

AN EVALUATION OF THE TRAINING OF SMALL-SCALE CONTRACTORS IN
KENYA: A CASE STUDY OF THE NATIONAL CONSTRUCTION CORPORATION.

by

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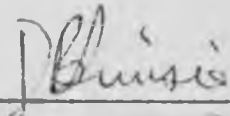
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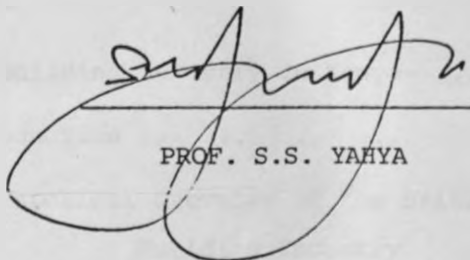
DECLARATION

I, DAVID LUVISIA BAKULI, hereby declare that this thesis is my original work and has not been presented in any other University for any degree.



SIGNED

With the supervision and approval of



PROF. S.S. YAHYA

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ABSTRACT

This study is on the training of indigenous contractors in Kenya by the National Construction Corporation (NCC). The study has reviewed proven curriculum development models normally used in training institutions and tried to use these models in setting up a curriculum for the training of contractors in Kenya's construction industry. The study has found out that there is a clear and chronological process followed, in setting up a training program. This order follows from the determination of the objectives of the course, through the selection of the course content; the method of instruction; to the determination of the manner of evaluating the success or failure of the program.

The study has also found out that the NCC, our case study, which is the organization that undertakes the training of indigenous contractors has ignored the normal procedure of setting up a course for the contractors as outlined above. This has come about because of the inability to state specifically the role to be played by the NCC in its organizational terms of reference. Rather the role is stated in such general terms as "to promote and develop an African based construction industry". This generality of purpose is found to have led the NCC to give its training function less attention than expected.

The study has indicated and stressed the usefulness of giving the training function due emphasis and the importance of involving all

the departments of the NCC in the training function. For this to be achieved, the study has suggested the setting up of a properly staffed and equipped training department.

The study is organized in six chapters. Chapter One introduces the problem area. It looks at the role of the construction industry in the general economy. The structural set up of the construction industry is also shown and the study objectives stated.

Chapter Two of the study gives the profile of the indigenous contractors in Kenya in terms of their origins, educational levels, business problems and business philosophy. Chapter Three reviews the related literature on curriculum development in the general field of educational planning.

In Chapter Four the study presents and analyses the organizational structure of the NCC with a view to finding out how the recommended model of curriculum development in Chapter Three can fit onto the existing structures. This leads us to Chapter Five in which the study has outlined how the data was obtained and analysed.

Finally there is Chapter Six in which there are the overall conclusions and recommendations of the study. Analysis of the responses leads to a conclusion that since in future and even at present we shall have most of the contractors coming from our

institutions that train personnel for the construction industry, the question of efficiency of the contractors needs to be tackled right from the syllabi used in the institutions by introducing subjects such as business management. However, the NCC has a special role to play in organizing a controlled entry of enlightened and committed contractors into the industry.

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CHAPTER ONETHE PROBLEM AND ITS SETTINGINTRODUCTION

In developing countries the construction industry plays a vital role in social welfare and general economic development. As has been pointed out by Hillerbrandt in her book "Economic Theory and the Construction Industry", the importance of the construction industry stems from three of its characteristics, namely; its big size in relation to other sectors of the economy; that it provides predominantly investment goods; and finally that the government is the client for a large part of its work.¹ These three characteristics of the industry have provided a close interrelationship between it and the national economy. This further gives it the importance which merits the concern of any government over what is happening in the industry.

The importance of the industry can be measured in terms of its contribution to the gross domestic product. The gross domestic product is defined as the total value of all the goods and services produced in a country in a particular year.² In Kenya the value added by the construction industry as a percentage share of the gross domestic product is 5 per cent.³ The value added being defined as the difference between the gross output of the sector and the value of intermediate consumption. The intermediate consumption in turn

being defined as the value of goods and services purchased from other economic sectors such as building materials and transportation services that are built into the value of the final product.

Another measure of the level of importance of the construction industry is its contribution to the gross fixed capital formation or a country's national assets. These assets will include facilities such as residential and non-residential buildings; and infrastructure systems for transportation, communications, sanitation, water and power supply. In Kenya, for the period of 1968 to 1977, the construction sector contributed an average of 50 per cent of the total gross fixed capital formation.⁴

Yet again the importance of the construction can be demonstrated by its contribution to total employment in the economy. In Kenya the construction industry contributes 5 per cent of the total employed work force.⁵ Nor are these the only indicators of the importance of the construction industry but further evidence can be adduced by looking at the backward linkages it has with the other industries in the economy, in terms of its intermediate consumption.

Important as the construction industry may be, there are problems that beset it due to its nature. For instance, demand for construction is quite erratic because of the specialized character of the products, the work is seasonal and therefore, the industry becomes susceptible to economic fluctuations. Thus the demand being seasonal and dispersed over a wide geographical area and the sizes and complexity of the products of the construction industry have led

to a wide variety of firms that are engaged in the supply of these products. Demands placed to the firms can vary from, for example, the repair of a leaking roof to construction of a dam. The input resources required will determine the level of the firm to undertake the project.

Most developing countries are geared towards having their economies controlled by indigenous people. This goal of indigenization of the economy can only be achieved if there are clear policies established to be followed. But there are special problems in the construction industry which have hampered the realization of this policy of indigenization. An understanding of these difficulties can be made more explicit by looking at the structure of the construction industry. There are various parties involved in the construction industry. These can be broadly divided into three groups:- the clients who place demand on the industry, and further these clients could be a corporation, individual developer or government; the designers comprising the architect, structural and service engineers, and other consultants such as the quantity surveyor; and the constructors sector which is the supply sector comprising the general contractor, specialist contractors, craftsmen and many others.

The traditional arrangement is such that the architect has been the leader of the groups, that is, it is through the architect that the client presents his needs to the industry, the design

team interprets the needs into a technical solution. Tender documents are prepared and a contractor chosen after bids have been analysed. The contractor has then the role of translating the technical solution into the physical product as required by the client under the supervision of the design team. The client's objective has always been to receive value for his money, that is he should get his product at the right time, of the right quality and within the budget. Realization of this objective has placed increasing demand upon the industry particularly so the suppliers of the products. Realizing this pressure imposed on the industry, the various parties have developed systems that are intended to protect them. For instance the professionals in the industry have formed professional societies such as the Architectural Association of Kenya, the Institution of Civil Engineers and so forth to help stem the pressure from the client. As if that is not enough there have arisen a lot of specialization in the industry. For instance we have engineers dealing with air-conditioning and refrigeration, lift installation, acoustics design and many others. Correspondingly there have emerged also specialist sub-contractors to work under the main contractor. This diversification has stretched the already scarce resources of supervisory and managerial knowledge in the industry to the extent that the main contractor will always be overworked in managing these other firms.⁶

Various approaches have been suggested to provide a solution to this organizational problem in the industry. Alternative approaches such as design-and-build, management contracting and

construction management are among them. Walker (1984) argues that "these approaches have not provided ... a framework for designing organizations to suit the particular project and the conditions in which it is to be executed."⁷ He advocates for a project management system that works across the various groups involved in the construction process. That is, he argues that "the management of a project is concerned with the total design and construction process and requires a consideration of all the interfaces in the total process."⁸ He, for instance, criticizes Peter Morris⁹ for taking a "narrow view of the construction process' by focussing attention solely on the design-construction interface".¹⁰ In his use of project management Walker is using systems theory approach which others such as Morris,¹¹ Handler¹², Napier¹³, and Barton¹⁴ have applied to the construction process. Mbaya (1984) has also extended the systems and contingency theory into the management of the construction process "in order to identify a theoretical organizational framework which can be used to explore the pattern of relationship which exists between the clients, project design team and constructors organizations in a public sector project."¹⁵

The systems concept has been endeared to these reseachers in looking for a conceptual framework for the management of the construction process because of the theory's basic premise that a system is an organized or complex whole; an assemblage or combination of things or parts forming a complex or unitary whole which is greater than the simple sum of the parts. Thus the parts

are interrelated and the system adapts to its environment in achieving its objectives. In the construction industry we have a variety of systems; the client system, the design team system and the contractor system. Since the fundamental concern of the systems theory is the interrelationships of these parts, and the problem of how to make these parts function efficiently is the concern of project management, then these researchers have been justified in the approach of using the systems theory.

But the problems of the construction industries in the developing countries are not solved by evolving an efficient projected management system alone. The industry in these countries is predominantly labour intensive and often attracting a large portion of unskilled and semi-skilled labour. Because of the seasonality of the demand in the industry, this labour force is not retained for very long periods after having acquired the basic skills through apprenticeships. To some extent the developing countries have produced almost enough tradesmen in the industry. For instance in Kenya the shortage of well-educated and trained Africans was recognised right at the time of independence. This recognition led to the government placing emphasis on the expansion of secondary education and teacher and technical training.¹⁶ In a bid to replace the former white and Indian clerks, the people stressed on secondary education through setting up of 'Harambee'* Secondary Schools.

* Harambee is a Swahili word used to mean pulling together of resources. It has since been incorporated in Kenya's National code of arms. People voluntarily donate funds for a public project.

Later, vocational training institutes were established in the 1970s, these were called Colleges of Science and Technology. This was in response to the growing problem of unemployed school leavers. Because of the earlier stress on white collar jobs these school leavers found that the economy could not absorb them straight away. A further development was in setting up of village polytechnics which also produced craftsmen in such trades as carpentry, masonry and plumbing. But all in all the productivity in the construction industry has remained low and this is because of the general lack of properly trained supervisory and managerial manpower.

HYPOTHESIS

It is the general hypothesis of this study that the existing training institutions in the country have failed to assess the need in training of the supply sector of the industry. Furthermore the approach by the contractor development agency, the National Construction Corporation has been inadequate for the requirements of the development of an indigenous construction sector. It is further hypothesized that the success of the use of project management system in a developing country like Kenya will be met only if the participants, in the construction process and especially the contractors, are brought to almost the same level of knowledge as the design team. In trying to elevate the knowledge of these contractors due regard of the educational backgrounds of these contractors will have to be taken into account. The conventional methods of training such as school attendance, lectures and award of certificates might have to be reviewed with a view to reorganizing the procedure.

Study Objectives

The primary objective of this study is to evaluate the training programme carried out by the National Construction Corporation in the development of African contractors. As is characteristic with all evaluation researches, it will attempt to measure the success of the programme against the goals or aims for which the programme was set up. Pursuant to this objective the study will therefore attempt to:-

- i) identify the problems experienced by the National Construction Corporation in training contractors;
- ii) assess the implications of these problems in the light of the government policy of Africanization of the construction industry; and
- iii) finally offer possible alternative approaches to the training of indigenous contractors.

Delimitation

This study is based on an analysis of the training function of the National Construction Corporation of Kenya. NCC is picked as a case study because in Kenya this Corporation was basically established for the purpose of helping in the development of the African contractors. Section 15 of the National Construction Act empowers it to promote the growth of an African based construction industry.

Other ways in which training can be actioned in the industry is through experience on-the-job by the contractors. But the effectiveness of such training is hampered in the construction industry because of the seasonality of projects so that the experience gained wears off during periods of idleness. This problem also makes it difficult to study its impacts, therefore, it was decided to use one case study. Moreover the government as a client of the industry accounts for over 60% of the demand, therefore if these projects are channeled to the Corporation for purposes of training then we can be justified in using it to generalize on the construction industry.

Importance of the Study

We have seen the important role the construction industry plays in the national economy. Most developing countries are dependent, for their development, on aid received from the developed countries. The aid from such countries that goes to the construction project would have bigger impact on economic growth in the recipient countries if the indigenous constructors were used instead of foreign based construction firms. The effort being carried out currently in the training of the indigenous contractors is not meeting the demand as fast as it should. The development of a methodology for designing a curricular plan for such training will help accelerate the desired program of indigenization of the construction industry.

The Study Methodology

This research has two kinds of data: primary data and secondary data. The primary data consists of the responses to the questionnaires that were sent out to the indigenous contractors who have registered with the National Construction Corporation. These included both the contractors who have received the training and those who have not had any training from the National Construction Corporation.

Another source of primary data included informal interviews with the various professionals both in the public and private sectors who deal with indigenous contractors. This helped us get further insights into the problems that are encountered by the indigenous contractors.

The secondary source of data was obtained from the published studies and texts dealing with the theory of curriculum development. The survey method is the one which was used in the obtaining of the data.

Organization of the Study

Chapter Two of this study gives the profile of the indigenous contractors in Kenya in terms of the origins, the qualifications and their business problems and business philosophy. This Chapter is followed by Chapter Three in which we review the related literature on curriculum development in the general field of educational planning.

In Chapter Four we look at the organizational structure of our case study the National Construction Corporation and attempt to find out how the organization lends itself to the use of training concepts outlined in Chapter Three.

Chapter Five outlines the procedure with which the primary data was obtained and also presents an analysis of this data with its results. Finally Chapter Six gives the summary, Conclusions and recommendations.

CHAPTER TWOTHE BUILDING INDUSTRY IN KENYAINTRODUCTION

The Construction Industry can be broadly divided into two parts:- building and civil engineering construction. There are a variety of the types of products in both these sub-industries. The products of the building industry range from single storey housing for direct consumption as shelter, for provision of service such as education, health etc. to factories for production of goods. The civil engineering products are also diverse ranging from simple external works to a building e.g. parking, to complicated dam or airport construction. The products are thus heterogenous in nature. The diversity in nature of the product means that they are made to order with no room for stockpiling. These products are fixed in the location which they are constructed. The client or purchaser of the products of the building industry has limited choice of the products he wants from the industry. That is a hospital cannot be exchanged for a school. Nor can a school be exchanged with another school as they will be in different locations.

The structure of the building industry will constitute the way in which the activity takes place; starting from the decision to build by the client, the development of the brief by the design team to the selection of the contractor and lastly the handing over of the finished product. The organization of the supply of the

building products will therefore be quite different from any other industries. One advantage which the manufacturing industries have over the building industry is that they are able to plan ahead for production. They are also able to determine the price of the product after they have finished design and production thus being able to tell the actual costs of production. Quite contrarily the builder has to state the price before he commences production nor is he in a position to determine the manner of production as the functions of design and production are separated. The supply firms are dispersed all over the country because of the fixed character of the product. The structure of the building industry in Kenya is based upon the British model, it is, therefore necessary here to have a brief look at the development of the industry in Britain and how it came to be exported to Kenya.

