

“A STUDY OF THE TRAINING NEEDS OF  
QUALITY CONTROL AND PRODUCTION  
MANAGERS IN CLOTHING INDUSTRIES IN  
NAIROBI”

BY  
OIGO, E. BOSIBORI

A Thesis submitted in partial fulfilment of the requirements for  
the degree of Master of Education at Kenyatta University

FACULTY OF HOME ECONOMICS  
KENYATTA UNIVERSITY

KENYATTA UNIVERSITY LIBRARY

JULY , 2000

Oigo, Bosibori E.  
*A study of the  
training needs of*



2000/258337

**DECLARATION**

This Thesis is my original work and has not been presented for a degree at any other University.



\_\_\_\_\_  
Oigo, Elizabeth Bosibori

The Thesis has been submitted with our approval as University Supervisors:



\_\_\_\_\_  
Dr. Dinah W. Tumuti  
Senior Lecturer and Chairman,  
Department of Textiles, Clothing and Design  
Kenyatta University.



\_\_\_\_\_  
Dr. Keren G. Mburugu  
Senior Lecturer,  
Department of Textiles, Clothing and Design  
Kenyatta University.

**DEDICATION**

To my parents Milkah and Samuel Oigo.

You have made great sacrifices for me and for Kevin  
that the future may be secure.

Thank you Lord, for the victory.

## ACKNOWLEDGEMENTS

I want to express gratitude to all of you who enabled, supported and empowered my writing in countless ways.

I thank my supervisors Dr. D. Tumuti and Dr. K. Mburugu who contributed vital comments right through from the early versions of the proposal and thesis. Thank you for being accessible, for guidance and your support throughout this project.

I am grateful to Mrs. Alambo, the Registrar of Industries, for providing information about the registered garment manufacturers in Nairobi. I also thank the managers in these industries for their willingness to participate and the time they spent answering questions. Without their open and honest discussion about their firms and the clothing industry in general, this study would not have been possible.

I am deeply grateful to my family for their love and support. Special gratitude goes to my parents for sponsoring my studies and for their unfailing love. To my brothers; Mike for encouraging me, and Isaac for typing, editing and contributing creative ideas during my work. To my cousins; Ken for assistance in locating and following up manufacturers in industrial area, and Kennedy for moral and material support. To my son Kevin, and to each of you, I say thanks for patiently putting up with changes in your lives and roles during my research.

I also thank my spiritual friends Betty, Penninah, and Atieno for their heartfelt prayers. Thank you all for being there for me and God bless you abundantly.

DECLARATION

DEDICATION

ACKNOWLEDGEMENTS

LIST OF TABLES

ABSTRACT

CHAPTER 1 - INTRODUCTION

- 1.1 Background information
- 1.2 Statement of the problem
- 1.3 Purpose of the study
- 1.4 Objectives of the study
- 1.5 Significance of the study
- 1.6 Definition of terms
- 1.7 Underlying Assumptions of the Study
- 1.8 Limitations of the study

CHAPTER 2 - LITERATURE REVIEW

2.1 Overview of the Existing Literature

2.2 Theoretical Framework

2.3 Empirical Studies

## TABLE OF CONTENTS

	page
DECLARATION .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENTS .....	iv
LIST OF TABLES .....	ix
ABSTRACT .....	xiii
<b>CHAPTER 1 - INTRODUCTION</b> .....	<b>1</b>
1.1 Background Information .....	1
1.2 Statement of the Problem ..	4
1.3 Purpose of the Study .....	5
1.4 Objectives of the Study .....	6
1.5 Significance of the Study .....	6
1.6 Definition of Terms .....	8
1.7 Underlying Assumption of the Study ..	11
1.8 Limitations of the Study .....	11
<b>CHAPTER 2 - LITERATURE REVIEW</b> .....	<b>13</b>
2.1 An Overview of the Clothing Manufacturing Industry .....	13
2.1.1 Introduction .....	13

2.1.2	Characteristics of the Clothing Industry ..	14
2.1.3	Types of Clothing Manufacturing Firms .....	15
2.1.4	The Clothing Manufacturing Process .....	16
2.1.5	Garment Assembly Systems .....	17
2.1.6	Organizational Structure in the Clothing Industry .....	19
2.2	Kenya's Clothing Industry .....	20
2.2.1	Characteristics of the Industry .....	20
2.2.2	Issues Relating to Kenya's Clothing Industry .....	21
2.3	Quality Control in Clothing Manufacture .....	24
2.3.1	Quality and Quality Control .....	24
2.3.2	Quality Specifications .....	25
2.3.3	The Quality Control Process .....	26
2.3.4	The Role of Various Departments in Quality Control .....	26
2.3.5	Determinants of Quality Control Procedures .....	27
2.4	Competencies Needed for the Quality Control Manager .....	28
2.4.1	Job Description .....	28
2.4.2	Training Background and Personal Qualities .....	29

2.5	Competencies Needed for the Production Manager .....	30
2.5.1	Job Description .....	30
2.5.2	Training Background and Personal Qualities ..	31
2.6	Training and Training Needs .....	31
2.6.1	Introduction .....	31
2.6.2	Types of Training .....	32
2.6.3	Training for the Clothing Industry .....	34
2.6.4	Establishing Training Needs .....	35
2.7	Summary of Literature Reviewed .....	38
 <b>CHAPTER 3 - METHODOLOGY</b> .....		<b>40</b>
3.1	Study Design .....	40
3.2	Study Location .....	41
3.3	Population .....	41
3.4	Sample and Sampling Procedures .....	42
3.4.1	Sample .....	42
3.4.2	Sampling Procedures .....	42
3.5	Development of the Research Instrument .....	44
3.6	Validity and Reliability of Instruments .....	45
3.7	Data Collection Procedures .....	46
3.8	Operational Definition of Variables .....	46
3.9	Data Analysis .....	47

<b>CHAPTER 4 - RESULTS AND DISCUSSION</b> .....	49
4.1 Introduction .....	49
4.2 Characteristics of the Firms .....	49
4.3 Competencies of the Respondents .....	55
4.4 Responsibilities and Duties of the Respondents .....	61
4.5 Problems and Solutions .....	65
4.5.1 Managerial Problems .....	66
4.5.2 Problems Related to Firm Characteristics ..	68
4.5.3 Problems Related to Quality .....	73
4.5.4 Problems Related to Liberalization .....	76
4.5.5 Policy and Economic Problems .....	79
4.6 Training Needs .....	82
4.7 Relationship Between Firm Characteristics and Problems .....	90
4.7.1 Type of Garment Produced .....	90
4.7.2 Capacity of Output .....	94
4.7.3 Target Market .....	95
4.7.4 Firm Size .....	96
4.8 Relationship between Competencies and Training Needs .....	98
4.8.1 Work Experience .....	98
4.8.2 Training Background .....	100
4.8.3 Type of Training Received .....	101

**CHAPTER 5 - SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

5.1 Summary .....104

5.1.1 Purpose of the Study .....104

5.1.2 Research Objectives .....104

5.1.3 Procedure .....105

5.1.4 Major Findings of the Study .....105

5.2 Conclusions .....108

5.3 Recommendations .....109

5.3.1 Suggestions for Further Research .....111

**REFERENCES** .....113

**APPENDICES** .....120

I Time Line .....120

II Budget .....121

III Introduction Letter .....122

IV Interview Schedule .....123

**LIST OF FIGURES**

Figure 1 Size of clothing manufacturing firms .....50

Figure 2 Formal education of respondents .....57

Figure 3 Content of pre-service training  
of respondents .....58

Figure 4	Content of in-service training of respondents .....	59
Figure 5	Preparation for job as perceived by respondents .....	60

**LIST OF TABLES**

Table 1	Range of garments produced .....	51
Table 2	Duties performed by respondents .....	62
Table 3	Top ranked duties of the respondents .....	63
Table 4	Managerial problems .....	66
Table 5	Problems related to firm characteristics ..	71
Table 6	Problems related to quality .....	74
Table 7	Problems related to liberalization and solutions .....	78
Table 8	Policy and economic problems and solutions .....	81
Table 9	Technical skills in which training is required .....	83
Table 10	Managerial skills in which training is required .....	84
Table 11	Number of respondents performing each duty .....	85
Table 12	Proportion of managers who required training in each duty .....	85
Table 13	Duties described as difficult .....	86
Table 14	Proportion of respondents who described each duty as difficult .....	86
Table 15	Top ranked duties in which training is required and described as difficult .....	87
Table 16	Relationship between type of clothing produced and managerial problems .....	91

Table 17	Relationship between type of clothing produced and problems related to liberalization .....	92
Table 18	Relationship between type of clothing produced and capacity of output .....	93
Table 19	Relationship between capacity of output and managerial problems .....	94
Table 20	Relationship between capacity of output and problems related to liberalization .....	95
Table 21	Relationship between target market and problems related to liberalization .....	96
Table 22	Relationship between firm size and problems related to liberalization .....	97
Table 23	Relationship between length of previous work experience and need for training in managerial skills .....	99
Table 24	Relationship between type of experience and need for training in managerial skills ...	100
Table 25	Relationship between content of previous training and need for training in technical skills .....	101
Table 26	Relationship between nature of training received and need for training in technical skills .....	102
Table 27	Relationship between nature of training received and need for training in managerial skills .....	103

## ABSTRACT

This study investigated the competencies and training needs of quality and production managers in large and medium size garment manufacturing firms in Nairobi. It also sought to know the relationship between the firm characteristics and problems they faced, and the relationship between the competencies and training needs of their managers. This information showed issues affecting the industry and proposed ways of dealing with them to improve the quality of clothing manufactured in Kenya.

A survey of 35 garment manufacturers was done between June 1996 and April 1997, and in-depth interviews carried out with their quality and production managers. The data collected was analysed then summarized using frequencies and percentages. Most of the firms were large and produced uniforms or undergarments for sale in the local market only. The study found that those making other types of clothing were more likely to experience problems arising from the liberalization of the economy, although all the firms had problems with quality.

All of the managers interviewed (13) said they combined the roles of Quality Control Manager and Production Manager but most of their duties involved production management rather than quality control. Fifty-four percent (seven) of the managers had worked for more

than ten years in their present jobs and had formal training in subjects related to their jobs. Approximately half of them (46%) felt they did not need further training in managerial skills. All four managers with on-the-job training as opposed to formal training expressed a need for training in technical skills.

