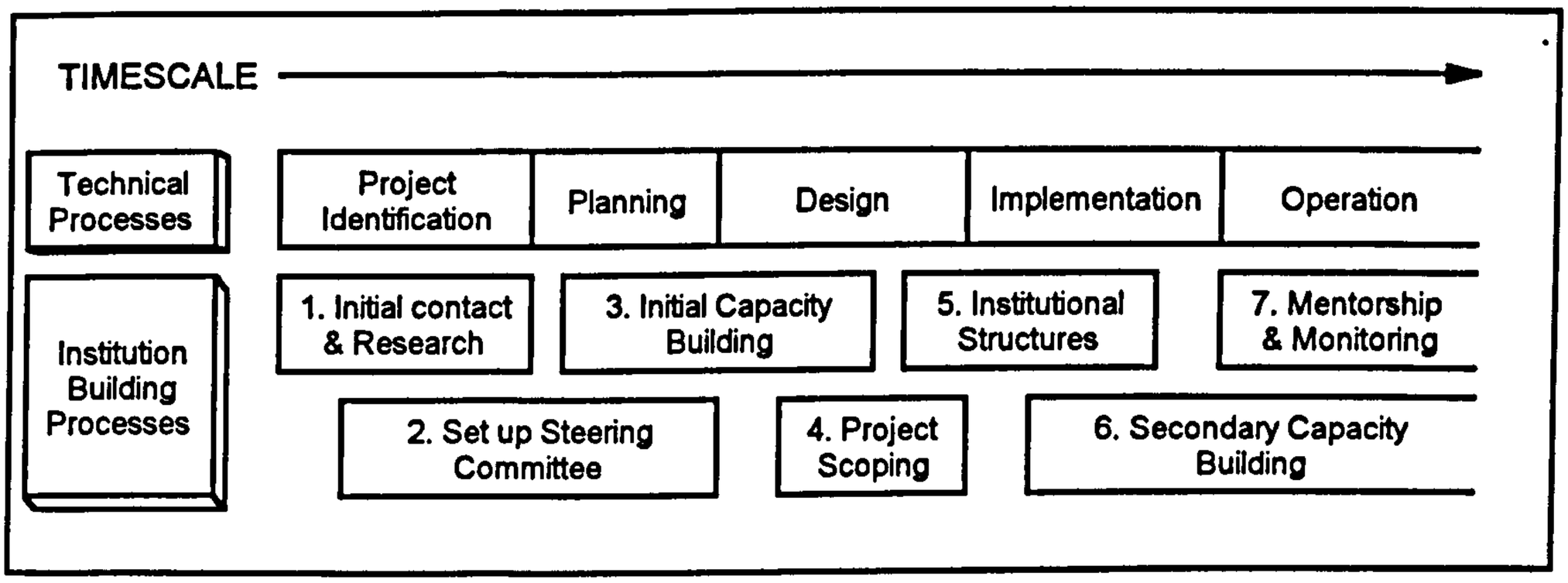
also be necessary at this stage to define the terms of reference for the institution building facilitators who will undertake the training of the staff in their new roles.

Following the defining of the new roles it is then necessary to undertake the secondary capacity building by providing the particular skills which are needed by each member of staff. This will include explaining their new role and teaching the skills that they will need to undertake to complete tasks associated with the role. It is likely that if there is a large number of staff to be retrained this stage will have to be repeated a number of times to increase the capacity within the government agency. It may be possible to start undertaking roadworks using contract documentation and the private sector on a limited scale following the training of an initial group of government agency staff, if training has been carried out for all the new roles in the government agency. Full implementation of contract documentation will not be possible until all the staff have been retrained, which may take many months.

The initial training that can be provided to each individual staff member will be provided over a short time usually through a training course. Stand alone one off short courses are not an effective training system as staff require a further period to adapt to their new role and to practise what they have learnt before they fully understand the tasks involved (Hernes 1988). After the retraining of the initial group of staff this can best be provided through a mentoring programme where staff who have already undertaken their retraining and are more experienced in their new role are able to offer advice and information to staff who have only recently been retrained. Initially it will be necessary for the trainers and facilitators to monitor and support the first batch of staff who are managing contracts allowing them to increase their ability until they are able to work unassisted. There may also be the potential for twinning arrangements to be made between national road agencies to exchange staff and ideas to complement the mentorship stage of institution building. This is likely to be particularly beneficial if staff exchanges take place, since work shadowing and role models are "one of the most effective training methods of adult learners" (Cooper 1984)

The institution building process must always be undertaken in parallel with the implementation of the contract administration project. The diagram below show how the

seven steps described in the institution building process fit chronologically with the implementation stages of the contract administration project.



Source Ngubane et al 1997

Stages 1 to 6 must be completed before the implementation of work undertaken by the private sector, even on a small scale. Stage 6 can continue to be undertaken during the management of the first private sector contracts, building the capacity within the government agency to manage the contracting out of all of its road construction and maintenance work. The final stage of the institution building process, mentorship and monitoring will continue until the government agency and its personnel have settled into their new roles.