An Historical Overview of the British Building Industry

In the thirteenth century, the basis of the production process in the construction industry was the craftsman. The different trades, masonry, carpentry, etc. later became organized into powerful groups which controlled the training of craftsmen, the quality of work, the rates to be charged and so forth. Together with the tradesmen also emerged master craftsmen. The architect was the master mason who, apart from hiring workmen, fixing wages and organizing the general progress of the work, checked on the daily accounts. On very large projects direct labour was employed, and where this was done it was needed to have a man who would be in charge, on

behalf of the architect. This lent support and importance to the clerk of works. At this stage the architect combined the functions of design and production but was mostly employed in this manner by well-to-do clients. He could keep, as a reward, any profits he made on the project.¹

More crafts continued to be formed despite the changes that occurred during the Reformation in England. Later, however, the architect changed his role from that of a highly skilled craftsman to an ingenious designer in his own right. But he did not abandon his other functions so that in the absence of a design job he would do painting, gardening or even sculpture. But essentially he remained a man whose main calling was to design in abstraction.²

In Europe, there was increased demand for building as a result of the increased economic activity in France, during the reign of Henry IV. Another building personality, the entrepreneur, appeared on the scene in the sixteenth century. He himself was not a builder but juxtaposed himself between the client and the tradesmen, to get things done, so to speak. This released the load on the architect immensely and at the time of Louis XIV a brilliant group of architects, including Le Van and Le Brun, were engaged by the King to build for him the Palace of Versailles. The establishment of a new school for architects in France, Ecole des Beau Arts, in the seventeenth century, introduced a new type of architect; there emerged a professional with a diploma. At the same time the civil

Engineer made his appearance. This was a product of the engineering brigade of the army of Louis XIV.³

In England new architectural developments continued to appear on the scene. The Great Fire of London in 1666 created a need for tighter control and created a demand for brick buildings in place of timber framed ones. Hitherto, all contracts were negotiated with no open tendering. At the turn of the eighteenth century not much organization was in the industry. There were complaints of delays. Numerous inquiries were set up from time to time. A new form of tendering was introduced and the need for one principal tradesman to be in charge of the whole contract was stressed. Thus the system started to emerge where one man was to be in control of the production function. This was to be a capitalist employer with a remunerated employee. The brick master was the man better placed to be the capitalist, what with his vast earnings from the lavish design of brick footings, walls, pavings, etc. There emerged the general contractor who gained prominence especially in the nineteenth century which saw an unprecedented increase in building activity in Britain. At times the general contractor combined the functions of design, cost-estimation and production.⁴

The emergence of the general contractor released the architect from the actual business of construction which came to be referred to as 'waste of artistic talent'. This separation was consummated with the granting of a Royal charter to the Institute of British Architects (RIBA) in 1834. The architect became a member of a profession - to be relied upon for advice by the wealthy clients of

the building industry. In a supplementary charter of the RIBA in 1887, no member of the Institute could hold a profit-making position in the building industry. This principle has however been liberalised in Britain. The principle was a safeguard against possible abuse of the interests of his client. At around the same time, in 1872, a London Master Builders Association was formed. As various government departments required pre-contract documentation, the measurer started gaining prominence. The first building to use a complete bill of quantities was that of the Royal Exchange in London in 1842. In 1878, the Royal charter was provided to the Institution of Surveyors who amalgamated with the quantity surveyors in 1922 to enhance their professional status.⁵ Thus alongside the architect emerged other professionals including the already established Engineer. All these professionals forming the design team were separated from the actual process of production, thus they designed in abstraction without the benefit of any real knowledge of production or costs that went into the various alternatives of design. The quantity surveyor's role was that of providing a document, the bill of quantities, that gave a common basis for the evaluation of tenders. His other role was to make any variations and interim valuations for the purpose of facilitating payments to the contractor. Nor did the quantity surveyor know the actual costs of construction, as he only checked the rates inserted by the contractor.⁶

Further complication of the building process was enhanced by the entrance of specialist contractors on the building scene. The specialist contractors arrived especially after the invention of the

safety elevator by E.G. Otis in 1854. With the structural engineer, it was then possible to construct skyscrapers. The specialist subcontractors came in to provide the services to this complex building. Later developments led to the nomination of these specialists by the architect as he commenced his design.

By this time, there was established a hierarchical order of rules, regulations and procedures that governed the relations among the building owner, the professions and the builder. Thus emerged a system of the building industry which was exported to the former British colonies.

The Industry in Kenya

In East Africa the Institute of Architects was founded in 1913. It was a mere branch of the RIBA operating under the rules and regulations of the parent body. In the Colonial Kenya, the Architects and Quantity Surveyors Ordinance was passed in 1934. Most of the professionals were employed by the colonial government. However, during the great depression of the 1930's a good number of these professionals were laid off. Some left the country, others remained to open up offices.⁷

In the early period, the colonial government, the Missionary Societies, the settlers, etc. were their own architects in that they drew up plans, procured materials and organized local labour for the construction of the building.⁸ A number of Africans were trained in basic skills of modern building such as carpentry,

masonry, etc. AT the end of the nineteenth century, there was an unprecedented demand for labour in Kén¹ya that came as a result of the construction of the so-called Uganda railway. Many Indian labour was brought in on contract. Many of these remained on after the contracts. Following them were also skilled and semi-skilled craftsmen, immigrants from India who came in search of higher standards of living in East Africa.

A good number of these Indian immigrants went into trade at the various railway shopping centres but some who were craftsmen set up construction businesses. There was a market for the newly formed 'general contractors' as European settlers and the Indian population grew. As the demand increased, especially after the second World War with the influx of former British soldiers as settlers, the professions started to open up offices in Kenya. Colonial government demand for offices and houses also increased.

There was, however, a lot of building activity that was going on but outside the imported British system. Rural folk erected their houses without recourse to the imported procedure. However, the settlers, the government and other businessmen continued to organise the building activity on the British system. The features of the system were and still are as follows:-

- 1) The client, potential building owner, first chooses an architect, who produces a preliminary spatial plan based upon the amount which his client is prepared to pay. His fee is calculated on a percentage basis.

- ii) Depending upon the scope of the building the services of a structural engineer and other service engineers are sought. Here the engineer is given an already designed form, he merely makes it structurally sound without him being given chance of designing an economic form;
- iii) When the design is completed, it is passed over to the quantity surveyor, who draws up a 'bill of quantities' on the basis of which contractors are invited to tender for the construction of the building.
- iv) The contract for construction is usually awarded to the lowest tenderer, who undertakes to build the building at the stated price; the builder thus carries all the financial risks involved; but he is unable to exercise control over the design and specification of the building or to bring the experience gained on one to bear on another.

Thus the building industry as it is in Kenya today is fashioned on the old British model even when there are significant changes that have taken place in Britain. We are still lagging behind. It was taken over complete as it was, after political independence. Soon after political independence, however, there emerged problems in the

construction industry. The government was not in a position to immediately invest into the industry. The private individuals exclusively non-Africans could not invest in fixed assets as they remained uncertain over the future. There was in fact a slump. In 1967, the political situation in Kenya had stabilised, demand for buildings and civil works revived. A five-year development with an indication of rising demand for the products of the industry was published. There arose a different problem, did the industry have the necessary capacity to meet the increasing demand? Already at this time there were indications that there was not enough capacity as the majority of the foreigners who had left at independence were craftsmen from the industry. Tender prices were rising by almost fifty per cent, an indication of the shortages in the supply side of the industry. An investigation into the costs constraints in the industry in Kenya was carried out.⁹

The study found out that there were no barriers to entry but there were barriers to the successful establishment of African contractors, and to their subsequent expansion. The major difficulties were in the procuring of materials and working capital. They also suffered from lack of technical knowledge and experience in the organization of a building contract.

There was a shortage of craftsmen and skilled supervisory staff. These skills were almost exclusively possessed by the Asian Community that had left the country and there was no system for training Africans in these skills.

It became clear that a policy of training Africans to replace Asians in the industry was needed but required radical policies of overhauling the imperfections created by the restrictions of the adopted system. Such restrictions as those that barred the professionals from engaging in direct construction or having shares in firms manufacturing materials for the industry.

Kenya's Response to the Problem

After realization of the problems in the construction industry the government adopted a policy of 'Africanization'.¹⁰ Toward this end, it was proposed to have a 'training levy' of one-quarter per cent of the contract sum for all contracts exceeding fifty thousand shillings. It was hoped that the levy would work as an incentive for the private contractors to send in their employees to the National Industrial and Vocational Training Centre (NIVTC). But this approach was limited as it concentrated only on craft training leaving out the vital area of supervisory staff training.

In the middle of 1967, another approach to solving the problem was to train African contractors under the auspices of the National Construction Company (later, in 1972, Corporation); which was set up with the help of Norwegian Aid. Unfortunately, however, "the NCC interpreted its terms of reference as simply an extension service to African contractors to enable them 'compete' more effectively with the longer established Asian firms."⁸ To date there are very few African contractors that have been helped successfully by the NCC.

Profile of An African Contractor

It has been suggested that there are five stages that the construction industry goes through as a country develops:-

- "a) Foreign firms do most of the work because they are the only ones with sufficient expertise to handle larger projects;
- b) Local subcontractors develop;
- c) Small, local contractors execute the smaller projects;
- d) Local contractors take over most of local work regardless of magnitude, forming joint ventures with foreign firms as necessary; and
- e) Local contractors go abroad."¹¹

This pattern of development does not hold true for Kenya, for the sector has stagnated at the level where small local contractors execute small projects. Other than doing subcontract work on new works in the private sector, the majority of small-scale African contractors in Kenya do maintenance work for the government. Indeed the government maintenance work is a preserve of indigenous African contractors. These contractors are the ones in the lowest levels of the value code of the register of Approved Contractors which is kept by the Ministry of Works, Housing and Physical Planning (MOWH & PP). Table 2.1 shows the value code of the Register of Approved Contractors. These small-scale contractors will be found in the categories F, G and H. The number of these contractors in these categories is about one thousand five hundred.

TABLE 2.1 APPROVED CONTRACTORS

<u>CATEGORY</u>	<u>VALUE IN K.F.</u>
A	1.5M+
B	1.0M - 1.0M
C	500,000 - 500,000
D	250,000 - 500,000
E	125,000 - 250,000
F	75,000 - 125,000
G	37,500 - 75,000
H	- 37,500

Source: MOWH & PP, Value Code of Approved Contractors.

The size of these firms is largely determined by the frequency and size of jobs that a particular firm gets over the year. Generally, however, the jobs are not steady given the large number of firms in relation to the jobs. It therefore becomes expensive for the contractors to keep permanent employees. They are therefore mostly one-man organizations with "on-call" foremen and supervisors who get paid per project and on completion will sit and wait for the next project. However there are other small-scale contractors who run other businesses such as the hardware shops, these are able to keep a permanent staff that will be engaged in other activities in the absence of a construction job.

Again another definition of an African contractor is that he has very little or no capital to mobilise staff. On government projects, however, the contractor can give a letter of irrevocable

authority to the Ministry, which then pays direct to the creditors on every certificate of payment until the creditor recovers his money.

Another handicap of the African contractors is lack of plant or machinery. Even on maintenance jobs which do not require plant, the contractors are found to lack such equipment as ladders, and wheelbarrows.

Backgrounds of African Contractors

There are various routes through which the African contractors enter the construction industry. These routes can be broadly divided into two: i) From within the industry; and ii) Businessmen, from without the industry.¹²

Among those who enter into the construction from the industry are former foremen. Such people start off as tradesmen, after some time, they rise to the level of site or general foremen and ultimately decide to go it alone. There are others who will branch off at the tradesman level. Whereas such contractors are competent technically, they will often lack knowledge of legal aspects of the business and general business management. There are others who may just opt to be labour only sub-contractors especially on large civil works. In due time they expand vertically to become general contractors.

Also from within the industry are the various professionals allied with the construction industry such as engineers, clerks of work and quantity surveyors. Some of these will have gained experience as employees of a large contracting company. Such contractors will have both practical experience, theoretical educational background and a knowledge of management responsibility. Their success, however, will depend on the ability to get good and competent foremen. These types of contractors are scarce as they are secure in their jobs. There are others who are professionals working for the Ministry of Works and normally act as sub-contractors to the contracts they supervise. This is normally a private arrangement between them and the main contractor. Because of the security of their job, they are not inclined to take up full-time contracting business until they either retire or are dismissed. However, they will normally be successful but will need capital and also competent foremen to run the business efficiently.

The second route followed by contractors is the Business or Commercial route.¹³ This will comprise of businessmen of various types either as transporters, hardware dealers or distributors of various building materials. Having established themselves in the lines of business, they diversify by engaging in construction. They may be quite successful in the other lines of business but will find a big challenge in the construction business as the environment and nature of business becomes quite difficult. They will however, be restricted in the scope of their work in terms of geographical area, as they will not operate too far from home in order to have personal control on both the businesses. They will

however have sound business management, the type that will have helped them succeed in their other businesses but will be lacking in technical knowledge of construction business, legal aspects and general management as appertains to construction business. Those who find competent and honest foremen are apt to succeed. Apart from the Value Code Register the Ministry of Works Housing and Physical Planning also categorises the contractors in terms of races. We have three categories of:- African, other citizens and non-citizen. The numbers are as shown in Table 2.2. From the table we find that 79.8 per cent are African contractors. Of the total contractors, 65.9% are African contractors falling in the lowest three value categories of F to H., that is they cannot handle projects beyond 2.5M shillings. This constitutes 82.6 per cent of the entire population of African contractors. Whereas, 68.2 per cent of the other citizen and non-citizen population of contractors fall between category A and E. Of the total population of contractors in these categories, they constitute 49.8 per cent.

TABLE 2.2 BUILDINGS CONTRACTORS

CATEGORY	AFRICAN			OTHER CITIZEN			NON-CITIZEN		
	ALL PROVINCES (1)	NAIROBI (2)	OTHER PROVINCES (3)	(1)	(2)	(3)	(1)	(2)	(3)
A	7	0	0	20	0	5	49	2	3
B	3	0	0	13	0	8	24	1	8
C	15	1	11	12	0	3	20	2	17
D	45	1	35	11	1	17	21	1	17
E	92	10	96	8	1	10	17	4	18
F	143	20	156	5	0	11	26	2	9
G	145	31	158	3	0	12	18	1	9
H	264	101	480	3	1	12	17	0	17
TOTAL	714	164	936	75	3	78	192	13	98
	1,814			156			303		

Source: Register of Contractors NOWH & PP (1983)

We can go further and have a look at the disparity or poor performance of the African contractors by analysing the distribution by value of the number of new construction projects awarded in any given year. Table 2.3 shows the distribution of contracts awarded by the Ministry of Works Housing and Physical Planning between January and August in 1985.