On the basis of the findings, recommendations were made to the manufacturers to reduce the workload of their managers and take a more active role in purchasing high quality inputs. Technical institutes should develop their quality control courses so that they can conveniently be offered to the busy managers in clothing industries. The government needs to enforce legislation and institute policies to protect the clothing industry from unfair trade practices. This will enable it to revive and develop to its full potential, to cope with competition in a liberalized economy.

## CHAPTER 1

### 1.0

### Introduction

#### 1.1

#### Background Information

Clothing is a basic human need and is acquired either by purchasing ready-made clothes or by stitching them. In Kenya clothing is hand or machine stitched at home, made to order by tailors or seamstresses, or bought ready-made from clothing shops, open air markets or vendors. The ready-made clothing may be new or used and may also be imported or locally manufactured. In tailoring shops, the customer provides the materials or chooses from those stocked by the tailor, then decides on a design which is stitched using the customer's body measurements.

Large-scale manufacturers may produce clothing on order for a client who will provide the design, fabric and sewing notions or gives specifications for these to be obtained by the manufacturer. Alternatively, the manufacturers come up with a garment design that is then produced using fabric and notions of their choice and distributed to interested wholesale or retail outlets.

With the liberalization of the Kenyan economy, the volume of new and used ("mitumba") imported clothing has increased over the last five years, offering great competition to the local clothing industry (CBS, 1993). "Mitumba" consists of new or slightly used off-season

clothing; factory rejects with major or minor defects in the fabric, design, cutting, and/or stitching; as well as old clothes from the western countries (Kyenze,1995).

These are sold by individuals, clothing manufacturers and retailers, or given away for charity. The lower prices of "mitumba" and higher quality of imported over local ready-made clothing, were found to be reasons for preference of imported clothing in studies by Otieno (1990) and Nyang'or (1993) on Kenyan consumers.

Complaints relating to the quality of tailor-made clothing tend to arise from fabric characteristics such as colour loss and shrinkage after laundering. They may also be due to the tailor interpreting the design and body measurements incorrectly during the actual stitching of the garment. In mass-produced clothing however, these and other quality complaints may arise. The most common ones relate to poor fit (since standard, rather than actual, body measurements are used), weak stitching, narrow seam and hem allowances, unmatched fabric designs, and poor seam and edge finishing (Otieno,1990; Nyang'or,1993).

The steady decline of the Kenyan clothing industry over the last five years has been attributed to competition from imported clothes that are cheaper and often of higher quality, discouraging investment in this sector. Yet this industry has the potential to satisfy

local demand and provide a surplus for export. These observations were made by the Kenyan minister for Commerce and Industry as quoted in the local dailies: The Standard, Kenya Times, and Daily Nation of January 10, 1995. A World Bank study by Biggs et al (1994) also found that Kenya and several other African countries had the potential to produce quality clothing for export. To fully exploit the industry's potential, technical assistance and training in production methods, quality control and technical craft skills were specified as prerequisites. Improvements in Kenya's clothing quality were cited by Coughlin (1986) and McCormick (1989) as means of increasing local and international textile trade.

Consumer complaints regarding the quality of locally manufactured clothing and the decline of the Kenyan clothing industry have been cited above. In contrast, Kenya's potential as an exporter of high quality clothing has been documented, and the conditions for this identified. It is necessary to improve the quality of locally manufactured clothes to encourage local consumers to buy them and also enhance international trade in clothing. Considering that many clothing manufacturers are opening new firms in the Export Processing Zones (EPZs) (GOK, 1994-1997 Development Plan), all efforts to improve quality in Kenyan clothing to meet international

standards should be made.

## 1.2 Statement of the Problem

In evaluating the quality of clothing, a consumer observes three main garment attributes. These are the design, materials used and workmanship of construction processes (Tate, 1961; Stamper et al, 1986). If they conform to the consumer's needs and quality expectations, then the garment is likely to be purchased.

The characteristics of the firm in which clothes are manufactured and competencies of the quality control and production managers influence the quality of clothing produced. These managers coordinate and supervise the clothing production stages to ensure that specifications are correctly interpreted and quality standards maintained (Greenwood and Moore, 1978). The actual quality control procedures performed vary among firms depending on their characteristics (Cooklin, 1991).

The training and work experience of these managers should equip them with the necessary competencies to enable them to work effectively in firms of different characteristics. Their job descriptions should also incorporate quality control procedures at all stages of garment production. If, however, their training and work experience are inappropriate or their job descriptions do not include adequate quality control procedures, then

these factors are likely to have a negative impact on the quality of clothing manufactured.

Studies done in Kenya have pointed to low quality as a source of consumer dissatisfaction with locally manufactured clothing (Otieno,1990; Nyang'or,1993). Coughlin (1986) and McCormick (1989) stressed the importance of improving quality so that Kenyan textile products could compete effectively on the international market. Kenya's potential as an exporter of clothing was confirmed by Biggs et al (1994) who also indicated a need for training in quality control and production methods. However, none of these studies investigated the industrial determinants of low garment quality or the specific means of improving it. This study, therefore, emanated out of a need to fill this gap, by finding out the training needs of managers in this industry as they relate to quality.

### 1.3 Purpose of the Study

In view of the problem stated above, the purpose of this study was to find out the characteristics of clothing manufacturing firms and establish what problems they faced and the solutions they suggested for improvement. The study also sought to investigate the training needs of their quality control managers and production managers. These included technical and

managerial skills related to the typical duties and quality control procedures the managers carried out.

#### 1.4 Objectives of the Study

The objectives of the study were:

1. To determine the characteristics of selected clothing manufacturing firms in Nairobi.
2. To establish the technical and managerial competencies of the Quality Control Managers (QCMs) and Production Managers (PMs) in selected clothing manufacturing firms in Nairobi.
3. To find out the responsibilities that the QCMs and PMs held.
4. To establish what problems the respondents face in performing their jobs and the solutions they suggested to these problems.
5. To investigate the training needs of the QCMs and PMs.
6. To determine the relationship between the firm characteristics and the problems that respondents faced.
7. To determine the relationship between the competencies of the respondents and their perceived training needs.

#### 1.5 Significance of the Study

The results of this study will be made available to the clothing manufacturers, the ministries of Education; Commerce and Industry; and Research, Technical Training

and Applied Technology, and to educational institutions that train personnel for the clothing industry.

The manufacturers who participated in the study will be sent a summary of the research findings. This will show them the problems encountered by the quality control managers and production managers as well as their in-service training needs. It is hoped that this information will influence individual manufacturers positively to create an enabling environment by providing solutions to problems at the workplace and enrol their staff for in-service programs. This would improve the firms' quality control procedures and competencies of their employees.

The technical and managerial skills identified as lacking can be used as the basis for appropriate training and manpower development programs for the clothing industry. This can be done as a joint venture by officials from the Ministries of Education, and Technical Training and Applied Technology. They can also develop a curriculum for training production and quality control managers and offer it as pre-service or in-service training in the existing institutes of technology.

Training the managerial personnel in the clothing industry effectively in quality control would improve the quality of clothes. This in turn would boost sales on both the local and international market, leading to economic growth of the industry and increased foreign

exchange earnings.

1.6 Definition of Terms

1. Clothing industry

All business establishments engaged in the manufacture of garments worn on the body except the head, hands and feet (accessories). It includes firms that manufacture wearing apparel (classified under code number 3220, using the four digit International Standard Industrial Classification (ISIC) of the United Nations), but excludes manufacturers of knitted outerwear (ISIC code 3213) unless such clothing is cut out of knitted fabric then stitched.

2. Clothing quality

The degree of excellence of a garment, measured by comparing the raw materials, construction methods and design used with standards set by the manufacturers, consumers and Kenya Bureau of Standards.

3. Quality control

The inspection and analysis of samples of a mass-produced product by comparing it to a known standard to determine whether it should be accepted, rejected or changed to achieve the expected level of excellence.

#### 4. Quality Control Manager (QCM)

The individual whose role is to oversee the inspection of clothing (during manufacture and when finished) and recommend measures to be taken by staff, supervisors and management so that clothing meets the expected level of excellence.

#### 5. Production Manager (PM)

The individual employed by a manufacturing firm to plan and control the manufacturing process so that it moves smoothly and at the required level.

#### 6. Training background

Description of previous instruction and courses taken to provide skills relevant to the job responsibilities or position of employment held.

#### 7. Competencies

Knowledge, skills, ability and authority necessary for effective performance of duties and responsibilities.

#### 8. Work experience

A breakdown of the departments of a clothing firm in which an employee has worked as well as the duration of such work and the general duties performed.

9. In-service training

Formal learning experiences that a person engages in to improve their knowledge and skills while at the same time working. They can be learnt at the workplace or in an outside institution.

10. "Mitumba"

New or used clothing imported from other countries and sold much cheaper than locally made clothes. The new ones include clothing from the previous fashion season, sold by garment manufacturers and retailers to make room for the new season's designs. They may also be factory rejects with major or minor defects in the fabric, design, or stitching. The used clothes are usually given away by individuals for charity.

11. Medium scale firm

A manufacturing establishment with between twenty and forty-nine employees.

12. Large scale firm

A manufacturing establishment with fifty or more employees.

### 13. Firm characteristics

Classification of a manufacturing establishment according to its size, range of garments, target market, garment assembly system, capacity of output, and rating of garment quality.

#### 1.7 Underlying Assumption of the Study

Large and medium-scale clothing manufacturers are more likely to have an organizational structure which includes both a Production Manager and a Quality Control Manager. Those without both job positions have a single individual responsible for both the quality control and production management functions.

#### 1.8 Limitations of the Study

1. Manufacturers of knitted garments and accessories were excluded from the study since they do not use typical clothing construction processes and materials.

2. Time and funds were not sufficient to collect data using an in depth study by observation of the managers in all the large and medium-scale garment manufacturing firms.

3. The results of the study will largely be generalized to other large and medium-scale garment manufacturers within Nairobi since the response rate of the study sample was low (37%). Only 13 out of the 35 manufacturers visited were willing to participate in the study. Any generalizations should, therefore, be done with caution due to this low response rate.