TABLE 2.3 DISTRIBUTION OF NEW CONSTRUCTION PROJECTS

	AFRICAN	OTHER CITIZEN	NON-CITIZEN
	22	2	16
TOTAL VALUE OF CONTRACTS (KSHS.)	333,744,002/10	28,944,628/80	400,209,001/80
VALUE PER CONTRACT (AVERAGE) (KSHS.)	15,179,181/09	14,472,314/=	25,013,062/=

Source: MOWH & PP Contracts award cards - 1985 - /32

On the face of it, the African Contractors seem to be doing well as the averages show. But a further analysis of the distribution of these projects reveals anomalies. For instance, of the total value of contracts handled by the African contractors, five contracts of total value of Kshs.282,129,000/95 were awarded to one contractor. These five contracts accounted for more than 75 per cent of the total

value of all jobs handled by the indigenous contractors. So if these five jobs are taken away then the average value per contractor is Kshs.3,032,488/=. It therefore follows that although the indigenous contractors are numerous, they handle jobs of little value. It was also found out that, on those projects that were handled by indigenous contractors, the values of the contracts were below that in which the indigenous contractor was registered. Thus the work was such that it could not afford a contractor to meet new challenges. Despite the above anomaly in the award of contracts by the government, we still contend that the problems of failure to complete the projects on time, especially those handled by indigenous contractors, might have influenced the decision to award the contracts to non-citizen and other citizen contractors. Complaints have been voiced by politicians time and again. An editorial of a local daily, lamented the instances of delayed projects, unsatisfactory work or abandoned projects. It recommended for legal measures to be taken against the erring parties and did not even spare the professionals who supervise the projects for being "either deliberately negligent, irresponsible and ignorant of their duties"¹⁴ by certifying as complete sub-standard work. The same editorial acknowledged that the indigenous contractors were beset with problems of insufficient educational skills, lack of access to capital and equipment, and also being squeezed out of the field by unscrupulous dealings and favouritism of the bigger operators. Nor are the contractors' relations with their employees anything to help in boosting their morale, for there are cases of contractors failing to pay their employees for over six months.¹⁵ ¹⁶ Apart from the politicians even 'wananchi' have been critical of the way the local

contractors perform as one reader of a local daily lamented:- "it is strange and ironic that our shelters should turn to be calamitous. In my estimation, haste has been the prime shortcoming in erecting such buildings". Signed "Worried, Maseno".¹⁷ This reader was alarmed at the high rate of cases of wind-blown roofs from educational buildings all over the republic. Talking to a seminar organized for the staff of the National Construction Corporation, the Permanent Secretary to the Ministry of Works Housing and Physical Planning lamented that some contractors who had been financed by NCC diverted it to other activities. He stated that the government would give finance to the NCC for its "basic functions which included manpower training and development for the local construction industry."¹⁸ Nor has the NCC itself been without problems, as it has been bedevilled with management crises. In a memo to the Minister of Works Housing and Physical Planning, the General Manager of NCC stated that NCC was owing Kshs. 14 m. to several creditors the majority of whom were material suppliers. Some of the causes were the over-issuing of LPOs (Local Purchase Orders) to contractors, weak capital base and management problems.¹⁹ In this kind of situation the hardest hit were contractors as they could not get credit facilities from the financial institutions and materials merchants since their guarantor, the NCC could not meet with their liabilities on time.

The plight of the African Contractors has received government concern and attention. Various solutions have been suggested. For instance the Minister for Works Housing and Physical Planning while

closing a seminar organized for African Contractors by MOC in Myerl in 1985 attributed the failure by the contractors to complete projects on time to poor tendering techniques and promised that the indigenous contractors would be promoted to enable them to make effective contribution to the National economy by making contracts of worth up to 12 million, a preserve of African Contractors.²⁰ The MOWH & PP operates a tender bias for African Contractors on domestically funded projects as shown in Table 2.4.

TABLE 2.4

TENDER BIAS

CONTRACT VALUE (K.SHS.)	TENDER BIAS
Up to 50M	5%
5 - 20M	2.5%
20 - 50M	1%

Source: MOWH & PP.

The bias is operated such that a competitive tender estimated to be below Kshs.5M, any African contractor within 5 per cent of the estimated contract value will be awarded the project despite there being a non-African contractor with a lower bid. This operation acknowledges the fact that due to availability of credit facilities to non-African contractors and better efficiency, they are in a better

position to undercut the African contractors hence push them out of business. However, tenders that are ridiculously low will not be accepted while using the bias. This bias if not properly operated can defeat the very purpose it is intended to serve by creating a complacency on the part of contractors as it will be like spoon-feeding them.

A major step which was taken by the Kenya government was the setting up of a contractor development agency, the National Construction Corporation (NCC). The Corporation has been in operation since 1967, a period of 19 years but still the performance of the African contractors is lamentable. This dismal performance by the indigenous contractors raises various questions. What indeed are the problems they face? What is the nature of the help that has been given out by NCC to alleviate these problems? Has this help been rightly channeled to the deserving contractors? And what are the contractor reactions to this help offered.

These and many other questions raise different problems that will need different approaches. But here we shall focus on the provision of construction management training to African contractors by the NCC. In narrowing down to management training it has been acknowledged that the world is faced with scarcity of resources for economic development. This problem is even worse in the developing countries of which Kenya is one. But we in the third world are blessed to have an abundant resource in the form of manpower.

The problem we have, however, is that this manpower is not trained to manage efficiently the scarce resources we have. In training our contractors we shall be investing in a human capital good that will not become obsolete in a short time. It is with this in mind that we have isolated the training function of NCC for study, for a knowledgeable contractor will know how to run efficiently his firm and therefore we shall not have problems of lack of finance, poor project planning and the like. But first we shall look at the theory of curriculum development, in an attempt to understand the mechanism of educational planning, in the next chapter. This will help us in identifying the methodology of course design, trainee selection, the training process and manner of evaluating our success or failure.

CHAPTER THREETOWARDS A CURRICULUM DEVELOPMENT MODELTraining in the Construction Industry

There are a variety of personnel engaged in any construction process. These people range from school leavers working as unskilled labourers to University graduates who enter into the various professions of quantity surveying, architecture and engineering. In between these two extremes there are a number of institutions that train personnel specifically for the industry. We have vocational centres like the village polytechnics (Craft Training Centres) which basically cater for primary school dropouts although of late as the number of secondary school leavers increases these institutions are also absorbing them. The courses offered in these institutions include plumbing, masonry, carpentry, tailoring and leather-work. At a higher level we have the colleges of science and technology which have been established on a self-help basis in almost every district. These colleges offer similar courses as those offered by village polytechnics but in much more depth in such subjects as building technology, sewerage treatment, masonry and plumbing. At a similar level but run by the government we have national polytechnics which offer advanced courses in Building and Civil Engineering. These are the Kenya Polytechnic, Jomo Kenyatta College of Agriculture and Technology, Mombasa Polytechnic, Kitale Polytechnic and Eldoret Polytechnic. Graduates of these institutions, therefore, will enter the construction industry with a fairly good knowledge of its operation.

Quite often, however, the construction industry employs workers straight from school who have little knowledge of construction technology. These employees normally start as labourers and later on as apprentices on various trades. The National Industrial and Vocational Training Centre (NIVTC) has facilities for training such employees. A training levy of one quarter per cent on all projects worth over fifty thousand shillings is paid by the contractor. The contractor can then send his employees for training at NIVTC and will have his costs of training re-imbursed at the end of the fiscal year. The contributors to this levy are not limited to sending their employees to NIVTC but are free to send them to any approved training institutes in the country and train in whatever trade and at whatever level of skill. All the above institutions mentioned produce various tradesmen and technicians for the industry. There is in fact a lot of duplicity by these institutions in the types of courses offered.

The professionals for the construction industry are trained in the College of Architecture and Engineering at the University of Nairobi. From here we get engineers of various disciplines such as structural, civil, electrical, mechanical and so forth; architects and quantity surveyors. Hitherto, the curricula of these professions have not included courses in Management. It is only of late that a course on general principles of Management has been introduced for the land and building economists.¹ Another recent development is the introduction of a masters course in Building Management in the Department of Land Development. Although under the same college

these professionals are in different departments, there is no time when they are together in class or an attempt made to relate the work of one profession to the other. It is only after joining the industry that these three professionals; Architect, Engineer and Quantity Surveyor work together. And often only coming into contact once in a while during site meetings. The professionals are supposed to work together as the design team. It is at the design stage that major decisions, regarding the type and therefore the manner of construction, are made. Without each member of the design team knowing the role of his colleagues, there can arise suspicions when new ideas are introduced. These suspicions can be eradicated by starting right at the colleges where the various professionals will share ideas in common subjects and come to appreciate the important role of each other in the industry.

As we saw earlier on in Chapter One, management constitutes the most important resource that the construction industry will need. The importance is appreciated when we consider that there are a lot of unskilled and semi-skilled labourers to be directed and controlled to achieve the final product. As long as the demand for construction projects will remain seasonal, the demand for casual labour will always be with us. To this end management remains the most indivisible resource a contractor will have. Most of the institutions that are training personnel for the industry have assumed that there are no problems with the management personnel, and therefore have concentrated on producing tradesmen only. This is reflected in the

contents of the various curricula which do not offer any course in Management. To bridge this gap created, the industry has filled the posts of foremen, supervisors and site manager by promoting long-serving tradesmen to these positions.

Modern day problems, that have arisen due to the general awareness of the workers through literary programmes, cannot be adequately tackled by managers who rely on experience alone to guide them. For proper management of a business one needs to have good theoretical background that will be supplemented by the job experience to handle the problems posed. In Kenya, there are various institutions that carry out training courses for small businessmen in matters related to business organization. These institutions include Industrial Commercial Development Corporation (ICDC), Kenya Industrial Estates (KIE) and Rural Industrial Development Centres (RIDC) all under the auspices of the Ministry of Commerce and Industry; and the National Construction Corporation (NCC) under the Ministry of Works Housing and Physical Planning (M.O.W.H. & P.P).

The work of these various training centres has received close attention from researchers and governmental working parties. For example the Working Party on Small Business Development of 1972² recommended the establishment of small advisory centres in every district. Having looked at the poor attendance of the businessmen at classroom lectures and seminars, they recommended that these methods of training were not the best techniques for the intended audience.

The working party further went on to envisage training at three possible levels:- First an extension service manned by business analysts. This would enable the individuals to have personal contact with the individual businessman's problems. Secondly they also recommended that it could be necessary to offer training at a local level, that is utilizing such centres as Village Polytechnics and Rural Industrial Development Centres. Thirdly, they recommended courses that could combine skill upgrading with more advanced business techniques, such courses were being offered by the Kenya Industrial Training Institute (KITI) based in Nakuru. These recommendations are useful to our study because in trying to design a training course for the contractors we shall need to draw from the past experiences of other similar training institutions.

In our approach to the training of contractors we shall have to establish the need for certain courses and to what extent does the present supply of contractors meet the demand. The difference between the supply and the demand will be the shortfall. But it is not easy to establish the capacity of the industry, as Rado and Wells³ found out when they studied the cost constraints in the construction industry in Kenya. Whereas we advocate the training of businessmen, it should be noted that this approach has been criticised by others, for instance Morris and Somerset (1971) argue that "The essential quality of an entrepreneurial creativeness, probably cannot be taught, at least to adults whose habits of mind are formed."⁴

They advocate for training in skills such as book-keeping, management techniques, and trades. And further recommend for training in relationships of businessmen and their employees; and businessmen and their financiers. However this criticism is not adverse for it is a question of means rather than the end. There is no question of lack of entrepreneurial ability amongst our businessmen, the contractors, for they have already identified a gap in certain services in the construction industry so they have taken up the responsibility of providing this service. As the same authors have argued that entrepreneurship need not be inventive but it is out to turn invention into profit without necessarily originating it.⁵ Therefore, our training will not be concerned with the teaching of entrepreneurship but helping them appreciate the various ways they can solve problems in their daily business life and pointing out the new trends in business organization.

Curriculum Development

The word curriculum was used by the Romans to refer to a track followed by horses on a racecourse.⁶ The word has later come to be identified with a course of study followed at any given school as defined in the shorter English Dictionary. The latter use of the word has arisen due to the concern of educational theorists who have assumed that education is concerned with the transmission of knowledge from one generation to the next. This process can be accomplished by systemising the courses to be learnt by the students. Curriculum development in this context therefore, entails "the

planning of learning opportunities intended to bring about certain desired changes (in students), and the assessment of the extent to which these changes have taken place".⁷ Contemporary concepts on curriculum take it as a set of learning experiences that are offered to the learner by both people and materials.⁸ Currently there are three popular theories on curriculum: one is described as 'learner-centred' another as 'subject-centred' and the third as 'society-centred' that is education is justified in terms of the supposed needs of society.⁹

Those who have stressed on the use of the subject centred model have had one view of education as the transmission of knowledge from one generation to the next. They have thus failed to realise that there are other pursuits of education apart from knowledge. This view has persisted since between the fifth and seventh centuries BC and became possible after the invention of the alphabet by the Ancient Greeks. This allowed each generation to leave a legacy of written knowledge with all its accuracies and inaccuracies intact.¹⁰ The subject based view differs from the other theories in that it concerns itself with absolute truth. But this view has been criticised in that it regards knowledge as a dead matter. Further it is argued that it can be equated to saying that we climb Everest because it is there.

The society-centred theory contends that a curriculum must be planned according to the changing nature of the society. For instance in this type of curriculum it may be decided that what a country needs

are more scientists and fewer graduates in liberal arts. So courses are then designed with due emphasis on the sciences to try to influence the choices of the learners right from the primary school level. This view is criticized on the basis that it is authoritarian because society is a collection of individual members, so who is justified in deciding that society needs more technologists and not historians? And that it is odd to say that the society needs something more than the needs of the individual.

The proponents of the learner-centred theory argue that the learner be allowed to follow his/her own interest. This view originated as a reaction against the inhumanity and authoritarianism in schools of the nineteenth century that stressed the subject-matter that were to be passed from one generation to the next. If we follow this kind of curriculum then we shall require the teacher to acquaint himself with the needs of each individual learner and provide him/her with a curriculum content that will guarantee interest, relevance and choice together with active discovery methods of learning.¹¹

But none of the above theories on its own can be a complete justification for a curriculum. Diverse as the above theories may be, there are two salient features common to all: one that the education has a purpose in terms of goals to be attained at the end of the experiences by the learner, secondly, in order to be able to tell the success or failure of our process we should be able to measure the goals.

Curriculum Planning

In the field of curriculum development there are two models that are commonly used in curriculum planning. One is known as the Objectives Model and the other the Process Model of curriculum development.

The Objective Model is said to have originated in the United States of America in 1918¹² and later developed further during the 1940's. For instance Tyler (1949)¹³ gives four questions that ought to be answered in developing any curriculum plan of instruction. First, what educational purpose should the (Institution) seek to attain?, Secondly, what educational experiences can be provided that are likely to attain the set purposes? Third, how can these educational experiences be effectively organized? And the fourth question is How can we determine whether these purposes are being attained. We can think of a simple input output model as shown in Figure 3-1.