2.0 Literature Review

Literature has been reviewed under the following sub-topics:

1. An overview of the clothing manufacturing industry
2. Kenya's clothing industry
3. Quality control in clothing manufacture
4. Competencies needed for the Quality Control

Manager

5. Competencies needed for the Production Manager
6. Training and training needs

2.1 An Overview of the Clothing Manufacturing Industry

2.1.1 Introduction

The textile industry consists of manufacturers of fibres, fabrics and the textile products from these materials. These products include household furnishings, travel bags, medical supplies such as bandages, and industrial requirements like conveyor belts. The clothing industry is part of the larger textile industry and includes many firms which use knitted, bonded or woven fabrics as its main raw materials for garments (Merkel, 1991). It is a labour intensive industry and provides employment to people of varied skills. It also contributes to the economy through local and export sales.

### 2.1.2 Characteristics of the Clothing Industry

Clothing manufacturing firms vary widely in size. It is easy to set up a clothing firm since the production processes are uniform, and the only major equipment initially required is a sewing machine. This means that small firms with less than twenty employees can be set up. Including sales activities and/or textile production with garment manufacture results in larger firms with hundreds of employees (Greenwood and Murphy, 1978; Stamper et al, 1986). The actual size of a particular firm depends on starting capital, range of products and the level of integration with textile production and sales activities (Greenwood and Murphy, 1978). Most manufacturers in Britain employ over 25 people, while in the U.S. 70% of the clothing industries have fewer than 50 employees (Jarnow and Judelle, 1974; Cooklin, 1991).

Exit from the industry is also easy due to competition from local as well as imported clothing and the high rate of fashion change. These lead to a high incidence of bankruptcy in both large and small firms (dePaola and Mueller, 1980; Stamper et al, 1986). The clothing industry is responsible for producing a wide variety of garments to meet the market needs. Those that a firm makes may be classified according to the specific type of garment. These include children's wear, inner garments, rain wear, men's wear, or women's wear

(Cooklin,1991). Large firms tend to specialize in only one category, while smaller ones produce a variety depending on the orders received and their flexibility in responding to fashion change (Jarnow and Judelle, 1974; Greenwood and Murphy, 1978).

### 2.1.3 Types of Clothing Manufacturing Firms

There are two main categories of manufacturing firms, those who are responsible for all production stages in a garment and those that carry out only some of these stages. The manufacturers on own account perform all of the production stages from design to selling of clothing, while the contractors (also called jobbers and sub-contractors) carry out some or all these stages at a fee on behalf of other manufacturers. The contractors can be supplied with cut garments to sew and package or receive an order then be responsible for obtaining the raw materials then producing the garments accordingly (Jarnow and Judelle, 1974; Greenwood and Murphy,1978; dePaola and Mueller,1980; Stamper et al,1986).

The manufacturers are also called inside shops and produce clothes from beginning to end then sell them in their own shops or to other retailers. Jobbers design the clothing, buy fabric and cut out the garments. They then pay other firms to carry out the stitching. Contractors are provided with some or all of the following: design,

pattern marker, fabric, thread, and trimmings. They then buy the rest of the inputs not provided and continue with their main activity which is to stitch together the garment according to the specifications given by the jobber.

#### 2.1.4 The Clothing Manufacturing Process

The manufacturing process consists of two main stages, designing and production (dePaola and Mueller, 1980). Stamper et al (1986) are more detailed and specify purchase of fabric, cutting, sewing and finishing as the main garment production processes.

Once orders are placed with a contractor or a garment is designed by a manufacturer, the typical procedures are as follows: A production pattern for the design is then made and graded according to the range of sizes ordered; a pattern layout (marker) for several garments of the same style and fabric is developed to be used in cutting; meanwhile the fabric to be used is purchased then checked for flaws once it has been received. The fabric is then spread into between fifty and a hundred layers ready for cutting. Cutting is usually carried out using electrical equipment -- a band knife or circular blade. The cut pieces are bundled together then those for each garment are identified using numbered stickers.

The cut garments are then stitched, either by one

person from start to finish or on an assembly line where each machine operator specialises in one task or one part of each garment. The assembled garment is pressed and finished (neatening the interior and exterior details) and finally inspected for loose threads and construction errors before packaging. These are the typical production steps in clothing manufacture as outlined by dePaola and Meuller (1980) and Stamper et al (1986).

#### 2.1.5 Garment Assembly Systems

A cut garment can be stitched, either by one person or by several people. The garment assembly system where only one person stitches it from beginning to end is referred to as the making through system (Blackburn, 1973; Cooklin, 1991) or as the whole garment system (Solinger, 1984). It is most often used in firms that produce a variety of styles in small numbers. The workers must have high levels of skill, and because of this the quality of clothing is usually, quite high and they require little supervision (Cooklin, 1991).

The general name for the garment assembly system where several people make up a garment is the assembly line or sectionalisation system (Solinger, 1984). The manufacturing processes are broken down into several steps that may or may not take the same amount of time to perform. Each machine operator works on one or more of

these steps with the work moving between them either as a whole garment or in pieces. Garments may also be moved individually or in batches either manually in chutes or carts, or using mechanical devices such as conveyor belts and overhead hangers.

In the task and sectional (process) garment assembly systems identified by dePaola and Meuller (1980) and Cooklin (1991) respectively, each machine operator performs several steps to make up part of the garment.

The piecework system is the most specialised garment assembly system and each machine operator performs only one step in garment construction (dePaola and Meuller, 1980). In the synchro-flow and synchro systems, each of the steps take equal lengths of time. The garment pieces move one at a time between operators in unit flow systems. In the contrasting multiple-flow systems, garments are moved in batches (Solinger, 1984).

These assembly line systems accommodate workers of varied skill levels, but because of this require much more supervision and in-process quality control. Their productivity is far higher than making through and most efficient in big firms producing large numbers of similar garments (Blackburn, 1973; Cooklin, 1991). Each of the garment assembly systems above has implications on garment quality, and conditions under which it works most efficiently. The system adopted depends on the size of the

firm, its range of products as well as the skills of their employees.

#### 2.1.6 Organizational Structure in the Clothing Industry

Whatever garment assembly system is adopted by a firm, the organisation must be such that cooperation among the departments is encouraged. This is to ensure that work between the different production stages flows smoothly. A conventional organizational chart consists of five departments: design, marketing, production, operations and finance. Each is headed by a director who reports to the Managing Director (Cooklin, 1991).

Ideally, the Quality Control and Production Managers should be at equivalent levels to the other managers (Kendall and Sproles, 1987; Chuter, 1988). This is to maintain a balance between quality and cost considerations in making production and purchase decisions (Lester et al, 1977). However, in firms with less than 500 employees it may be necessary to combine the roles of the QCM and other managers (Lester et al, 1977). This creates difficulty in resolving conflicts between quality, cost, design, and other considerations in decision-making. As far as possible this should be avoided to minimise bias against quality.

## 2.2 Kenya's Clothing Industry

### 2.2.1 Characteristics of the Industry

As in other countries, the clothing industry in Kenya is also made up of large, small, and medium-scale manufacturers. It is the third largest employer of women in Kenya after food processing and canning industries (Republic of Kenya, 1992). Statistics over the years show a decrease in the number of clothing firms and fluctuations in the proportion of small and medium-scale ones.

In 1985 there were a total of 433 firms; the number fell to 240 in 1988 and in 1991 there were 234 firms. The proportion of those with over twenty employees rose sharply from 21% in 1985 to 77% in 1988. The percentage fell to 44% in 1991. (Republic of Kenya, 1985; 1988; 1994). The "1992 Economic Survey" showed a significant drop in the output of the clothing industry resulting from competition between local and imported textile products. Similarly, the "1993 Economic Survey" indicated a steady decline in the clothing industry over the previous five years attributed to imposition of export quotas by a major trading partner, and liberalization of the economy.

The quota restrictions placed on Kenyan textile products by USA in 1993, were finally lifted in 1998 on the USA government's own initiative (Kelley, 1997). These quotas arose because of trans-shipment, where corrupt

Kenyan businessmen were importing garments from countries which already had quotas restricting their exports to USA, then labelling them as 'made in Kenya' and exporting them to the USA. Poor enforcement of laws by government agents created loop-holes that allowed this illegal practice. The resulting quotas led to the loss of jobs, investment and income for individuals and business enterprises (GOK,1995; Omondi,1997; Opanga,1997).

Unfortunately, our government dragged its feet even when the opportunity to lobby for the lifting of the quotas arose in November 1997 (Omondi,1997; Opanga,1997). This is in contrast to the protection the American government offered its investors and citizens, by only lifting the quotas after investigations showed that this would not have a negative impact on its textile industry (which is very well established) (Kelley,1997). The Kenyan government similarly needs to actively protect the interests of its developing industries.

These statistics are an indication of easy entry and exit which is characteristic of the clothing industry. They also show the vulnerability of the industry to prevailing economic conditions, both local and international.

### 2.2.2 Issues Relating to Kenya's Clothing Industry

The clothing industry in Kenya has the potential to

increase clothing output from its current levels. This was noted by the Minister for Commerce and Industry who also emphasized a need to produce quality goods. He also announced that a committee had been set up to ensure quality maintenance and monitor the progress of the industry (Daily Nation, 1994, June 9). The potential of Kenya's clothing industry to produce high quality clothing for export has also been noted in a World Bank study on African countries producing clothing and handcrafts. Full exploitation of this potential requires training in production methods, quality control, and technical skills (Biggs et al, 1994).

In reiterating the potential of the local clothing industry, the Minister for Commerce and Industry also expressed concern about the widespread importation of textiles and textile products. These were said to be a threat to the local industry by offering unfair competition. The imported new and used ("mitumba") clothes are cheaper in price than comparable local products and as a result were a source of disincentive to investment in the textile industry. In addition, he said that much of the clothing imported was poorly constructed and did not meet local quality standards. To counteract these negative effects on the local industry, the Minister indicated that plans were under way to introduce a tax on "mitumba" to make their prices comparable to those of

local clothing and gradually phase out "mitumba" within five years. Inspection of imports would also be enforced to ensure that they meet local standards. It was hoped that these measures would encourage the cotton farmers and others interested in investing in the sector (Daily Nation, 1995, January 10; Kenya Times, 1995, January 10; The Standard, 1995, January 10). The higher taxes have since been effected following the minister's budget day speech of July 1995.

Consumer related studies have found that Kenyan consumers are dissatisfied with the quality of locally manufactured clothing. Otieno (1990), in a study of factors influencing clothing selection by Kenyans, found that many consumers were unhappy with the quality of locally manufactured clothing. Nyang'or (1993) investigated reasons why Kenyan consumers preferred imported clothes and found that they felt that imported ones were of higher quality. The study, therefore, recommended that local manufacturers design unique clothing styles and improve fabric finishes and the workmanship of clothing.

Studies in the industry have tended to concentrate on the manufacture of textiles and the economic significance of the textile industry. Coughlin (1986), in his study on import substitution in the textile industry, included a number of small-scale manufacturers and those integrated

with textile firms. He found that the quality of management varied widely in both. The top management of textile firms and entrepreneurs in the industry knew little about textiles and had inadequate business skills. He recommended that the quality of textile products be improved so that they can compete on the international market. McCormick (1989), in a proposal to study small-scale garment manufacturers in Nairobi to identify success patterns, also cited a need for improved clothing quality.

As indicated above, the major issues in the local clothing industry are competition from imports and the poor quality of local products. However, the potential of the industry to increase production and quality to meet local and export needs has also been noted. This can be done by providing training to the managers and other staff in the industry in both managerial and technical aspects of clothing manufacture.

## 2.3 Quality Control in Clothing Manufacture

### 2.3.1 Quality and Quality Control

Clothing quality refers to the degree of excellence of a garment and it is measured according to the raw materials, design and construction of a garment. These attributes are compared with standards set by members of the industry, service organizations, consumer unions and government agencies, among others (Solinger, 1984;

Merkel,1991). The standards are general or specific criteria that are measurable and include raw materials, construction procedures, and measurements of the garment (Cooklin,1991; Merkel,1991).

Quality control is the inspection and analysis of samples of a mass-produced item to compare it with a standard and determine whether it should be accepted or rejected and changed to achieve the expected level of excellence (Lester et al,1977).

### 2.3.2 Quality Specifications

In Kenya, standards that regulate the construction and labelling of clothing have been drawn up by the Kenya Bureau of Standards (KEBS) and representatives of the clothing manufacturers and retailers. These standards cover specifications for critical measurements of garment widths and lengths, types of seams and seam finishes, stitching, and garment defects. The standards have an additional clause which states that all garments should be free from stains, defective stitching, loose threads, fraying fabric, non-aligned pockets, holes, and any other characteristic affecting the serviceability, durability or appearance of the garment.

At all the garment production stages, the specifications are used as a guide to acceptable quality standards for raw materials, measurements and sewing

processes (Lester et al,1977; Cooklin,1991). The manufacturer may use the KEBS specifications above or those given by individual clients who have placed an order. They must be correctly interpreted in order to maintain quality.

### 2.3.3 The Quality Control Process

The scope of quality control (QC) procedures varies among clothing manufacturers. At the most basic level it merely involves checking the finished product for mistakes and correcting them where possible (Greenwood and Murphy,1978). Cooklin (1991) explains it as the process of establishing standards then measuring the degree of conformity to them and recommending corrective procedures to maintain the quality standards. A more encompassing view is given by Lester et al (1977) who describe QC as the inspection and testing of process and production to detect and correct problems early. Intensive quality control procedures reduce time, labour, money, and materials costs in repairing, reworking, or discarding poor quality products.

### 2.3.4 The Role of Various Departments in Quality Control

In a clothing manufacturing firm, each department and production process is important in determining and maintaining the quality of garments (Lester et al,1977;

Chuter,1988). The sales and marketing departments carry out market research to facilitate the design of clothing in styles, colours, fabric, sizes, and prices that meet the consumer's expectations. The design department ensures that the garment has no weak points that require excessive attention during stitching or that may fail during reasonable wear. It also makes sure that the pattern sizing system conforms to the typical body measurements of the consumers targeted (Morawetz,1980; Cooklin,1991). The fabric and sewing notions should be suitable for the design and able to withstand reasonable laundry and use. At all of the production stages, from cutting to packaging, specifications should be used as a guide to acceptable standards for raw materials and processes used. Random samples should be inspected at all the stages to detect problems and correct them to meet specifications (Lester et al, 1977; Greenwood and Murphy,1978).

#### 2.3.5 Determinants of Quality Control Procedures

The extent of quality control procedures engaged in by a particular manufacturer depends on the extent to which quality is a source of greater profit or incentive (Morawetz,1980) as well as the characteristics of the firm and those of the employees. Morawetz (1980), in a study of garment manufacture in Colombia, identified three such characteristics. These are the skill of managers and

workers, the quality of inputs, and the quality and maintenance of equipment. The degree of exposure a manufacturer had to international quality norms and standards also influenced the intensity of work effort towards quality control.

In small clothing firms engaged in the making-through garment assembly system, QC is quite straight-forward and may be done by each operator. However, as the size of the firms increase and the range of products is diversified, there may be a need for extensive QC procedures and a large QC department.

In a typical clothing manufacturing firm, the QCM and the PM work together to supervise the production of clothing through all processes to ensure that quality standards are maintained. They both have specific roles in the manufacturing firm yet must coordinate these to keep the quality standards (Cooklin, 1991).

## 2.4 Competencies Needed for the Quality Control Manager

### 2.4.1 Job Description

The Quality Control Manager (QCM) is the head of the Quality Control department and plans and controls the activity of the quality supervisors and inspectors. They are deployed to the various sections to check on the work in progress and report their findings and recommendations. The QCM consults with, and advises, the General Manager,

departmental managers, and other staff regarding their roles in maintaining quality. This manager is also involved in coordinating the activities of the quality control department with those of other departments. Coordination with the sales and marketing department is by determining the capacity of the firm to produce clothing with the processes and quality standards specified by the clients or according to consumers' expectations. The QCM also controls the materials used by ensuring that inputs purchased are sampled and inspected to see that they conform to specifications. The overall quality of products is also discussed and suggestions made by staff on changes in production operations, working environment, technology and machinery and inputs that would improve quality (Lester et al, 1977; Cooklin, 1991).

#### 2.4.2 Training Background and Personal Qualities

The training and education of QCMs should equip them with both technical and managerial skills. They should have statistical abilities to interpret and act on quality trends noticed. They also require an understanding of the interrelationship between the Quality Control department and the other departments in the clothing firm as well as management techniques for optimum utilization of these (Lester et al, 1977). The QCM should also have an educational background in apparel design, manufacture and

quality control and an understanding of the steps involved in apparel production (Kendall and Sproles, 1987).

Cooklin(1991) adds that the QCM should have an in-depth understanding of the company products and a perceptive view of customer's attitudes regarding clothing quality. Finally, the following personal qualities are useful for the QCM to have; patience, good interpersonal communication skills, and stamina to work in the noisy and busy environment of the clothing manufacture process (Vanderhoff,1977; Kendall and Sproles,1987).

## 2.5 Competencies Needed for the Production Manager

### 2.5.1 Job Description

The PM is responsible for coordinating the activities of garment design and production (Greenwood and Murphy,1978). This involves analyzing consumer needs and fashion trends then assisting in the choice of clothing designs to meet these requirements. The PM obtains the production supplies then directs and supervises the machine operators and other staff involved in producing the garments designed. The workers are organized and assigned tasks so that maximum efficiency and speed are maintained. The PM may have to utilize time and motion studies to train workers in quick and efficient assembly procedures. Cost management is also one of the PM's roles by ensuring production at the lowest labour and materials

cost. This is done by assigning workers tasks and pay according to their qualifications and minimizing waste of materials during the cutting and sewing of garments (Kendall and Sproles, 1987).

### 2.5.2 Training Background and Personal Qualities

The PM should have courses in apparel design, manufacture, and quality control. In addition, training in production management, human factors engineering and Computer-Aided-Design (CAD) are also useful (Kendall and Sproles, 1987). Greenwood and Murphy (1978) specify training in fabric performance, clothing construction techniques, and production methods as prerequisites for PMs in addition to management and technical skills.

The personal qualities useful to them are high organizational ability, interest in keeping up-to-date on relevant technological advances and ability to work in stressful conditions to meet strict deadlines. Patience is also necessary since the job entails teaching technical skills and work procedures to the machine operators (Kendall and Sproles, 1987).

## 2.6 Training and Training Needs

### 2.6.1 Introduction

Mills (1974) defines training as a process that involves the acquisition of skills, attitudes and

qualities of character, it results in an understanding of what a job entails and facilitates efficient performance. Lynton and Pareek (1978) see training as activities organized to enable a person to acquire skills and understanding. It prepares one for work and improves performance in those already employed.

In contrast, education refers to a public instructional program offered to students in primary, secondary and post-secondary institutions of learning (Wentling, 1980). It gives them knowledge about the world they live in and enables them to identify their interests and eventually to choose a way of life and career (Lynton and Pareek, 1978). Education is broad and involves personal growth over a long period, while training focuses on improving performance in specific tasks.

### 2.6.2 Types of Training

Training may be carried out before a person begins employment --- pre-service training --- or during the course of one's working life --- in-service training.

#### Pre-service Training

Pre-service training prepares one for a specific job in organizations with similar work procedures and technology (Lynton and Pareek, 1978). The training provides skills, attitudes and knowledge for an understanding of

the job or how to do the tasks involved. This enables one to work to the satisfaction of prospective employers (Mills,1974).

### In-service Training

In-service training is designed for the improvement of knowledge, skills and attitudes that a person already has. It is used to upgrade staff, improve their performance and facilitate efficiency at one's job (Mills,1974; Lynton and Pareek,1978; Wentling,1980; Keregero,1981). The participants are actively involved in their employment and at the same time enrolled in institutions of learning that offer related theory and practical lessons (Logan,1985; Republic of Kenya,1991).

Formal in-service programs may be carried out on a part-time or full-time basis. Part-time courses are taken for some hours of the workday or in the evenings. Full-time courses involve taking a study leave from work, learning for an extended period then returning to the same job on completion of the course. In some cases work and training are alternated for several weeks or months each for the time it takes to finish the course (Republic of Kenya, 1991).

On-the-job training is informal and involves a supervisor or experienced colleague teaching a new worker the skills related to the job. This may or may not be accompanied by formal classroom sessions (Logan,1985).