FIGURE 3.1: A GENERAL INPUT-OUTPUT MODEL

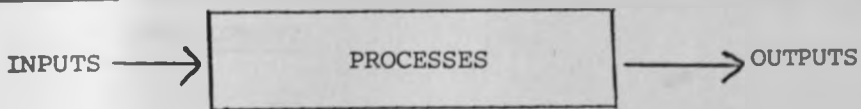


Figure 3 - 1

In this general model the learners with a certain set of skills, for our case contractors, may be considered to be inputs and the training programmes carried out by the National Construction Corporation may be considered to be the processes that lead students to acquire a new set

of skills or capabilities, being our objectives set out initially. The planning process as postulated by Tyler can lead to a linear model as in Figure 3.2. This linear sequence of events has been

LINEAR CURRICULUM PLAN MODEL

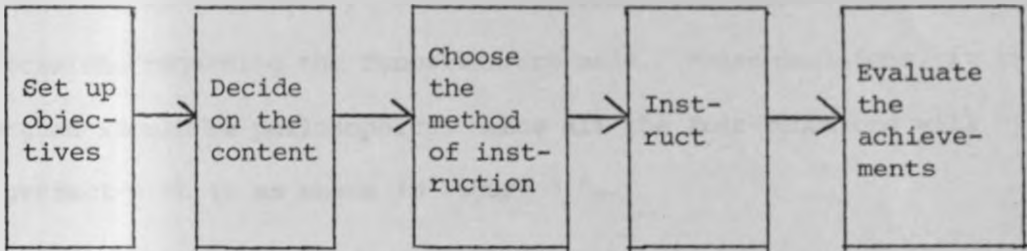
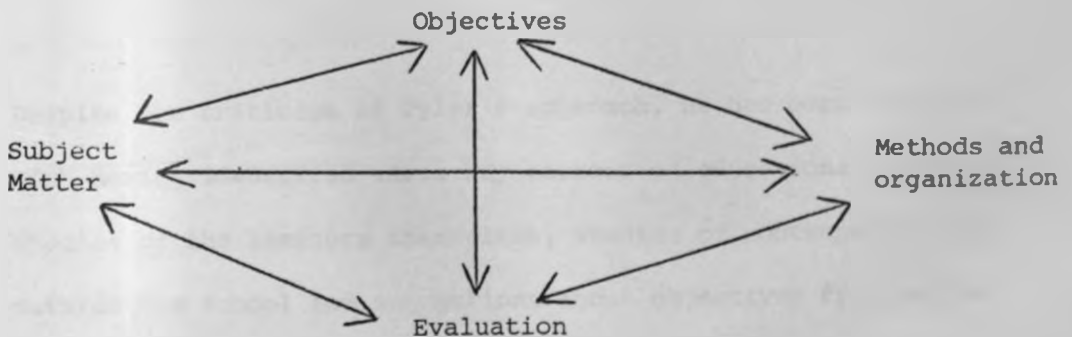


Figure 3.2

criticised that it is faulty because it fails to show the necessary inter-dependence between the aims, that should derive from the existing situation, and the other functions in curriculum development.¹⁴ Consequently further attempts were made to try and have the steps interrelated. A new model for curriculum development was presented by Giles, McCutchen and Zachiel as shown in Figure 3.3.

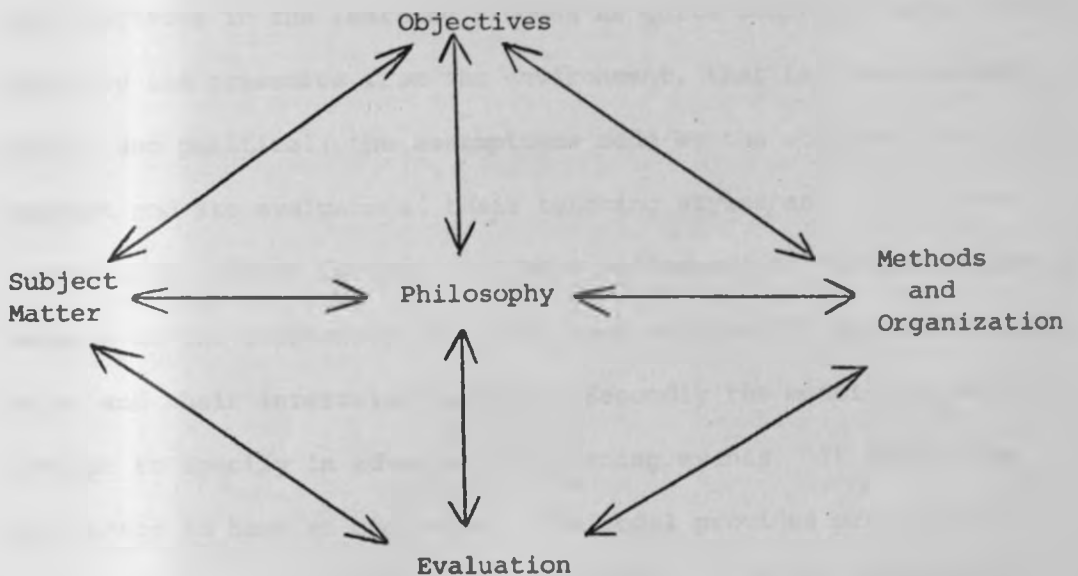
FIGURE 3.3 INTER-RELATIONSHIP OF PROBLEM AREAS IN CURRICULUM DEVELOPMENT



Source: H.H. Giles, S.P. McCutchen and A.N. Zachiel, Exploring the Curriculum (N.Y: Harper and Row Public. 1942), p.2.

The objectives do derive from the changes in curricular content. Methods of teaching and organization of subject matter become necessary in attempting to deal with the situation effectively. It was later found that although the above model shows the four functions as intended, it does not indicate the bases from which decisions regarding the functions are made. These decisions, it is argued should be philosophical hence all the four functions will interact with it as shown in Figure 3.5.

FIGURE 3.4: INTER-RELATIONSHIP OF PROBLEM AREAS IN CURRICULUM DEVELOPMENT



Despite the criticism of Tyler's approach, he has been credited with having identified three key sources of educational objectives: Studies of the learners themselves, studies of contemporary life outside the school and suggestions about objectives from subject

specialists.¹⁵ Thus the objective model offers a systematic analysis of the teaching-learning process and defines the interacting functions. The model has a property of making objectives essential to its evaluation. We must first have the objectives and these are evaluated as the process is carried out. The evaluation providing feedback necessary for the continued improvement of the process by a restatement of the objectives and a re-design of new methods of instructions.

The process model is a much more recent one having been articulated as recently as 1975 by Stenhouse.¹⁶ The process model views the functions in the learning process as quite complex. Being complicated by the pressures from the environment, that is, the economic, social and political; the assumptions made by the staff on the subject content and its evaluation; their teaching styles; and the learner perceptions. These factors will have influences on the curriculum and because of the complexity it is not easy to identify the constituent parts and their interrelationships. Secondly the model does not attempt to specify in advance the learning events. It leaves the instructor to have an open mind. The model provides principles of procedure which are to be used as criteria in selecting worthwhile learning activities.¹⁷ In advocating for the process model, Stenhouse argues that the proponents of the objectives model have been those who are concerned with curriculum evaluation and not with curriculum design.

This incursion we have had, into the theories of education and the planning models, is to help us establish the basis upon which our curriculum for contractors will be founded. For instance before the National Construction Corporation decides on the course content, it has to establish the learner characteristics. In the construction sector we have a diversity of contractors whose educational backgrounds are as varied as the individuals. This diversity will also be reflected in the training needs of the learners. This approach of ascertaining the learners needs is equivalent to the learner-centred approach. But this does not mean that this is the only way the training can be approached. It will definitely be a fusion of all the three approaches to training. The consideration which has to be taken here is that our learners, the contractors, have acquired certain attitudes and ways of going about their business, any useful training has therefore to start from this premise with a view to deepening the personal experiences of the learners. In this case therefore the trainer will play the role of merely availing the necessary experiences that the learner will need. He is in fact a guide who just helps the learner redefine his method of achieving the end. Here again we see that one cannot recommend the use of either the objective model or the process model alone. Both models will be blended together. For example, in the training institution, we have to set up the objectives to be attained by the various courses. But as the implementation process sets in, the objectives can be corrected to suit the current environmental constraints. Thus the trainer will be reexamining his curriculum regularly and if the objectives set out to be achieved

before, become unattainable in the circumstances then he readjusts them. So that at this stage the process model will be in action. The trainer here will be constantly working as a curriculum planner all the time.

We should understand that as often happens in any learning field, there are other goals which will be attained although they were not initially planned for. For example, in bringing together adult contractors from various regions, we might open them to better knowledge and understanding of the other communities they come into contact with. Here we will have solved a tribal problem which might even make some contractors aim at undertaking contracts in other geographical areas in the country.

Training Methods

Having decided on the training content the next step in our sequence will be the design of the training methods. Due regard has to be paid to the fact that construction is a business and not a profession. To this end, therefore, we cannot insist on certain ethical standards. We need to devise a method of instruction that is flexible and serves the purpose of passing over the intended message to the entrepreneurs in the business. As stated earlier on, the composition of the entrepreneurs in the construction business range from tradesmen, Professionals, Technicians to Business-men in other fields - all with different levels of basic training or education.

This diversity in educational standards makes it difficult for any training institution to set up a syllabised program of training. However there are methods that can be adopted and used with some degree of success.

One method of training is through open lectures. In this type of training, the contractors will be invited to seminars or short courses to expose them to certain problems, for example contract management; rights and obligations of a contractor; book-keeping and so forth. In these types of seminars the idea is mainly to alert the contractors on the various aspects of the business of construction. Should the contractor face actual problems in future then he should seek further detailed assistance. To help overcome this problem, the training personnel ought to make a follow up on the contractors and give the necessary guidance.

Field training is another method of training. This method is more effective as knowledge and techniques are demonstrated there and then as the problems arise. The contractor benefits by learning from the demonstration by the trainers. This method of training will require that the training staff be stationed on site for the entire duration of the project. There is a shortcoming with this mode of training in the sense that, the trainers might take over the running of the site in their obsession to see the proper completion of the project. This will deny the contractor a chance of actual practical learning. Again the man to gain from the training will be the one

on site, hence it will most often benefit the foreman only. Where there are a large number of contractors to be trained, it will require the deployment of a large number of training personnel.

The third form of training is through management service. In this form of training, an agency such as the Kenya Institute of Management will attach its technically qualified personnel directly to a contractor to work with the contractor in his establishment or project. The officer acts as an employee of the contractor. However he is fully responsible to the agency on the performance of the contractor on the respective project. During this period of attachment, the contractor is supposed to learn from the officer as he executes the work. The officer works fully with the contractor and interacts every day with the contractor's staff. Again here there is a slight problem with this methodology as it presupposes that the contractor is of such a calibre that he is able to "unfreeze" his old ways of managing the business by learning new methods. The method can only be effective if a careful selection of the type of contractor to be trained is done.

Methods of Evaluation

A curriculum plan is not complete unless there is incorporated into it the method of evaluation. Evaluation, as defined in a Dictionary of Reading and related terms,

"is an attempt to understand a process that is sometimes guided by pre-set objectives but at other times involves other objectives added during the evaluation process".

It is further defined as:

"the process of testing, appraising, and judging achievement, growth, product, process or changes in these, frequently using formal and informal techniques".¹⁷

The evaluation process thus will attempt, through interviews, observation, test scores etc. to determine to which extent a programme is meeting its objectives. In curriculum development it will entail the ascertainment of the achievement of the set objectives of the various courses.

In so far as the programme we set out will attain side goals in addition to the major initial objectives, there is no single evaluation procedure that can be used universally. Each programme will require a different method of evaluation in accordance with the intended outcomes of the programme. One of the methods used is the goal attainment model.¹⁸ In this model the evaluation will centre on the intended consequences of the program, that is, the official goals and the processes of the program that are considered to be highly influential in determining the extent to which the goals are achieved. The model has no room for any other side benefits that may be realised as the official goals are pursued. For instance in

our quest of training contractors in construction management, besides the main objective of having better managed construction firms, we might witness an increase in demand for reading material as the businessmen become more literate. This rise in literacy rates might have an effect on the circulation of the local daily papers. But in our evaluation our only concern will be in the reduction of bankruptcies in the construction firms as a result of the management courses we are carrying out.

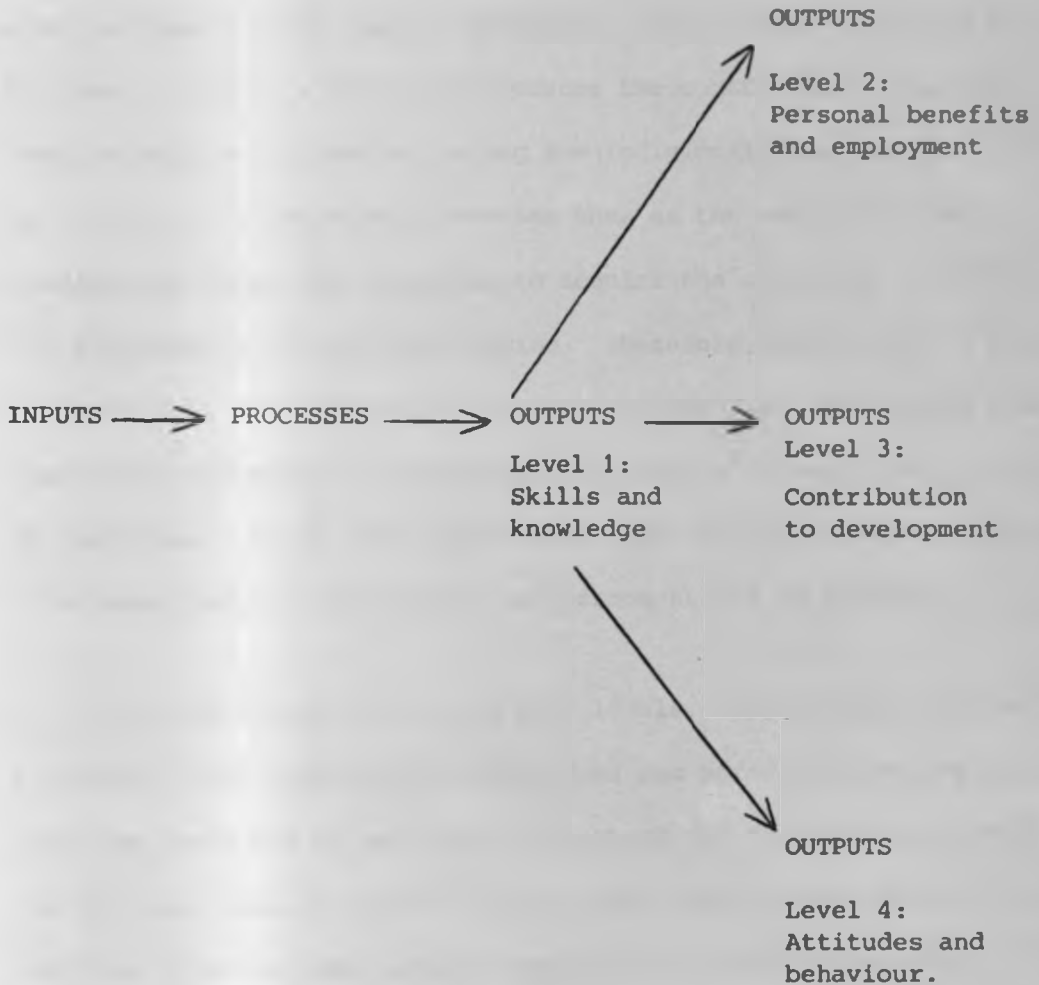
There is on the other hand the systems model¹⁹ which considers the fact that programs pursue other activities besides those related to the attainment of official goals; and that there is frequently competition among official goals for scarce resources. Some of these activities centre around maintaining the system and may or may not be related to official goal attainment. The Systems Model is further sub-divided into a closed and open system. A closed system, unlike the open one, assumes that a program exists as an entity and is relatively impervious to the outside influence. This does not hold true for the case of the National Construction Corporation. There are for example political pressures, which will want NCC to train contractors from all the regions of the country. At the same time in its allocation of funds for training it has to match with the provision of other services such as giving of loans to contractors.