The flexibility of in-service training makes it attractive to employers and employees alike. It has the major role of preparing employees to meet new demands of a job on them. These may arise from changing technology or imbalances between the pre-service training given and the actual job situation requirements. In addition, it ensures that staff gain practical experience during training. In-service training also gives maximum benefit to employers since they continue to enjoy the services of their workers during the course of learning (Lynton and Pareek, 1978; Republic of Kenya, 1991).

### 2.6.3 Training for the Clothing Industry

Clothing manufacture is done using uniform processes and similar equipment. Those working in it should therefore be trained in the specialised skills involved. The machine operators and other workers need varied levels of technical skills while their supervisors and higher staff require both technical and managerial skills.

The technical skills of garment design, cutting and sewing are obtained in institutions offering courses in clothing design and construction. Managerial skills may also be offered as part of their curriculum or in specialised management institutes, seminars, and/or workshops.

In Kenya, training for the clothing industry is

offered at four levels. Artisan courses in garment-making are offered at youth polytechnics and in some technical institutes. They take two years and are targeted at primary school leavers. Three year craft courses in garment manufacture are available to secondary school leavers. These can be done at institutes of technology or technical training institutes. The secondary school leavers may also take a diploma course in clothing technology at the Kenya Polytechnic or courses in clothing design and construction at the private design colleges (Republic of Kenya, 1991). Degree courses in home economics at the private and public universities can also be done by those interested in careers in the clothing industry.

The Kenya Textile Training Institute also offers a specialised four year course titled "Quality Control in Garment Making" and a three year garment making craft course. These are offered as in-service courses to applicants fully sponsored by their employers (Republic of Kenya, 1991).

#### 2.6.4 Establishing Training Needs

Training needs are defined by Keregero (1981) as ways of thinking and acting that workers lack or which cause them to perform below the desired standard. Their behaviour at work shows a need for improvement in their knowledge, skills and attitudes, and therefore calls for

in-service training. Such training becomes necessary because of the changing nature of jobs resulting from new technology or changes and imbalances in the internal functioning of a firm that reduce its standards of operation (Lynton and Pareek, 1978). Training may also be required when a firm expands or sets up new services and is most effective when the exact training needed is first investigated (Mills, 1974).

Training needs can be established by carrying out a worker survey, then using the results to develop course objectives and training strategies to improve pre-service or in-service training (Mills, 1974; Lynton and Pareek, 1978; Wentling, 1980). This can be done by employers seeking to improve their efficiency, by training institutions developing curricula, or by independent researchers (Wentling, 1980).

The training needs are best determined from the workers themselves using a systematic approach (Keregero, 1981). The worker survey can be done by use of interviews and questionnaires asking them what extra training they feel they need and/or observing them to assess their competencies (Wentling, 1980). Observing their behaviour shows what the job involves. The most important requirements for the job can be determined by comparing the activities of those who are successful with those of their unsuccessful counterparts. These requirements are

the starting point for developing more adequate pre-service training and in-service courses (Keregero,1981). This was the approach he used in a study on Tanzanian extension workers to identify their training needs and design a suitable training program.

Lynton and Pareek (1978) suggest that training needs can be identified by comparing the present job requirements with the ideal ones. This involves carrying out a detailed job analysis with three major aspects: First, a description of how the job should be done is given, including the physical conditions, time pressures and access to colleagues, superiors and extra resources when doing it. Secondly, the requirements of the job that make a difference between effective and ineffective performance should be identified. Finally, job specifications should be indicated. These are the knowledge, skills, relationships with colleagues, roles and time constraints involved in the job.

Once the training needs are identified, they can be used to set up effective training strategies. The subject matter and learning activities are based on the job requirements and the actual tasks involved (Mager and Beach,1967). This makes the training relevant to the job done.

Literature was reviewed under the sections above to provide insight on the problem under study and the working of the clothing industry. The overview of the industry gave its characteristics and the participants and procedures in garment construction. These were helpful in giving details on aspects of firm characteristics when preparing the research instrument. Literature on Kenya's clothing industry showed its size and the location of the individual firms as well as issues affecting it. This information provided background to the problem under investigation and assisted in deciding on a suitable study location.

The section on quality control in clothing manufacture defined the terms quality and quality control and the role of various departments in this. It also gave a view on the aspects of firms that influence the quality of clothing they produce. This information was used to write questions to investigate the exact quality control procedures and participants in them at individual firms.

The training and job descriptions of the two managers were discussed. This formed a basis for the comparison of their actual competencies with those in literature.

Finally, the literature on training and training needs gave the purpose of training, different ways of carrying it out, and training opportunities in Kenya related to the clothing industry. The methods of determining training needs

related to the clothing industry. The methods of determining training needs indicated were helpful in deciding how to find out the training needs of the respondents to be studied. The literature reviewed was, therefore, a guide in carrying out the study.

1. Study Design
2. Study Location
3. Population
4. Sample and sampling procedure
5. Development of the research instrument
6. Data collection procedure
7. Validity and reliability of the instrument
8. Operational definition of the variables
9. Data analysis

### 3.1 RESEARCH DESIGN

This was an exploratory study to determine the training needs of quality control inspectors in the clothing industry. The study was exploratory in nature and was designed to provide a general overview of the training needs of quality control inspectors in the clothing industry. The study was exploratory in nature and was designed to provide a general overview of the training needs of quality control inspectors in the clothing industry. The study was exploratory in nature and was designed to provide a general overview of the training needs of quality control inspectors in the clothing industry.

**Methodology**

The research methodology employed in carrying out this study is described in this chapter under the following sub-topics:

1. Study design
2. Study location
3. Population
4. Sample and sampling procedure
5. Development of the research instruments
6. Data collection procedures
7. Validity and reliability of the instruments
8. Operational definition of the variables
9. Data analysis

Study Design

This was an exploratory study to investigate and identify the training needs of quality control managers and production managers in clothing manufacturing firms in Nairobi. The study also sought to identify the typical duties and quality control procedures they engaged in, as well as problems they encountered and their suggested solutions. This study was exploratory since the ready-made clothing manufactured in Kenya is an area in which much research has not been documented. The study, therefore, sought to establish issues relating to clothing manufacture

in Kenya.

A survey was conducted in order to collect extensive data from many firms within a short time. The data was collected by formal interviews that enabled probing and to ensure a high completion rate. All of the interviews were done by the researcher for uniformity, and yielded information that was relatively reliable considering that it would have been too costly to collect more detailed data if observation of each respondent had been attempted.

### 3.2 Study Location

Nairobi was selected since a large proportion of clothing manufacturers are located in the region. At the time when the study was conducted 91 (86%) of the 113 clothing firms registered country-wide were located in Nairobi. In addition, most of these firms were based in the industrial area which made it possible to reach them conveniently during the study period.

### 3.3 Population

The target population of this study was all the QCMs and PMS working in medium and large scale garment manufacturing firms in Nairobi. A list of garment manufacturers was initially compiled from : "The Kenya Association of Manufacturers Industrial Index and Members List", "The Kenya Business Directory", "The Central Bureau

of Statistics Directory of Industries", "The Preferential Trade Area (PTA) Manufacturers Directory", "The Kenya Posts & Telecommunications Telephone Directory" and a personal contact at Nairobi's EPZ (Export Processing Zone). These sources indicated that there were 254 garment firms in Nairobi, but inquiries from the Registrar of Industries showed that only 91 of these firms were actually registered. Of these registered firms, 70 were medium and large scale firms (employing 20 or more people). The QCMs and PMs in these 70 firms were the target population for this study.

### 3.4 Sample and Sampling Procedures

#### 3.4.1 Sample

A sample of 35 (50%) of the registered large and medium scale garment manufacturing firms in Nairobi were randomly sampled. These 35 industries were the unit of observation, and the QCMs and PMs they employed were the respondents.

#### 3.4.2 Sampling Procedure

The sampling frame used was the list of registered garment manufacturers obtained from the Registrar of Industries. A sample of 35 firms was randomly sampled using a table of random numbers. The physical locations of those sampled were confirmed by a preliminary survey. The manufacturers not found were replaced, again by random

sampling and their physical locations confirmed. Before embarking on the study, the General Managers of the firms were contacted and approached to seek permission to interview their QCMs and PMs and subsequently made appointments.

Between June and October 1996, 16 factories in the sampling frame had been contacted. Of these 16, only three firms actually participated in the interview. Three had closed down, three declined to participate in the study, four were visited personally and/or contacted on phone between five and ten times each without success in obtaining an appointment; while three expressed willingness to participate at a later date -- preferably after January 1997. One of them had suspended production for the next two months due to lack of orders, while the other two had production deadlines to meet for Christmas and the new school year, and were therefore not available for the study.

The low success rate in obtaining willing respondents for the interview was as a result of the general decline of Kenya's textile industry following the liberalization of the economy in 1992. An unpublished report by the Ministry of Commerce and Industry on closed down industrial firms in Kenya showed that 13 clothing firms had closed down (GOK, 1995). The report found that competition from imports had reduced sales to the extent that many clothing manufacturers closed. Those that remained open, retrenched

staff and continued minimal production well below their capacity output in order to survive. It is against this background that this study was carried out.

Data collection was resumed in January 1997, and by April all 35 manufacturers had been visited, but the problem of a low response rate persisted. Some manufacturers gave appointments but later refused to participate, others declined outright citing business and personal pressures, while more firms were found to have closed or changed their line of business. Those who declined to participate were often suspicious and had a negative attitude to the research activities. Despite scrutinizing the researchers' permit from the Office of the President and letters of introduction by the supervisor, they still did not accept to participate in the study. All in all, a total of 13 clothing manufacturers took part in the study, and this number represented a response rate of 37% of the sample.

### 3.5 Development of the Research Instruments

An in-depth structured interview schedule with the following four sections was used to gather information needed to achieve the study objectives:

Section 1 - Firm Characteristics

Section 2 - Respondents' Characteristics

Section 3 - Job Description and Training Needs

Section 4 - Problems and Solutions

The questions were based on information gathered from literature reviewed and previous personal observations of garment manufacturers. The training background, job descriptions and firm characteristics were determined using structured questions. Detailed information regarding problems that the respondents faced, suggested solutions, and competencies they perceived as lacking was gathered using unstructured questions.