It should, however, be noted that the method to be used will be determined by the evaluation problem. If, for example, our intention is to find out the extent to which our program is achieving

the clearly laid down objectives, then a goal attainment model will suffice. But most programs are embarked upon without much thought being put to the problem of evaluation. Our training program for contractors in Kenya falls under this category. No specific goals were set up when the National Construction Corporation was established. We are now faced with designing an impartial and proper system of evaluation long after the program is in operation. If we decide to set up objectives for the program now, we will fall into the problem of deciding upon objectives that were never intended by the designers of the course. To this extent, therefore, our evaluation will only yield unsupported assumptions about influences certain factors have on the program. When faced with this kind of situation, the researcher will then delve into such matters as the participants' former feelings or attitudes before participating in the program, and compare with the current. The records kept will often be inadequate; and retrospective self-reports by the program participants will be biased by the present state of affairs. In spite of these drawbacks, it is better attempted than not.

In our present study we intend to evaluate the effect of training on the performance of the contractors. That is in our simple input - output model we shall look at the output level. These inputs and outputs can be represented as in the simple model shown in Figure 3.5

FIGURE 3.5: A SIMPLE INPUT-OUTPUT MODEL



Source: "Training and Productivity in Eastern Africa: An Eastern African Universities Research Project Report on the impact of overseas Training on Development. Maliyamkono, Ishuni, Walls and Migot-Adholla (Eds.). Heinemann, Nairobi, 1982, p.21.

The inputs in our case will consist of the current skills that the contractors have. The processing will include the methods of instruction used in transforming these inputs. For example the use

of open lectures, seminars or field training. The courses' content will be a major determinant of the quality of output. Here we have also to consider the type of graduation the training will lead to. But here there is a difficulty because the contractors' firms may keep growing and therefore having new individuals now and then. It is difficult to consider graduation then as the contractor keeps sending new people for training to acquire the necessary knowledge for the benefit of his organization. Therefore, as far as the firm is concerned, the graduation time is not definite. But we can overcome this difficulty by assigning the training to key individuals of the firms. It is then possible to offer some kind of certification and a definite period within which the personnel has to graduate.

At the output, there are four levels. If, for the case of the employee of the firm, the training does not offer personal benefits then he might not be motivated to attend the training programme. The benefits will be in the form of future employment opportunities, and here is where some form of certification becomes important. Therefore the contractor's assessment of the personal benefits of the program is an important output. Dissatisfaction may reduce the effectiveness of the impact of skills and knowledge. It can also discourage future participants in the program. Assessment of contribution to development as an output can be in the form of successful projects handled subsequent to the training in relation to the defaults before the training.

The skills and knowledge acquired can be best evaluated through the certification process. However, in its absence, then we can assess the individual by the relevance of the training to his job responsibility. That is after having been taught, say, the bill of quantities pricing techniques has he applied this new knowledge and how better, in comparison to the previous situation.

Finally we have the attitudes and behaviours of the trainees. Having been taken out of their social background and into different areas, the contractors are bound to learn new experiences about their counterparts from other regions of the country. This output can be evaluated by assessing the attitudes and behaviours of the contractors prior to and after the training program. In the sense that this will be historical information and often affected by the present attitudes, this study will not attempt to measure it. To get the opinion of the participants we shall use questionnaires to help us assess the output of the course.

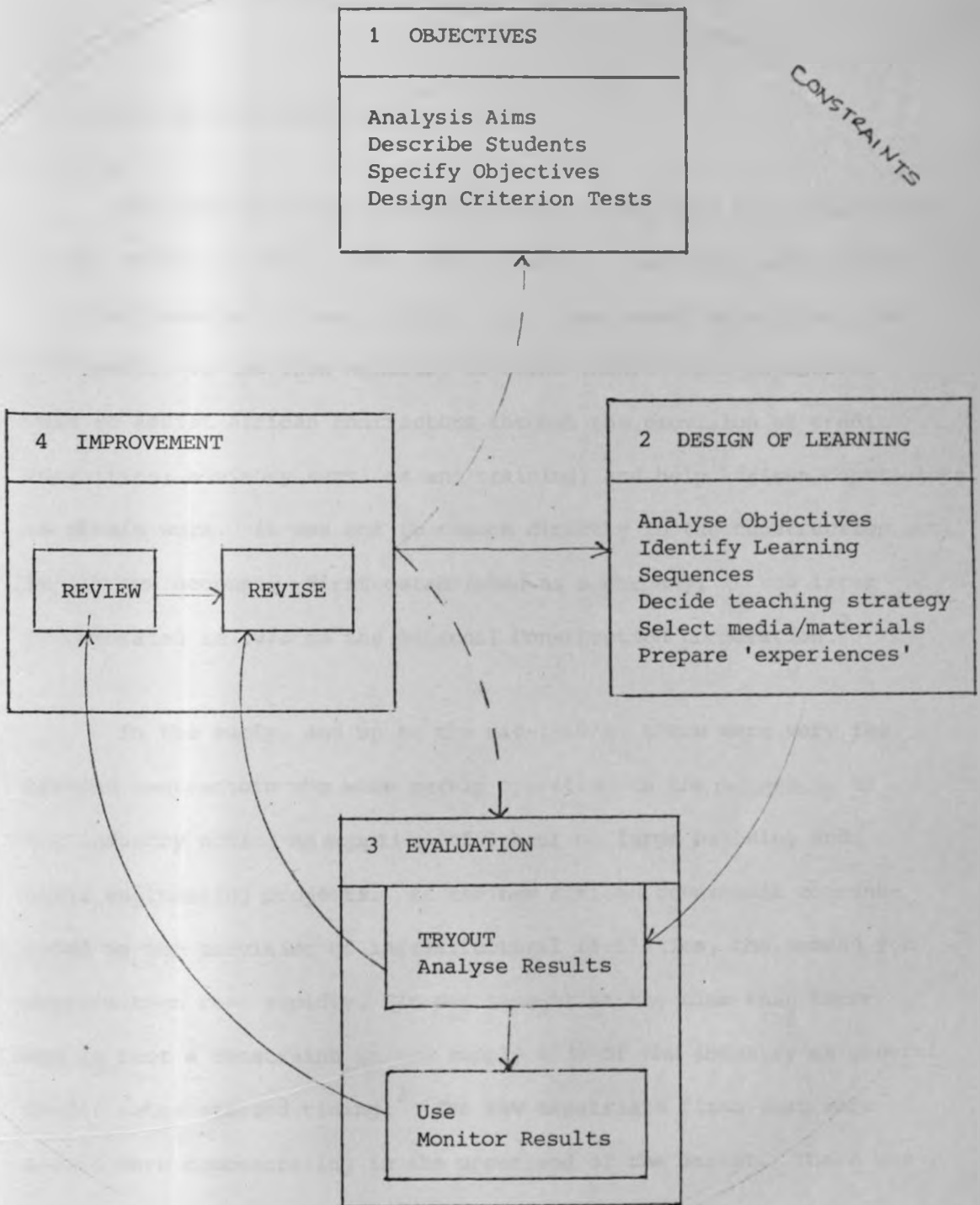
Curriculum Model

Training can be seen as operating in a net of complex systems that form the context and constraints for its activities. In fact training of contractors can be viewed as a system that is intended to achieve certain predetermined objectives. It is not, however, complete in itself as a system. The training system is operating within the wider context of a supra-system, the society.

From this wider system the training receives inputs in terms of the trainee contractors, with certain levels of skills and attitudes, the training personnel, the materials used for the training as well as the economic and political setting. The suprasystem in turn expects output from the training system. These outputs as mentioned earlier on will consist of the peoples new skills and attitudes, their contribution to national development and their own personal benefits. Although we are considering training as a subsystem in the suprasystem of the society, it is in itself composed also of a suprasystem consisting of other subsystems of staff recruitment, administrative system, examination system, etc. We shall for our case adopt as our curriculum model the four-phase problem solving approach as designed by D. Rowntree (1974).²⁰ In this approach, the design and implementation of training relates to explicit objectives, with clear evaluation criteria aimed at improving the hypotheses on which the training system is based. Acknowledgement of the systems concept is done by showing the model ringed with the constraints imposed by the suprasystem within which the training is occurring. The model has within it the cyclical loops through which improvements are made to the learning/training design and also to the objectives and even the evaluation process. The external constraints will include the learner expectations, the political pressures, the time and money available, government decisions for example on the manpower training policy in the industry, and so forth. The ring is broken to show that these constraints are not impermiabile. That is in the short

term, special pressure can be applied which will break the constraint. For example, in East Africa we have one institution in Tanzania, ESAMI, (Eastern & Southern Management Institute). If in Kenya we find and prove that this is the only institution that can best train our training personnel then we can design crash programs to be carried out as ESAMI to help improve the standards of our training personnel. Our advocacy of the above model is because of its simplicity and yet being elaborate at the same time. Indeed it has been hailed by many other educational theorists like Maguire, 1971,²¹ Clarke, 1969,²² Kefford, 1970²³ and Richmond, 1969²⁴ that the model is capable of solving many problems ranging from overhauling a country's educational system, setting up a University to teaching pre-reading concepts to 5 year-olds.

FIGURE 3.6: THE FOUR-PHASES OF EDUCATIONAL TECHNOLOGY



CHAPTER FOURTHE TRAINING OF INDIGENOUS CONTRACTORS BY THE
NATIONAL CONSTRUCTION CORPORATION (NCC)The Establishment of the NCC

The National Construction Corporation of Kenya was established in the middle of 1967. This was four years after Kenya had attained its independence. It was a wholly owned government enterprise under the control of the then Ministry of Works (MOW).¹ Its objectives were to assist African contractors through the provision of credit facilities; advisory services and training; and help African contractors to obtain work. It was not to engage directly in the construction work on its own account. First established as a company, it was later incorporated in 1972 as the National Construction Corporation.²

In the early, and up to the mid-1960's, there were very few African contractors who were merely operating on the periphery of the industry acting as suppliers of labour on large building and civil engineering projects. As the new African government concentrated on the provision of infrastructural facilities, the demand for construction rose rapidly. It was thought at the time that there was in fact a constraint in the supply side of the industry as general tender rates started rising.³ The few expatriate firms that were around were concentrating in the upper end of the market. There was

therefore enough scope for the small indigenous firms to rise up to medium size. Spurred on again by the departure of foreigners soon after independence, and the majority of whom were from the industry, there was justification for setting up the NCC in a bid to help 'Africanize' the industry. Moreover, the middle sector of the industry, was dominated by the Asian entrepreneurs and building firms. So, specific action was indeed needed to help the small African owned firms make an entry into the industry. Any form of bias operated by the government towards the African contractors would have jeopardised the government's objectivity and public accountability hence the need to resort to the creation of a separate company that would be devoid of such constraints.

The development of the NCC was helped by the provision of technical assistance and financial aid by the Norwegian Agency for International Development (NORAD).⁴ The technical assistance consisted of specialists in the construction industry who helped NCC set up a training and advisory services. The financial aid went into the establishment of a revolving fund as a source of working capital to African firms against specific contracts they had won. The initial management team of NCC comprised of civil servants who were seconded to it from the Ministry of Works.

After incorporation, the NCC Act, Chapter 493 of the Laws of Kenya stipulates the function of NCC as:-

- 15(1) "... to promote, assist and develop the construction industry", subsection (3) gives the following powers:-
- (a) engage in the construction industry;
 - (b) manufacture, or deal in plant, tools, materials, machinery and equipment used in connection with the construction industry;
 - (c) establish, equip and maintain educational and training establishments, for the benefit of persons employed or to be employed in the construction industry;
 - (d) furnish managerial technical and administrative advice; enter into partnership with, or acquire the whole of any part of the interest in, any company or firm;
 - (f) invest money after consultation with the Treasury in any funds which, for the time being, trustees are authorized by law to invest, and to place money on interest bearing deposit with any public body; and
 - (g) award contracts through a works committee consisting of two members of the board, and the General Manager".5

Of the above functions of NCC, two directly empower it to engage in the training of personnel for the industry and this will include the contractors. These are functions (c) and (d). These are the two functions of NCC that are the major concern of this study. When interpreted, function (c) would imply that the NCC has a right to have a say in the drawing up of syllabi by the Ministry of Education, Science and Technology to be used by the various

technical colleges and even by the Universities that train personnel for the industry. Function (d) can be interpreted to mean that the NCC should act in a consultancy capacity to the building and construction industry in general and to the contractors and professionals of the industry in particular. Thus it is supposed to act as a data bank for the various activities that are carried out in the industry in order to be in a position of giving advice.

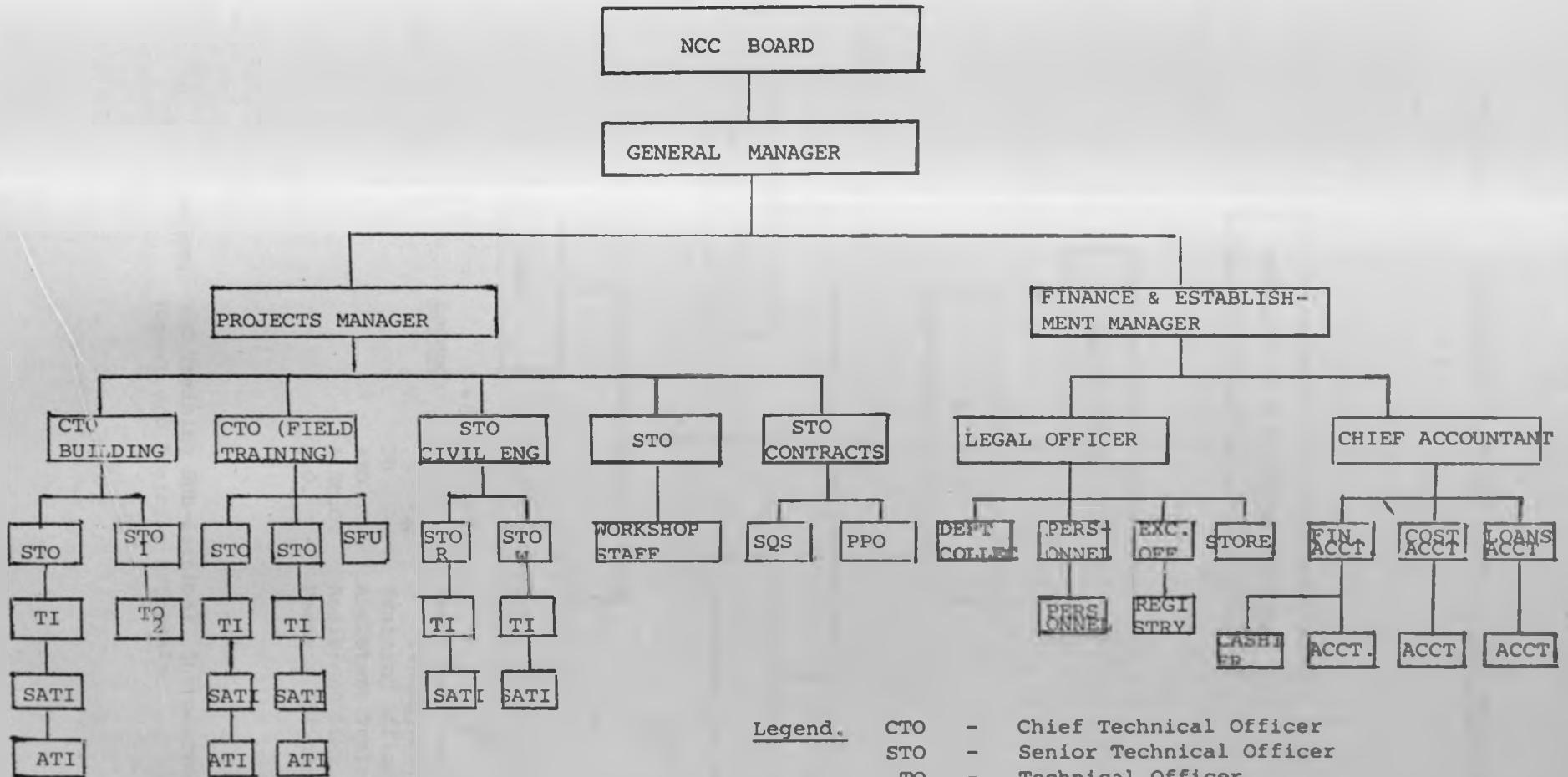
Organizational Structure

We shall, therefore, look at the organizational structure of the NCC and examine it with a view to finding out the suitability of the structure to the accomplishments of the above mentioned functions of training personnel and provision of managerial advice. As shown in Figure 4:10, the NCC is led by a Board of Directors who are appointed by the Minister of Works, Housing and Physical Planning (MOWH & PP). The board is under an appointed chairman, also by the same Minister. The board, in turn, appoints the Corporation's Chief Executive, the General Manager, with the approval of the current Minister for MOWH & PP.

The Corporation is divided into two broad functions of technical and administrative/financial. The technical branch is headed by a Projects Manager and the administrative function by the Finance and Establishment Manager. It is under the technical section that the training function falls, hence we shall elaborate only on this section of the NCC's organization. The technical section is further subdivided into five sections:

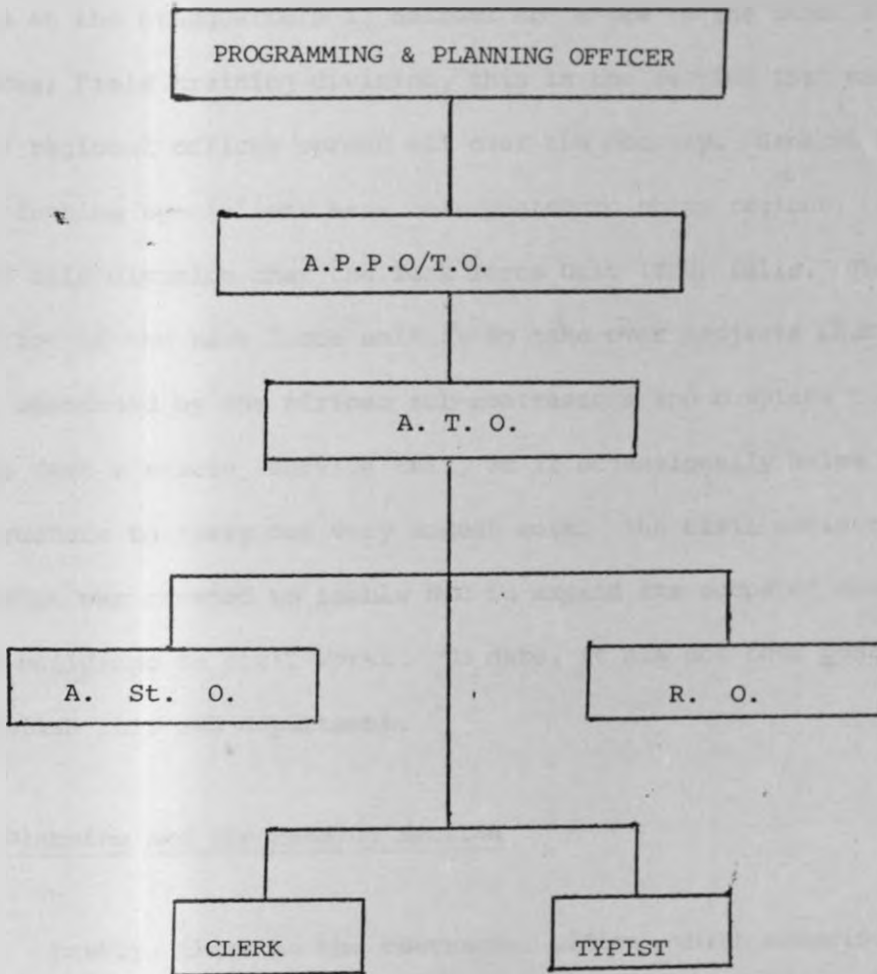
FIGURE 4.1

THE ORGANIZATIONAL STRUCTURE OF THE N.C.C.



- Legend.
- CTO - Chief Technical Officer
 - STO - Senior Technical Officer
 - TO - Technical Officer
 - TI - Technical Instructor
 - SATI - Senior Assistant Technical Instructor
 - ATI - Assistant Technical Instructor
 - TFU - Task Force Unit
 - SQS - Superitendent Quantity Surveyor
 - PPO - Programming and Planning Officer

FIGURE 4.2: ORGANIZATION OF THE PLANNING AND PROGRAMMING SECTION



Legend: APPO - Assistant Programming and Planning Officer
 TO - Training Officer
 ATO - Assistant Training Officer
 A.St.O. - Assistant Statistical Officer
 R.O. - Records Officer

Source: NCC Training Sub-Section: Introductory Report and Training Proposals.

The Building Division

The building division, which comprises of various tradesmen based at the headquarters in Nairobi and a few in the other divisional centres; Field training division, this is the section that manages NCC's regional offices spread all over the country. General building and plumbing specialists have been posted to these regions. It is under this division that the Task Force Unit (TFU) falls. The function of the task force unit is to take over projects that have been abandoned by the African sub-contractors and complete them. It is in fact a rescue service unit, as it occasionally helps the contractors to carry out very urgent work. The civil engineering division was created to enable NCC to expand its scope of operation from buildings to civil works. To date, it has not been possible to establish this sub-department.

The Planning and Programming Section

Lastly, there is the contracts office which comprises the quantity surveying and the planning and programming sections. The quantity surveyors, in this section spend most of their time in processing of tenders for the projects to be handled by NCC itself and making of interim valuation for work in progress. They also offer services to contractors who are registered with NCC in terms of tendering and negotiating on behalf of the contractors with the clients. Thus the quantity surveyors sort of offer some informal training to the contractors in the course of their duties in matters relating to tender pricing and estimating.

The Training Sub-section

It is under the planning and programming section in the contracts office division that we have the training sub-department. Generally the duties of the planning and programming section are to plan and manage NCC run projects. These services are, however, also offered to the sub-contractors who are the trainee contractors. The departmental organization is shown in Figure 4:2. The assistant planning and programming officer functions as the Training Officer. His responsibilities in this respect involve the co-ordination of the corporation's training programmes for contractors and NCC's own apprentices; collection and compilation of construction data; maintenance of a construction coding system; and market research for construction materials.

The functions of the assistant training officer are delineated as site data collection and analysis; monitoring of project progress through bar charts; and site organizational planning and programming. The functions of the records officer have not been clearly defined but he performs the following tasks that appertain to training:- maintenance of contractors training programmes; maintenance of apprentices's training courses documents; and co-ordinating annual shows and exhibitions.

There is also the post of an Assistant Statistical Officer whose job functions have not been outlined but assists contractors completing bond, loan, and registration forms; maintains a contractors

performance register and works progress files and helps in extraction of information from registration forms for the purposes of training.

The training department in any organization is a service department providing management with professional support in meeting the organization's objectives. It becomes a much more important department especially so when the organization's objective is training. For the organization to realize its objectives, the department will need to have clearly defined objectives that have to be met in a given period and by clearly stated means. We looked at the steps to be followed, in Chapter III, when designing a curriculum plan. These steps followed through from a careful selection of the students, definition of the learning objectives, teaching content, method of teaching to the manner of assessment. It is evident in NCC that there is no plan of instruction or any form of syllabus designed for the training of contractors.

The planning and programming officer acts as the Training Officer. It is his duty to decide on what is to be taught and how it is to be taught. The contractors are invited to attend the seminar without an analysis having been made to match the contractor's needs with the course content. This haphazard manner of training makes it difficult to establish standards alongside which we judge the success or failure of the training program. Nor can we refer to it as a program.

We need to extract vital information at the time a contractor registers. A form similar to the one in Appendix B can be used. Such information will entail the academic background of the contractor, his management experience, any other businesses he may be having, his establishment in terms of capital and equipment, the level of staff, projects he has handled in the past and so forth. This information will help the training officer establish the training needs of every contractor who joins NCC. The information will also form a basis of comparison to ascertain whether or not the contractor is progressing.

On the same basis NCC can devise a scale or a hierarchy of needs of the contractor. We can have a scale for instance showing those who need full-time training for a given period, those who need field advisory services and those who are capable of handling projects on their own to successful completion, but will require the service of an information centre on such matters as material and labour costs, new technological developments in construction and the projected government workload in the development plan period.

Having established the student characteristics, the training officer will then define the training objectives. The design of the objectives will be done all the time bearing in mind the method of evaluation. That is we have to decide on the contractor's characteristics at the end of the course; and how those characteristics can be assessed.

For the course to be successful, it will have to restrict the number of trainees. An ideal number of contractors ought to be established unlike at present so that they can be successfully trained. Almost exclusively, the NCC has employed the seminar method of instruction. Given the poor attendances at such seminars, it is time for it to reassess the method of training, again this can be arrived at by using the gathered information on the background of the contractors.

CHAPTER FIVEDATA ANALYSISAims and Methodology

A questionnaire was drafted to be administered to the small contractors. The questions asked ranged from those that tried to find out the nature of the business, that is, whether sole proprietor, partnership; or limited companies, to questions of what they felt could be done to help better their lot. This approach was decided upon because in trying to assess the strengths and weakness of contractors it is important that they be given a chance to air their problems and offer possible solutions.

The small-scale contractors in Kenya are spread all over the country. Not all of them are members of the National Construction Corporation. Going through the Register with NCC it was found that there were, as at 1983, 1063 members. Not all of these contractors are active in business. There are those who just register with NCC and remain inactive, there are others who register and do not go for NCC assistance on projects they have acquired without NCC's help. The average number of those who go for NCC's assistance comes down to about 200 per year. The assistance ranging from provision of working capital, performance bonds, technical and managerial assistance.

A big problem common to most of these contractors is that they do not have registered offices. It was difficult to locate the contractors who operate from their houses or friends' offices. We therefore decided to, in view of the difficulties in trying to locate the rural contractors, sample on these contractors who operate from Nairobi. It also boiled down to the same problem that they too do not have offices. The only way which remained to contact these contractors was through their post office address at NCC. The questionnaires were sent to these contractors. The aim was to sample one hundred of these contractors. Because those contractors who were active was 172, one hundred being sixty eight percent was thought to be a reliable sample.

From the one hundred questionnaires posted with a self addressed and stamped envelope; we had twenty per cent response. The rest of the questionnaires were not returned. This showed a general apathy by the contractors to the problems concerning them. When an official from the Ministry of Works was told about this apathy he commented that he was not surprised because at times the contractors do not respond to invitation for tendering when the tender documents are sent to them through the post. One reason could be that the contractors are not interested in their own development having entered the construction industry with one view of making quick money and leaving. Another reason could be that they have long shifted and gone to mind their other business.

Of the twenty who responded to the questionnaires six returned the questionnaires un answered. We were therefore left with only fourteen questionnaires to analyse. In view of the fact that this would be a small number compared to the intended population to generalise on, it was decided to seek personal interviews with the clients and professionals in the industry and government officials who deal with these contractors. Also where a contractor was met, he would be involved in a talk which sought the information that was required in the questionnaires.

More interviews were carried out with the officials from National Industrial Vocational Training Centre - (NIVTC), Federation of Kenya Employers (FKE) and Kenya Institute of Building (KIOB). It is the analysis of these questionnaires and the interviews carried out that form the bulk of this chapter.

TABLE 5.1 CATEGORY OF CONTRACTORS BY WORK-TYPE

<u>Type of Activity</u>	<u>Number of Contractors</u>	<u>%</u>
General Building	12	85.7
Civil Engineering	4	28.60
Electrical Engineering	0	0
Painting and Decorating	8	57.10
Plumbing and Drainage	3	21.40
Landscaping	1	7.10
Carpentry	1	7.10

Source: Own Field Survey, Sept., 1984.