### 3.6 Validity and Reliability of Instruments

Once the interview schedule had been developed, it was submitted to lecturers in Clothing and Textiles and Research Methodology for scrutiny. Their comments on content and format were used to revise the interview schedule for greater validity and reliability. The content was changed to include questions on the target market of the firms visited and the gender distribution of their employees. The format of the interview schedule was altered to begin with general industry related questions that were non-threatening, while the more probing ones were moved towards the end. Questions addressing similar concepts were combined to shorten the instrument, this also made it easier to record the responses.

The interview schedule had three parts in Section 3 initially. Part A was targeted at the QCM, part B at the PM, and part C at those doing both jobs. During the study it was

found that all the managers did both the QCM and PM jobs. This made parts A and B of section 3 unnecessary and they were omitted from the interview schedule, leaving part C that was relevant to all the respondents.

### 3.7 Data Collection Procedures

Data collection took a total of 10 months with frequent breaks in between subsequent visits to certain firms sampled due to their busy schedules and inability to participate on short notice or when initially visited. An average of 4 visits were made to participating firms: to locate the firms; to make appointments; to leave the interview schedule for the managers who wanted to read through it first; and to come back for the actual interview.

The respondents were asked the questions on the interview schedule and probed for further information on the open ended questions. Their responses and any other comments they made that were related to the questions were recorded by the researcher. Most of the respondents were extremely busy and due to frequent interruptions the interview sessions lasted 40 to 50 minutes, which was longer than the 30 minutes initially proposed.

### 3.8 Operational Definition of Variables

#### 1. Training background

Titles of certificates held and related courses done.

2. Job title

Work designation in terms of responsibility.

3. Range of products

Specific clothing items made by the firm.

4. Firm size

The total number of people working in the firm (medium scale firms have 20 to 49 workers while large scale firms have 50 or more workers).

5. Daily output

The number and type of clothing articles that each worker makes each day on average.

6. Garment assembly system

The method machine operators use in stitching together a cut garment -- each making an entire garment or only part(s) of it.

7. Training need

A technical or managerial skill which a QCM or PM states that he/she requires additional training in.

3.9

Data Analysis

Descriptive statistics were used to analyze and

summarize the firms' and respondents' characteristics. The relationships between firm and respondents' characteristics and the problems and training needs they identified were analyzed and summarized using frequencies and percentages.

The specific variables were analyzed according to each study objective as below:

1. Firm characteristics were analyzed then summarized by frequency, range and mean.

2. The training background and work experience were analyzed and summarized by range, mean and mode.

3. The problems faced and suggested solution were summarized by frequency distributions.

4. Training needs were summarized by frequency distribution.

5. Cross-tabulations were done between firm characteristics and problems identified; and between respondents' competencies and their training needs. The relationship between these variables was summarized using percentages.

## Results and Discussion

### Introduction

The purpose of this study was to establish the training needs of Quality Control Managers and Production Managers in clothing manufacturing firms in Nairobi. To do this, data was collected from these managers using an interview schedule with structured and unstructured questions.

The results of data analysis and report of the findings are presented in this chapter under the following sub-topics:

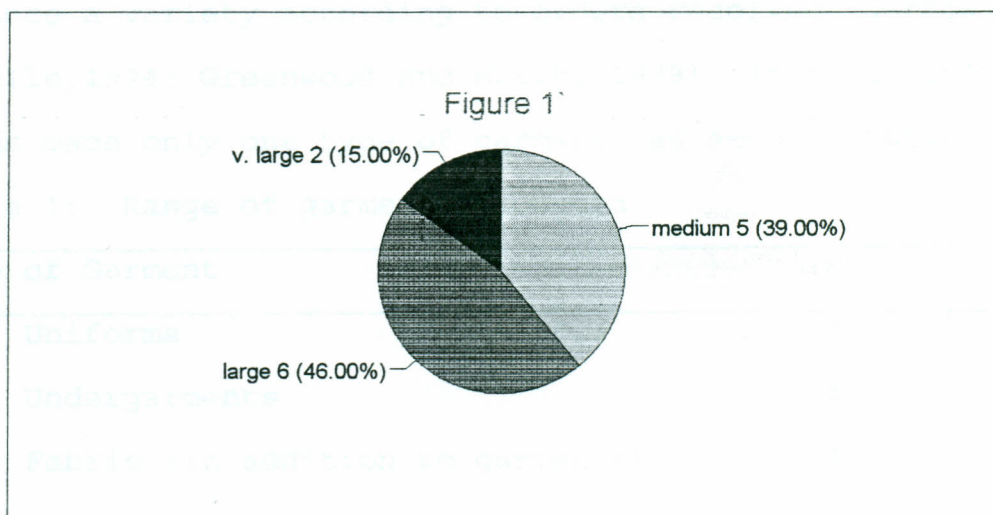
1. Characteristics of the firms
2. Competencies of the respondents
3. Responsibilities and duties of the respondents
4. Problems and solutions
5. Training needs
6. Relationship between firm characteristics and problems
7. Relationship between competencies and training needs

### Characteristics of the Firms

The firm characteristics investigated were size, range of garments produced, perceived rating of quality, markets targeted, and garment assembly systems used. The firms ranged in size from medium ones with between 20 and 49

workers to very large firms with between 100 and 199 workers. Figure 1 shows the numbers of firms in each category.

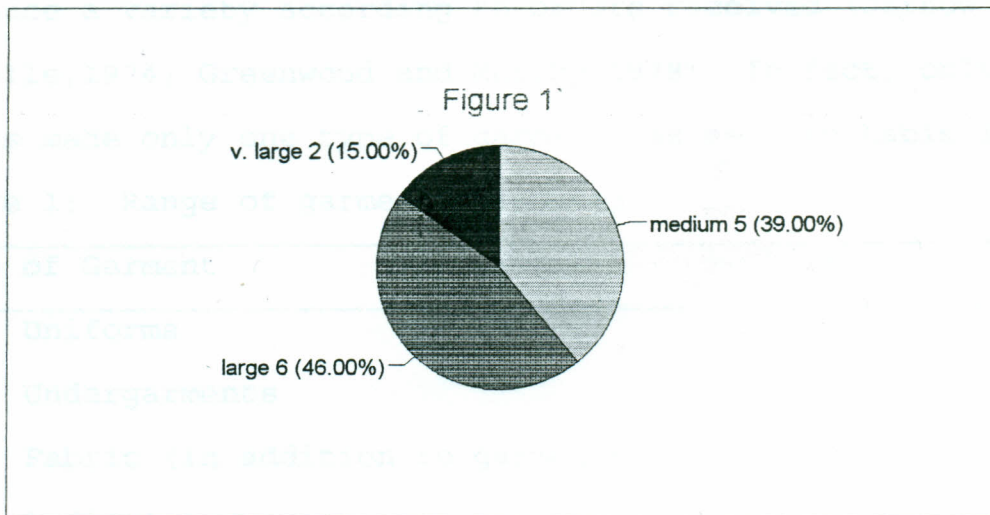
Figure 1: Size categories of clothing manufacturing firms



As seen in figure 1, most firms (46%) employed between 50-99 workers whereas only two firms qualified as very large firms having 100 or more workers. Although the clothing industry is the third largest employer of women in Kenya (GOK,1992) most of the employees in the firms studied were men. The majority of the firms visited (62%) had a higher proportion of male than female employees, with one firm exclusively employing men. Only one notable contrast to this trend was observed in a single firm that employed mostly women.

workers to very large firms with between 100 and 199 workers. Figure 1 shows the numbers of firms in each category.

Figure 1: Size categories of clothing manufacturing firms



As seen in figure 1, most firms (46%) employed between 50-99 workers whereas only two firms qualified as very large firms having 100 or more workers. Although the clothing industry is the third largest employer of women in Kenya (GOK,1992) most of the employees in the firms studied were men. The majority of the firms visited (62%) had a higher proportion of male than female employees, with one firm exclusively employing men. Only one notable contrast to this trend was observed in a single firm that employed mostly women.

The garments produced by the firms were quite varied, with most firms (69%) producing more than one type. This is not surprising since most firms were medium in size.

Literature indicates that it is large firms that tend to specialize in one category of garment, whereas smaller ones produce a variety according to orders received (Jarnow and Judelle, 1974; Greenwood and Murphy, 1978). In fact, only four firms made only one type of garment, as seen in table 1.

Table 1: Range of garments produced

Type of Garment	N	%
Uniforms	5	39
Undergarments	4	31
Fabric (in addition to garments)	4	31
Ladies' garments	3	23
Children's / infants' garments	2	15
Men's garments	1	8
Sportswear	1	8

\* multiple responses allowed

Industrial and institutional uniforms were the most common products, being made by 5 out of the 13 firms visited. The large proportion of firms making uniforms was most likely because they did not require specialized equipment to make reasonably good quality products. The next most commonly made product was undergarments, made by four of the firms. The manufacture of undergarments requires

specialized sewing machines to effectively stitch the knit fabrics that are most commonly used to produce undergarments. Both undergarments and uniforms have a ready market throughout the year since they are necessities and not luxury clothing items. Four of the firms making more than one item were upwardly integrated, i.e. produced the fabric used for garment production as well, while one was also downwardly integrated with two retail outlets for its products.

When asked to rate the quality of their products, most felt that their work was of appropriate quality, high, or very high quality. Only two firms indicated that it needed some improvement. It was, however, felt that most respondents were not quite sincere in rating their quality so high. This is with the exception of three firms, one producing undergarments for export, another making African designs for men and women to order, and the last a reputable and established uniform manufacturer producing for the Kenyan Armed Forces. Each of these three rated their quality as very high. More should have indicated a need for quality improvement, considering that at a later part of the interview all respondents indicated that they had problems related to quality. In addition, the low quality of local garments has been cited in several of the studies cited earlier and the print media (Coughlin, 1986; McCormick, 1989; Otieno, 1990; Nyang'or, 1993; Biggs et al, 1994; Kyenze, 1995).

The firms visited targeted both the local and export markets. Fifty-four percent (54%) supplied the local market exclusively, while 46% supplied both. No manufacturers producing exclusively for export in the EPZ (Export Processing Zones) or working in the MUB (Manufacturing Under Bond) scheme were interviewed. Two EPZ firms were visited but one declined to participate in the study while the other was left out after 5 unsuccessful attempts to obtain an interview. Observations by the researcher of products from EPZ factories (exhibited at the 1997 Nairobi ASK international Show), found them to be of very high quality. Information from interviews with these EPZ firms would have greatly enriched the study by providing a basis for comparing them with manufacturers targeting the local market.