From question one we find that the majority of the contractors are engaged in general building activity. The number of contractors in the Civil Engineering is less being only 28.6 per cent of the sample. This could be because of the heavy and specialist nature of Civil Engineering works. They normally require investment in heavy Plant and Machinery. The second largest group is composed of those firms that do carry out Painting and Decorating. Indeed these contractors are expected to be the most numerous. This is so because of the very simple tools required for this category of contractors. All a contractor needs to have are brushes, a ladder and possibly a pick-up to carry people from one site to another. Indeed the majority of contractors start off as painters and decorators then as they grow vertically they have painting and decorating as a department within the general building firm. Mainly painting and decorating is a maintenance job and can therefore keep the employees occupied at times when the contractor is not having any development project.

It therefore seems that a design of courses for the contractors will have to take in mind that it is the general building contractors who are most numerous. Another alternative is to have those dealing with say plumbing and drainage trained separately from those who do Civil Engineering works. Plumbing often requires a contractor to have knowledge of plumbing. It is apparent that those contractors who engage in this line have at least a government test grade in this area. But they mainly act as specialist sub-contractors.

TABLE 5.2: TYPE OF FIRM

<u>Question 1c</u>	<u>No. of Firms</u>	<u>%</u>
Sole proprietor	7	50.00
Limited Company	1	7.00
Partnerships	6	42.90

Source: Own Field Survey, Sept., 1984.

This question was intended to establish the type of firms favoured by the contractors. Here it can be seen that the majority of the firms are sole proprietors. It was also thought that these firms could be in the early stages of growth then later on as they grow they pass through the stages of partnerships then limited companies. But these firms range from five to fifteen years in existence. Here what we have to consider is, what manner shall we use in training these proprietors so that we can "unfreeze" their old ways of doing their business. Whereas for the firms in which there are partners, it will be a question of first finding out what roles each partner plays, and therefore what kind of training will be needed.

It can also be easier to arrange for training sessions away from the locality of the contractors who are in partnership since one partner can take care of the business as the other is away. On the other hand, for sole proprietors, it would be in the interest of

the contractor for the training to be carried out closer to his area of operation even allowing him to take time off and attend to his business. These could be the people who do not have much interest in attending seminars that take place in far off places and often lasting for 3 to 5 days.

TABLE 5.3: ACADEMIC QUALIFICATION OF THE ENTREPRENEURS

<u>Level of Education</u>	<u>Number of Firms</u>	<u>%</u>
Primary	6	42.90
Secondary	4	28.50
Polytechnic	2	14.30
University	2	14.20

Source: Own Field Survey, Sept., 1984

The question was asked in order to come up with the average level of education of the contractors in business. The majority, in fact 42.90 per cent, are primary school leavers. Only two of those interviewed have had University education. It was also found that it is those contractors who have only primary level of education who had a preponderance of running their business as sole proprietors. They entered into the contracting business after they had either had experience on construction projects first as unskilled, then later as semi-skilled labourers. Such contractors will mainly be interested in earning a living from the construction industry. They are in fact

seriously in business but their abilities limit their chances of growth. They, at best, remain sub-contractors to large projects. The needs of these contractors will be in areas of management training, and technical assistance plus financial assistance. They will often not realize the need to employ skilled people to run the firm as their scale of operations are limited. Nor will they see the benefits that will accrue from teaming up with other partners in order to raise funds.

There is the group of technically qualified contractors. These have often passed through a technical school or institution and attained a technical trade test certificate grade 3, 2 or 1. The aspirations of these contractors are higher than those of their counterparts with only primary level of education. They wish to rise up in the categories they are registered with NCC. They often undertake medium sized projects. Depending on the competitiveness of the tenders and availability of finances and equipment they undertake larger scale works. Whereas they may be good in areas of supervision and thus attain good quality workmanship and productivity, they often lack managerial training. They have an inclination to forming partnerships with former colleagues at Polytechnics but as they expand, the problems of management start weighing upon them. A thorough training in management right from the Polytechnics might be the most important need of these contractors.

We have at the other extreme end the professionals in various fields such as accountancy, engineering, economics and others, who venture into construction business. The majority will not take up construction as a full time employment. They normally tend to set up construction firms register them but will remain dormant. Until they get a project is when they regroup together staff. That is they do not have a permanent staff other than a foreman. Some of these professionals will be employed in the various government ministries and end up getting sub-contract work from the projects they may be supervising. However, those who are in business of contracting will often lack sound managerial training. They are not, however inclined to turn to NCC for training partly because when they do they are grouped together with contractors they consider to be uneducated. The contractors have the potential of becoming large scale contractors if they get continuous work load. And they can also be used to train the smaller contractor technically if given incentives. This cadre of contractors would be interested in being trained in management only if they are separated from the other contractors who they feel uneasy attending the same courses. Because of their involvements in other work or business they are the right kind of contractors to be sold the idea of setting up a sound management structure in their firms. This they can do by employing a General Manager, under him will come other Department heads and operatives.

Question three was asked to know the kind of problems the contractors consider big and which they encounter while carrying out their business. Six responses were given for the contractor to select from, among these the four most important problems, with choice of putting down any other important problem that may have not been included. The responses were as follows:

TABLE 5.4: DIFFICULTIES ENCOUNTERED BY CONTRACTORS

<u>Difficult</u>	<u>Number of Responses</u>	<u>%</u>
Lack of Finance	13	82.87
Lack of qualified foremen	1	7.14
Lack of equipment and Machinery	8	67.14
Lack of Materials	4	28.57
Too many variations	4	28.57
Late payments by client	6	35.71
Any other	-	-

Source: Own Field Survey, Sept., 1984

Thirteen contractors are agreed on lack of finance as the most impending problem as they carry out the projects. The only one man who does not think that lack of finance is not a problem indicates that he has not handled any project for the past three years he has been in "business". The rest have had quite modest work-load. This would perhaps lead us to conclude that the contractors are complaining

of lack of project finance because financial help by NCC was withdrawn. Or rather the measures taken, for instance requirements of collateral were such that the majority of the contractors could not meet these conditions. We can also safely conclude that these contractors do need proper training in financial management. This is one area where they make mistakes by thinking that the monthly payments they are given are profit. Indeed the contractor's profit may come at the end of the project when retention money is released. If he is reimbursed his cash and with the kind of work-load they have then he should be in a position to finance other projects given a good training in financial management. One contractor said that he does not lack equipment as he leases from the NCC's pool of equipment. The others consider it a major problem. This points to a lack of information from the NCC to the contractors. Given that they are in the construction business seriously then buying of basic equipment will be the main aim of the contractor. This will constitute a reimbursement in the business. The contractors however, need to be counseled on what type of equipment to own. Some equipment would better be hired than owned. This is the kind of knowledge that will be passed over to the contractor so that he makes the right kind of decisions.

Late payment by clients is another response that was cited as a major problem. One contractor however, clarified that this is mainly a big problem with projects of which the government is the client. Indeed this is agreed by the officials in the Government

Ministries concerned, that it is a big problem due to the laid down bureaucratic procedures. A proper understanding of the cash flow by the contractor will enable him to anticipate such problems at the time of the tendering and incorporate a risk element in the tender sum. Whereas we cannot specifically train a contractor on how to chase payments from client but a general awareness can be inculcated into the contractor so that he will programme his cashflow taking into account such problems as may be expected with late payments. Quite often a contractor will complain that the progress of the work may be held up due to late payments yet on site he has stocked materials that will be needed two months later. Such bad planning of work can be corrected through training and lead to better control of project finances.

Question four sought to know whether contractors were aware of the training programme by NCC. Half of those sampled are aware. The other half, seven contractors are not aware of the training carried out by NCC. Of the seven who are aware, four have not attended the training seminars. The reasons given are that two of these being professionals - one is an engineer and the other is a Quantity Surveyor - and having had on the job training, they see no use for NCC's training. The other two did not attend because they have never been invited to the seminars. It is interesting to note that one of those who have never been invited has been in the construction business for fifteen years and all along as a member of NCC.

This points to a lack of communication between NCC and its member contractors. There is need to have a newsletter send to all the member contractors outlining the activities the NCC is engaged in, and announcing the training programmes that would be forthcoming and generally educating the members on other general matters pertaining to the industry. Such a newsletter was started by NCC in 1970. The contractors paid subscriptions and used to get it on a quarterly basis. But it was discontinued in 1972 when the subscriptions fell from 100 to 10. It happens to coincide with the time when the issuance of loans to contractors became a bit difficult and later projects became scarce due to the oil price hike in 1973. This should have been continued. It should be further noted that the newsletter used to educate the contractors on how to go about applying for financial assistance.

On the question of contractors who think that they do not need any training by NCC since they are already trained, a detailed outline of contents of some of the management courses will convince them of the need for the courses and will also help them in deciding who to send from their firms for what courses. Such prospectuses are usually sent out by training institutions and even published in the local press. It is indeed true that most people get to hear of the training seminars when a government official is opening or closing a seminar and is covered by the press. Those who did attend the courses however acknowledged that they had been of good use to them.

One contractor stated that he attended a Management Course in 1976. He rated the course as good and has since applied the knowledge attained in accounting. Another one who attended a management course in 1979 says he uses the knowledge he acquired to programme his works. Yet another one who attended an estimating course in 1974 rates it was very helpful. He applies the knowledge he acquired in estimating. Though such training is not aimed at producing an estimator, but it helps the contractor to appreciate what is involved in pricing up a bill of quantities and will enable him to decide on what level of profits and overheads to charge. An appreciation of the importance of running the firm efficiently will also make the contractor employ the right staff so that he himself can concentrate on other areas of the business for example public relations for the firm.

Question seven sought to know which associations the contractors had joined. This question was followed by questions eight and nine which were all related. Here the general awareness of the contractors about the usefulness of belonging to an association was sought. It should be noted that a powerful and well run association can supplement the efforts of the government in educating its members. Through pressure, it can change in the manner in which tenders are awarded for the benefit of its members.

A well organised and informed association can play a vital role in linking the contractors with the clients and professionals, thus enhancing the contractors' good image through disciplinary measures to

contractors who may break established ethics. It can also support research and foster proper training and career development for possible entrants into the field of contracting. Further to materials assistance to members, an association can also help its members in forming a co-operative at the initial stages. Most of the contractors are members of the Kenya Association of African Contractors (KAAC). This Association was established through the help of NCC. It receives most of its financial assistance plus office accommodation from NCC. It seems up to now the association has not grown strong enough to be independent of NCC assistance. Of those contractors who have refused to be members of KAAC, asked the reason why, some claimed that to join KAAC is like accepting to be led by blindmen. There seems to be a leadership problem in the association with the officials being accused of using their position to win tenders from NCC.

What seems to transpire is that, the KAAC's officials seem not to understand their role in helping their members become viable contractors. Some of the officials of KAAC have had construction firms which have long failed because of mismanagement. Way bak in 1959, when NCC suggested a training programme for foremen, the KAAC was strongly opposed to the idea and discouraged its members from releasing their foremen to go for the courses. They argued that without work continuity as they could later quit the firms and set their own or move to other better established firms. This idea seems to have been firmly implanted in most of the contractors. This came out in question fourteen which sought to know whether the

the contractor would like himself, his employees or his son to go for training in management. The majority, eleven out of fourteen, favoured going themselves for training.

The contractors who are professionals and consider themselves already trained in construction are the ones who said they would prefer their employees to go. The question of whether a contractor would prefer sending his son was introduced because way back in early 1970s, the NCC were considering that financial and other technical help be preferred to those contractors who had their young sons working with them. These were to be the ones to be considered for training as they would be having a more promising future than their old parents. They were also considered to be of average education and therefore likely to adopt new methods of managing their business. Only three, however, considered that they would like their sons to be trained.

Question fifteen sought to determine the number of employees the contractor has had for the past five years, and for how long. This was intended to help in determining whether the contractor would be in a position to gauge the productivity of his employees and hence price a bill accordingly. Pricing of tenders is one area where contractors always find themselves at fault. They either over price or undercut so low that they are unable to carry out the work to completion. A contractor can only be in a position to determine the proper rates to use, if he has a steady workforce whose productivity he knows.

It was found that the majority of the contractors do not keep a steady workforce especially of tradesmen. These can be employed at short notice when the contractor wins a tender. This procedure places a heavy burden on the supervisor who will be supervising different people on different projects. Of the employees we sought to know whether the contractor had or not, were two crucial ones to the construction business an accountant/bookkeeper and a quantity surveyor/estimator. Crucial because the success of a contractor in winning a tender will depend on the estimator's proper pricing of the bill. And on the other hand opening up books of accounts will enable the contractor to know his financial position and therefore determine what level of profit to allow on any given project. This will be the role played by the accountant in advising the contractor on his expenditure. Of the fourteen people interviewed, only five have engaged the services of quantity surveyors, and two of these five work on part time basis. Four have accountants, one who has been employed on part-time basis. I further met with officials from the Ministry of Works and asked them to comment on the tenders submitted by the contractors especially the indigenous contractors. The quantity surveyors, whose role, among others, is to analyse tender documents and make a report on behalf of the Architect said that most of the times the contractors do engage the services of the clerks in the Ministry's contracts department registry. What they do is to pick an old bill of quantities and transfer the rates to the new bill.

Such practices lead to so many difficulties to the contractor if he wins the tender. Other contractors say they do price themselves. What they do is to decide the total contract sum and will eventually break it down to the various elements in the bill. What came out in this question was that there was a general lack of understanding by contractors of the importance of setting up certain departments in their firms and employing people with the necessary skills to fill up the positions. This situation can be rectified by the contractor development agency providing general information on the proper organization of a construction firm. It can also prevail upon a contractor to set up such departments as a prerequisite to any form of assistance.

Question fifteen also sought to know whether the contractor had sent any of his staff for training. The majority had not. On being asked the reason for failure to send the staff for training they claimed there was lack of money. Others alleged they did not have permanent employees. But it was admitted that the contractors feared that if they trained the employees they would run away on completion of the training. It is true, it happens and it is one of the major problems in the industry that after training the contractor forgets that the expectations of his employee are far much more than they were previously.

On question sixteen we intended to know what the contractor would suggest for the government to do for them in order to improve their lot. Almost all of the contractors asked for material assistance.

This phenomenon is common in that almost anyone you ask to specify how he should be helped, in the event of there being a choice for material assistance, will pick it. They tend to forget the short-lived nature of material assistance. This type of ignorance on the part of contractor might point towards the need for a newsletter that will give the contractors general information about the trends in the industry.

Question seventeen was posed to the contractors to give them a chance to offer alternatives to the assistance they get from NCC. Most contractors favoured the training of only a few contractors. Until they are established is when the NCC should embark on training other contractors. There were further interviews with other contractors on this same question. The reason given for advocating this procedure is that the NCC's current staff cannot effectively manage to train contractors all over the country if the numbers of those to be trained is not limited. This can be achieved by balancing the number of contractors from various provinces so as to avoid imbalances hence accusations of favouritism.

CHAPTER VICONCLUSIONS AND RECOMMENDATIONSIntroduction

This chapter sets out to offer the overall conclusions and recommendations to the study. These conclusions and recommendations have been suggested at various points in the body of the study as they became evident in the earlier chapters.

The study was embarked on with the main objective of evaluating the training program carried out by the National Construction Corporation. Evidence from the field survey conducted indicated that the training of indigenous contractors by the NCC is operated on an ad hoc basis. There appears to be no evidence of an existing training scheme with details on how it should be implemented to achieve its objectives. Without such a program, it becomes relatively difficult for the NCC to assess its success or failure in the area of promoting an indigenous based construction industry.

It was anticipated that the contractors themselves would be in a position to articulate their problems through the questionnaire that was sent to them. As pointed out earlier on in Chapter V, the response was poor. We have already pointed out the difficulties

that were experienced when trying to establish the numbers of contractors in business at any given point in time. By and large, the somewhat small number of contractors who responded may, to a certain degree, lead one to conclude that the major problem with these indigenous contractors lies in their perception and overall commitment in running a successful business firm in the construction industry. Evidence gathered from the contracts department of the Ministry of Works Housing and Physical Planning showed that there is a relatively high degree of lack of response from these contractors to invitation letters to tender for jobs awarded through the department. This indeed is very discouraging for a prudent businessman in the industry will always try to solicit for tenders from the government which is the main source of construction based jobs in the country.

Our recommendations are generally aimed at the improvement of the organization of the NCC's training function so as to enable it to successfully train the contractors who turn to it for help and thereby have an efficient construction industry.

Recommendations

The construction industry has a major role to play in the economic development of Kenya. However, this importance can only be realised when there is efficient utilization of the resources that go into the production of the goods and services from the industry. On the other hand, economic development will lose meaning if it does

not go hand in hand with the enhancement of the welfare of a country's citizens. This, therefore, means that the indigenous people have to participate actively in the process of capital formation and generation of income in their country.

The government of Kenya has been concerned with the indigenization of the construction industry ever since the attainment of independence. The pace of this process has been relatively slow apparently due to the belief that a mere increment in the numbers of indigenous contractors entering into the local construction industry is a reliable indicator of the level of the country's indigenization process. A more reliable approach would have to emphasize much more on the quality of the indigenous contractor joining the industry.

The study established that entry of contractors into the industry has no barriers. This came out as one of the major problems that the NCC has to cope with. It has the effect of admitting those contractors who are not committed to the construction business.

To help alleviate this problem, we recommend that the government should make it mandatory that all indigenous contractors be registered with the NCC. But before registration, the criteria of assessment of the degree of commitment should be established. Such criteria can be based on, for example, the contractor's initial capital injected into the firm and his willingness to attend training courses by the NCC in those areas that he will be found to be deficient.

We have found out that the indigenous contractors have diverse educational backgrounds. What we can however generalise about the contractors is that all are, to a large extent, deficient in business management know-how. It is because of this deficiency that we recommend that training must take priority over any other form of assistance provided to the contractors by the NCC.

The training function of the NCC should, therefore, be brought under a fully-fledged personnel and training department which should be composed of competent officers with the necessary expertise and experience in the construction industry.

Due to the diversity of the needs of the contractors in training, we suggest that during registration as members, the training department should extract information, about the contractors, that will help it define the training needs of any contractor. It should then set up a hierarchy of needs ranging from those in need of training, loan assistance, advisory services to information dissemination.

For those contractors who are in need of training we recommend that a proper program similar to the curriculum model we recommended in Chapter III be followed. In the curriculum plan, the courses should be within a fixed time frame so that it is clear when a contractor will graduate from training to mere advisory services on our scale of needs.

Having established the needs of the contractors and set the objectives to be achieved through training, it will then be necessary for the NCC to decide on the type of trainers. Almost exclusively, the NCC has employed, for training, the services of the ILO Management team in its seminars. This reliance on ILO has meant that the NCC is not eager to set up a continuous training program. It is not until the ILO team comes around that seminars are announced. Perhaps it is because of lack of finance but then this need not be the case as the NCC should budget for such courses at the beginning of the year. Whereas the management ability of the ILO team is not in question, it is doubted whether they are able to draw upon local experiences in the construction business. We recommend that NCC should aim at recruiting its training staff from people who have had experience in the local construction business. They should also collect training materials locally from the industry to form a relevant data bank for purposes of training. It is with this in mind that we recommend that the NCC should start to sponsor its employees, who qualify, for the two year Building Management graduate course at the University of Nairobi.

The methods that have so far been used by the NCC in training are the use of seminars and on-the-job training. In the seminar approach, however, no attempt has been made to have a follow-up to determine whether or not the participant contractors have put to use the new concepts and techniques acquired. In our study we found those contractors who had actually employed the new techniques learnt were

happy with the results. We recommend that the NCC should, at the end of seminars, ask the participants to fill in a form stating what they have learnt and how they intend to apply the knowledge back in their firms. That is, the participant states an intended course of action to accomplish a given task while back in his firm. The trainers then make a follow-up after a stated period of time to ascertain whether or not the course of action was followed and find out what were the problems experienced by the contractor. In this manner the trainers will have feedback that will be used in future for correcting the course content and at the same time the trainee will be able to assess his own performance.

This requirement of follow-up for getting feedback will mean that the NCC engages more staff, the middle level cadre of managers also competent in various technical fields to work as field officers. Their main role would be that of collecting data and passing it over to the head of the training department to analyse and design the appropriate course. This again will necessitate that the head of the training department be qualified in training management and be experienced in construction management.

These recommended type of field officers will be different from the current type employed by the NCC. The current field officers merely stress on the job completion at the expense of training or gathering material for training. This unfortunate event of affairs has come about because of the fact that NCC can tender as a main contractor and

sublet work to the indigenous contractors. It is hoped that by this method the contractor leans on-the-job. But as we pointed out earlier on in Chapter III, this method of training tends to detract the trainers by making them to be too concerned with the success of the project and disregarding the training of the contractors. Rather than work as a main contractor we recommend that the NCC should only lobby for projects on behalf of its member contractors to ensure continuity of work for them. In this manner it will enable them gain experience by employing the new techniques learnt from training.

From our findings, the NCC has been working in isolation with the other institutions that deal with the training of personnel for the industry and even other types of businessmen, for example the Ministry of Commerce. We have also found out that it is difficult for some contractors to attend training courses away from their areas of business operation. We, therefore, recommend that the NCC should work in conjunction with such institutions as the provincial self-help (Harambee) colleges of technology such as Murang'a Institute of Technology, Western College of Arts and Technology, etc. that are in almost every district in the country so that some of the courses in business management are carried out at places where the contractors are able to attend.

Finally, having made several recommendations on the structuring of the training program by the NCC we need to consider the economy of means of achieving the desired objectives of training. Finance will be one of the major constraints in the realization of

the training objectives. Currently the NCC is financed by the Treasury on the basis of a revolving fund. A revolving fund is a fixed annual budget that the NCC gets from the Treasury. Part of the money is lent to contractors. After the contractor has reimbursed the NCC, the same money can be lent out to another needy contractor. Thus the fund revolves around the contractors. But the effectiveness of such a system can only be realised if there is an efficient loan recovery system. This again brings us back to the point of having only those committed contractors to the business helped. In the past the NCC has lost money through the contractors defaulting to repay the loans.

However, another source of money can come from fees charged by the NCC for carrying out the training and other consultancy services rendered to the contractors. It can only charge this fee if the training department is reorganized so as to be efficient.

Currently, the contractors pay a training levy of one quarter per cent on all contracts loan worth over fifty thousand Kenya shillings. We found out from our survey that this training levy is not fully utilized by the contractors. We recommend here that part of this money be channelled to the NCC to enable it implement a suitable training program.

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SURVEY ON SMALL-SCALE CONTRACTORS IN KENYA

Introduction

I am carrying out a study on small-scale contractors in Kenya. This study is carried out through the University of Nairobi. The research is to find the problems you encounter especially those dealing with the training of contractors. Your honest answers to these questions will help us find ways of improving your situation in the industry. A report will be made about this research but it will not mention the names of any particular business as this will be treated with strict confidence.

1.a. Location of interviewee (Province)

b. Type of Activity (Tick those applicable)

- i) General Building
- ii) Civil Engineering
- iii) Electrical Contractor
- iv) Painting & Decorating
- v) Other (Specify):

c. Type of company (Tick one)

- i) Sole Proprietor
- ii) Limited Company
- iii) Partnership
- iv) Other (Specify)

d. Category of the firm is registered in:-

- i) National Construction Corporation (NCC)
- ii) Ministry of Works, Housing and Physical Planning (MOW)

e. How long have you been in this business?
.....
(Months/years)

f. Previous occupations:
.....

g. Other present occupations:

h. Level of education of interviewee

- i) Primary
- ii) Secondary
- iii) Polytechnic
- iv) University

i. Any professional qualifications?
Position held in this firm

2. Number of projects handled in the past five (5) years?

	Type of work	Location	Client		Value of work	Date started	Date completed
			Public	Private			
1.							
2.							
3.							
4.							
5.							
6.							
7.							

3. What were the main difficulties you faced in carrying out these and other projects. (Tick only four)

- i) Lack of finance
- ii) Lack of qualified foreman
- iii) Lack of equipment and machinery
- iv) Lack of material
- v) Too many variations by Architect

...../2

vi) Failure by client to pay on time

vii) Any other (specify)

4. Are you aware of the N.C.C.'s training programme for small-scale contractors?

Yes No

5. Have you ever attended any of the N.C.C.'s training courses for Contractors?.

i) Yes No

ii) If no, why

iii) If yes,,

Year attended	Type of Course	Comments about the course
1.		
2.		
3.		
4.		

6. 1) Have you ever applied what you learned from the courses to to your own firm?
which one?

ii) What can you say about the courses offered?

- a) Taught Pratical subjects
- b) It was simple
- c) I liked sitting in a classroom
- d) It was tiring

iii) Did you ever visit any site to relate what you learned in class and what is done in practice? Yes No

7. Which of the following organizations are you a member?

- a) Kenya Association of African Contractors (KAAC)
- b) Kenya Association of Building and Civil Engineering Contractors (KABCEC)
- c) Kenya Institute of Building (KIOB)

8. Any reason why you have joined the organization(s)

.....

9. In which way can an association help its members to grow in business?

.....

10. In what way does the organization you belong to help its members as far as educating them is concerned? (Tick those applicable)

- a) Organizing site visits
- b) Gives lectures to members on how to manage their business
- c) Runs training courses for the employees of their members
- d) Publishes a magazine for members and informs them of new projects in the pipeline...
- e) We hold parties

11. a) Have you ever been stopped (determined) from carrying a project? Yes No

b) Which of the following was the reason for determination?

- i) Default Specify.....
- ii) Bankruptcy
- iii) Wrongful Assignment

...../5

12. Are you aware of the training Levy you are supposed to pay on projects of over Shs. 50,000/= as per Legal Notice No. 237 of October, 1971?

Yes No

13.

a) Do you support the payment of this Levy? Yes No

b) If no, what suggestion would you give as an alternative?

.....

c) Have you ever sent your staff for training?

Yes

No

14. If you were asked to go for training in management would you rather go yourself or send your employee?

a) I would go myself

b) I would send my employee

c) I would send my son

15.

a) On average, how many people have you employed in your firm for the past (5) five years?

Type of employee	No.	How long in your company?	Any remarks on why they left (If any)
Foreman			
Accountant			
Estimator (Quantity Surveyor)			
Carpenters			
MMasons			
Plasterers			
Steel fixers			
Secretary			

15. b) Did you send any of your staff for training?

Yes

No

c) If yes, where?

i) Polytechnic

ii) NCC Seminars

iii) University

iv) Any other

d) If no, why not?

i) They were not interested

ii) I feared if I train them, they will run away and join bigger contractors

iii) There was no money

iv) There was too much work

16. What do you think the Government through NCC can do to help improve the situation of small-scale contractors? (Tick 3 only)

a) Give us financial help

b) Give us projects

c) Give us equipment and machinery

d) Train contractors in management

e) Simplify tendering procedure

17. Looking specifically at the training courses done by NCC for small-scale contractors what suggestion can you give in order to attract contractors to attend them? (Pick the best four (4) from below)

- a) Make them simple
- b) Follow up after the training and teach on specific projects what they teach in class
- c) Carry them out on site and not in hotels
- d) Train only a few contractors after they have succeeded then start with others
- e) Teach technical subjects only
- f) Teach both technical subjects and business organization
- g) Any other (specify)

APPENDIX B

SAMPLE OF APPLICATION FORM

RE: APPLICATION FOR REGISTRATION AS CONTRACTOR WITH _____

Name of Firm: _____

Address & Telephone No.: _____

Location of Workshop:- _____

Status of the Firm: _____

(Individual/Partnership/Limited)

PARTNERSHIP

Name of Partners	Nationality	Level of Education
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____

LIMITED COMPANY

Names of Shareholders	Nationality	No. of Shares
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____

Registration of the Firm in Kenya

(Certificate No. (attach copy) -----

Date of Registration: -----

Bank Reference Name: -----

Address: -----

Professional References (give at least 3).

1. Name: -----

Address: -----

2. Name: -----

Address: -----

3. Name: -----

Address: -----

I would like to be registered in the category and job groups as marked with an "x" below.-

Category	Value of Works	
A	Unlimited	<input type="checkbox"/>
B	Up to £2,500,000	<input type="checkbox"/>
C	Up to £1,250,000	<input type="checkbox"/>

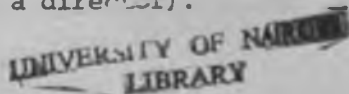
Category	Value of Works	
D	Up to £750,000	<input type="checkbox"/>
E	Up to £500,000	<input type="checkbox"/>
F	Up to £250,000	<input type="checkbox"/>
G	Up to £50,000	<input type="checkbox"/>

Job Group	Description	
1	Civil Engineering Work	<input type="checkbox"/>
2	General Building Work	<input type="checkbox"/>
3	Reinforced Concrete Work	<input type="checkbox"/>
4	Water Treatment Works	<input type="checkbox"/>
5	Carpentry	<input type="checkbox"/>
6	Plumbing	<input type="checkbox"/>
7	Electrical Installation	<input type="checkbox"/>
8	Sewerage Treatment	<input type="checkbox"/>
9	Steel Work	<input type="checkbox"/>
10	Painting & Repairs	<input type="checkbox"/>

The following additional information (if any) might be of interest:-

I have attached a list of contracts (both successfully and unsuccessfully completed by this company) and the technical background of at least one person in the company (preferably a director).

Yours faithfully,



(Manager's Signature)

(Name in Block Letters)