The garment assembly systems used were the assembly-line and the making-through systems. Fifteen percent (15%) of the firms used both systems while 46% and 38%, respectively, used exclusively assembly line and making-through. The low number using only making-through is not surprising since this system is characteristic of firms where small numbers of garments are made, usually on order from clients as indicated by Cooklin(1991). Had the sample been drawn from small-scale manufacturers, making-through would probably have been the more commonly used garment assembly system.

In all the firms, manual transportation systems were used in moving the garments between sections of the factory and among machine operators. In some, the personnel involved in such transfers were called floormen while in others this was the responsibility of the supervisors or individual tailors. The fact that no mechanical transportation was used points to the low level of mechanization in our clothing industries. Greater technological advances in the industry have been cited by Morawetz (1980) and Biggs et al (1994) as prerequisites for the development of the industry to compete in the international market.

Lack of adequate space was given by some manufacturers as a reason for not using mechanical transportation systems and other technologies that would significantly increase efficiency. They noted that their factories were housed in go-downs, hence it would not be feasible to use trolleys for transportation since they could not move upstairs. In a few of the factories, pulleys were used to lower cut garments from the upper floor cutting room to the ground floor where they were stitched. Besides lack of space, it is felt that the factory organization in many firms was deficient and resulted in inefficiency, especially where stitching was done upstairs while cutting was done on lower floors. Such arrangements led to the duplication of effort by making it necessary to carry cut garments upstairs then completed garments back down for packing and dispatch to clients.

#### 4.3 Competencies of the Respondents

The competencies of the respondents investigated were their training, educational level, and work experience. Personal characteristics such as age and sex were also reported, and showed that ten managers were male while three were female. They ranged in age from 25 years to those over 55 years. It was however interesting to note that 23% (three) of the managers were over 55 years, which is the official retirement age in Kenya's civil service.

The job titles of respondents varied greatly, despite this all but one respondent were directly responsible for both production management and quality control. Given the size of the firms, it was not surprising to find that most of the respondents were in charge of both of these functions. Lester et al (1977) indicates that in firms with less than 500 employees it may be necessary to combine the roles of the QCM with those of other managers.

Three of the respondents were the owner/ proprietor of the firms (this included two of the lady respondents). Five gave their title as production manager while one was a quality controller. Two gave their designations as "manager" without qualifying the term any further. The last two gave their titles as cutter and cutting room supervisor (this respondent was standing in for the production manager who was away).

The number of years that these respondents had held

their positions ranged from less than one year, to 15 years. Most of them (54%) had worked for more than 10 years at their current jobs whereas only 2 (15%) had worked 4-9 years. In terms of work experience before this job, it turned out that a large proportion (85%) had at least four years experience before reaching their current position. For two respondents (15%) this was their first job and one had worked for less than 3 years previously. In contrast, one old-timer had worked for more than 15 years before his current job.

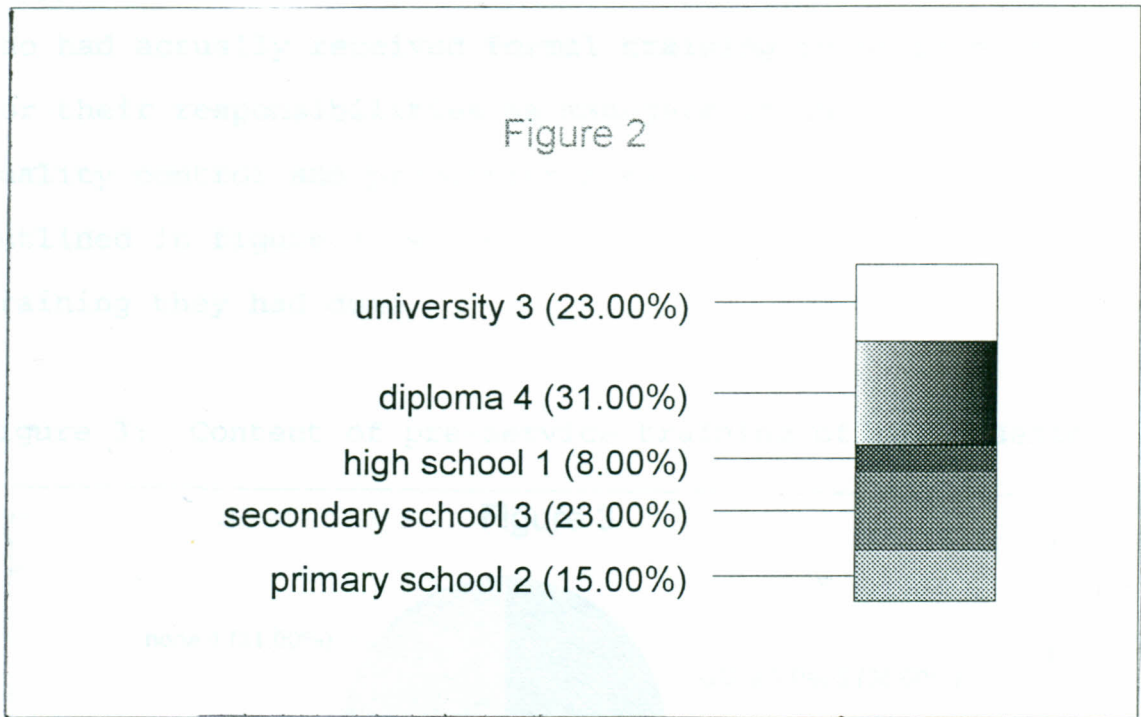
The years of previous experience and duration at current jobs indicated that a large proportion of the respondents were quite conversant with their responsibilities. They were asked further if their previous experience predominantly involved physical, supervisory, or management duties. As would be expected of somebody in a managerial position, almost all of the respondents had previously held managerial and supervisory jobs that involved some physical duties such as machine operation for specialized tasks. Only one respondent indicated that previous work experience entailed purely physical duties and this was the first managerial job he had held, whereas two respondents had no previous experience.

In finding out about the respondents' training background, they were asked questions about the highest level of formal education received, formal pre-service

training in clothing construction, quality control and production management, and any in-service courses attended.

As seen in Figure 2, the formal education received by respondents was very varied, ranging from two with only primary school education to three with university degrees. The most commonly cited level of education was diploma (four respondents) while one had reached Form 6 and three had secondary school level education.

Figure 2: Formal education of respondents

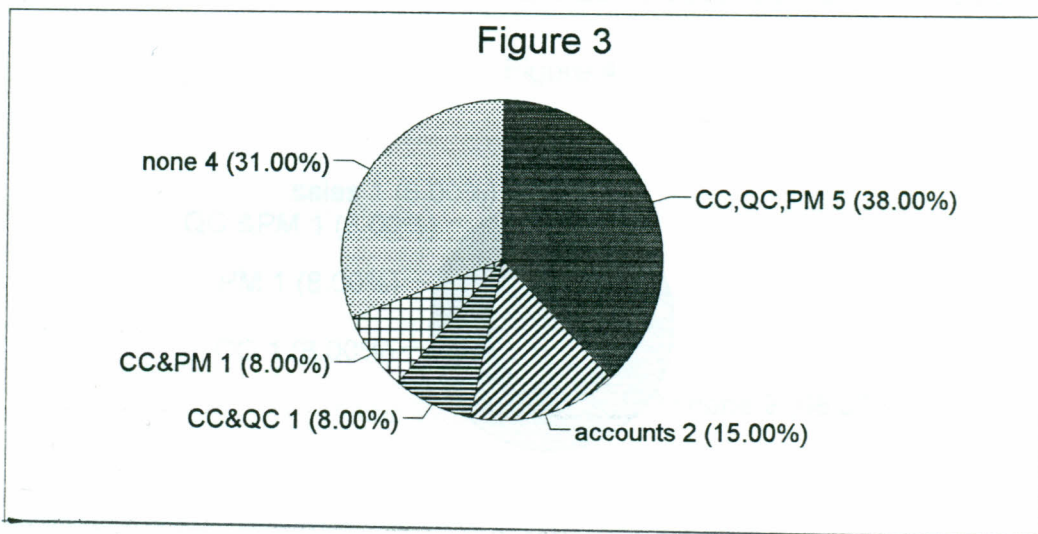


Responses revealed that only nine of the managers had received additional formal pre-service training after school while four had no formal training in the three critical areas of clothing construction, personnel management or

quality control, having gained their skills on the job over the years.

Of the nine respondents with formal pre-service training, five had trained outside Kenya while four had learnt in local institutions. Five of them had trained in all three of the critical areas while two had trained in two out of these three areas. However, two had no training in any of them but had done business studies and accounts, respectively. The training background of the respondents is very significant in that it reveals that it is only seven who had actually received formal training to prepare them for their responsibilities as managers in charge of both quality control and production management. These details are outlined in figure 3, while figure 4 shows the in-service training they had done.

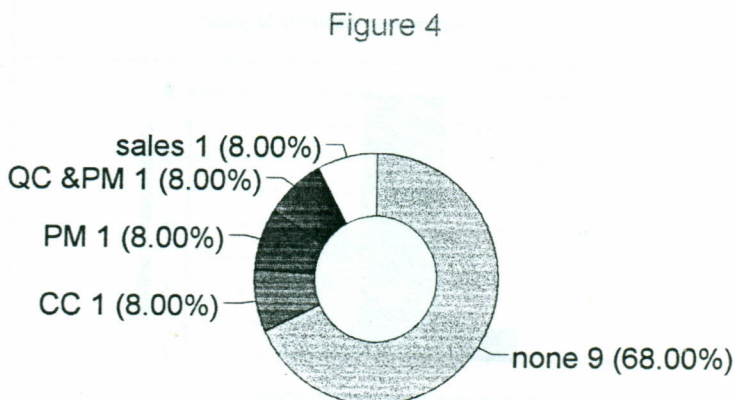
Figure 3: Content of pre-service training of respondents



The nine respondents with formal pre-service training had the following professional qualifications: Two held B.Sc. degrees in textiles and one had a B.A. in sociology together with a craft certificate in garment making. Two had craft certificates in garment making. Lastly, two had done diplomas in clothing design while two others had done business studies and accounts respectively. With the exception of these last two, the respondents had a good training background in the relevant content areas required for their jobs.

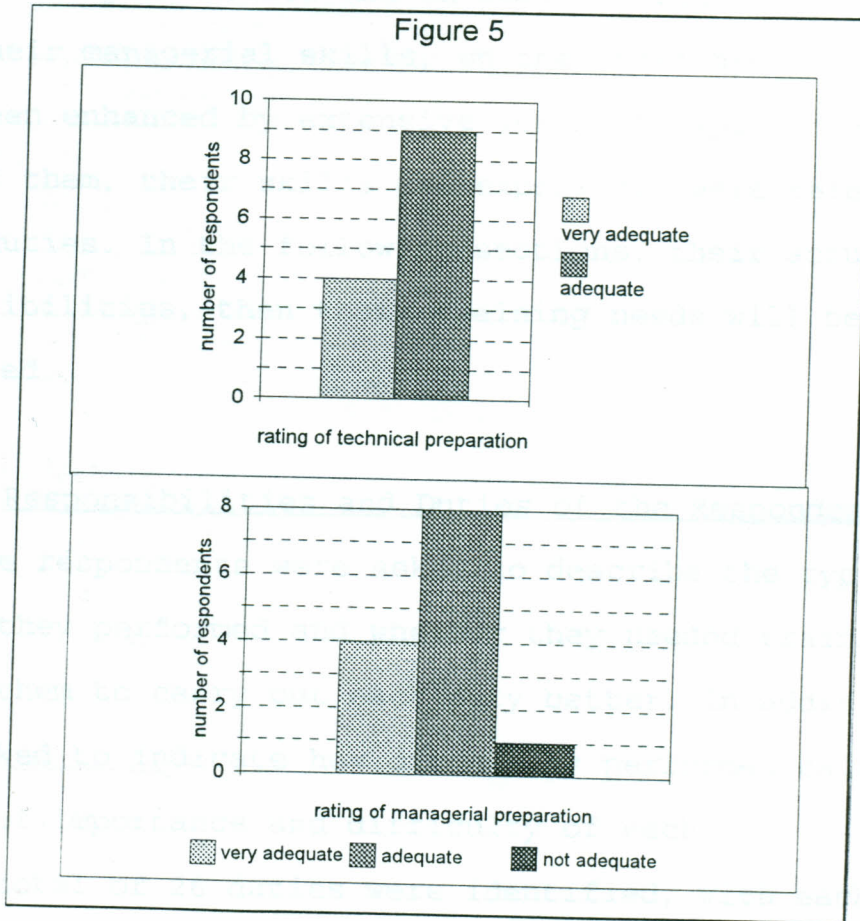
When asked about in-service training received, it was very surprising to note (see figure 4) that only four of the respondents had attended formal in-service courses. This indicated that many of the respondents did not pursue further upgrading of their skills after getting employed.

Figure 4: Content of in-service training of respondents



Having gone over their training background, the respondents were asked to give an assessment of how well-prepared they felt for the job they were doing in both technical and managerial aspects. Figure 5 shows that most of them felt they were adequately prepared in both aspects. In fact, only one respondent felt inadequate in managerial terms and on further probing revealed that this was her first job and she was in charge of employees who were considerably older than she was.

Figure 5: Preparation for job as perceived by respondents



On analyzing the technical and managerial competencies of the respondents, the indications are that they were well prepared for their jobs. However, considering that only 54% had formal pre-service training in related disciplines, the respondents' ratings of their technical preparation for their jobs seems unrealistic. There seems to be a contradiction in that even those without related formal training felt that their technical preparation for the job was adequate or very adequate. Notwithstanding all this, it cannot be ruled out that their ratings of technical preparation were as a result of on-the-job training rather than *formal pre-service and in-service training*.

Their managerial skills, on the other hand, seem to have been enhanced by extensive years of experience. For most of them, their skills and experience were relevant to their duties. In the following sections, their actual responsibilities, then their training needs will be discussed.

#### 4.4 Responsibilities and Duties of the Respondents

The respondents were asked to describe the typical duties they performed and whether they needed training to enable them to carry out each duty better. In addition, they were asked to indicate how often they performed each and the levels of importance and difficulty of each.

A total of 26 duties were identified, with each

respondent mentioning an average of six duties. These were categorized as nine physical duties, eight supervisory duties, and nine managerial duties. Table 2 shows the entire range and the number of respondents who participated in each.

Table 2: Duties performed by respondents

Type of duty	N
<b>Physical duties</b>	
Check fabric for defects (quality related)	7
Cut out garments ordered	3
Pack finished garments	3
Deliver goods to clients	3
Design new garment orders	2
Purchase raw materials	2
Mix dyes used in fabric printing	2
Receive materials from store	1
Sew garments if large workload	1
<b>Supervisory duties</b>	
Check production targets	8
Check quality of work in progress	5
Check finished garments quality	3
Train new personnel	3
Ask operators to rectify mistakes	2
Oversee security	1
Check attendance of workers	1
Ensure machines are maintained	1
<b>Managerial duties</b>	
Receive and sort orders	9
Allocate duties to machine operators	8
Coordinate orders with inputs	7
Stock control	4
Make schedule for cutters	3
Give instructions to supervisors	2
Public relations	2
Give management suggestions on quality	1
Plan expansion of factory operations	1

\* multiple responses allowed

Eleven of these duties were the most frequently

mentioned and can be seen in Table 3. Five of these top-ranked duties were mentioned by more than half of the respondents, and six additional ones were each mentioned by three or more of the respondents and in addition described as very important by two or more of those mentioning each duty.

Table 3: Top ranked duties of the respondents

Type of duty	N
Receive and sort orders	9
Allocate duties to machine operators	8
Check production targets	8
Coordinate orders with inputs	7
Check fabric for defects (quality related)	7
Check quality of work in progress (quality related)	5
Stock control	4
Make schedule for cutters	3
Check quality of finished work (quality related)	3
Cut out garments ordered	3
Deliver of goods to clients	3

\* multiple responses allowed

These 11 top-ranked duties were daily duties with the exception of stock control, described by two respondents as a monthly duty and by two others as a weekly duty. As would be expected from the job description of a manager, five of

the top-ranked duties were managerial and three were supervisory. Only three were purely physical, namely, checking fabric for defects, cutting out, and delivery of finished goods to clients. Delivery was mentioned by only three of the 13 respondents and in actual fact could easily have been delegated to a junior. Cutting was done by three respondents, two of whom had the job title "cutter" and "cutting room supervisor" respectively.

The discussion of duties would be incomplete without mention of notable exceptions to the top-ranked duties. The first exception is training of new personnel that was mentioned by three respondents as a monthly duty. It was excluded since only one felt it was very important. Literature, however, indicates that training is one of the roles of production managers (Kendall and Sproles, 1987) it was expected that more managers would have mentioned it as one of their responsibilities. Perhaps training was not emphasized because the managers feared it would threaten their own positions, or that they may lose their jobs to the new personnel they trained.

Machine maintenance and giving suggestions about quality to the management were both mentioned as being important duties, but only by one respondent in each case. Cooklin (1991) indicates that these two are some of the duties of QCMs and PMs, and although they did not fall in the group of top-ranked duties in this study they are in no

way trivial.

The duties of these managers were very representative of expected duties as outlined in literature, and in addition, three of the 11 top-ranked duties involved quality monitoring at various stages, right from the inputs to the finished products. With this emphasis, it is not surprising that most of the firms rated the quality of their products as appropriate, high, or very high.

However, their responsibilities were quite broad, and some were performing duties that strictly speaking should not have been theirs at all. These were in most cases physical such as purchase, store-keeping, cutting, stitching, and delivery. The managers were also heavily involved in supervisory duties relating to staff attendance and even security. It was felt that these varied duties, to a large extent, compromised the efficiency and effectiveness of the managers in attending to issues relating to the quality of products. Lester et al (1977) note that such diverse roles creates difficulty in resolving conflicts between cost, quality and other considerations in decision making.

#### 4.5 Problems and Solutions

The respondents were asked what problems they faced in carrying out their duties and the solutions they suggested to these problems. They identified problems related to the

following aspects of their responsibilities and the firms they worked in.

1. Managerial problems
2. Problems related to the characteristics of the firms
3. Problems related to quality
4. Problems related to the liberalization of the economy
5. Policy and economic problems

#### 4.5.1 Managerial Problems

These were the problems they associated with doing both quality control and production management jobs and those related to their other managerial duties.

Table 4: Managerial problems

Problem	N	%
Exhaustion and overwork due to many responsibilities	6	46
Poor work by some supervisors and machine operators	3	23
Communication is stressful	2	15
Difficult to plan work-day	1	8
Difficult to convince management to spend more money on inputs for high quality	1	8
Workers take fraudulent offs (absenteeism)	1	8
Difficult to supervise older workers because of age difference	1	8

\*multiple responses allowed

As seen in table 4, nine respondents gave problems related to doing both duties, and four gave other managerial problems. Two of them gave reasons for not having problems; one was mainly in charge of the cutting section and was only standing in for the production manager, while the other had a relatively small factory (20 workers) and had no major problems in managing them.

The most common problem was overwork and exhaustion due to many responsibilities. The solutions suggested were delegation, leaving some work pending, training junior staff and intensifying supervision. The problem of poor work by the supervisors and machine operators called for constant supervision and training of the supervisors and machine operators.

One notable problem, mentioned by only one respondent, was the conflict of interests involved in convincing management to spend more money to enhance product quality. This conflict was noted by Lester et al (1977) as being a common challenge for managers combining quality control with other responsibilities. Its solution was seen in more intense supervision of clothing quality to meet clients' quality needs.

Absenteeism from fraudulent offs resulted in lowered production. This effect was minimized by having stand-by workers and training them to take over from those who were away. Further training of junior staff was also seen as a

solution to the communication problems encountered in management. Only one manager felt a need for additional training to enable better supervision of older workers. It is evident that the managers laid great emphasis on the training of their juniors as a solution to managerial problems, while down-playing their own training needs.

#### 4.5.2 Problems Related to Firm Characteristics

The respondents gave problems related to the following firm characteristics: firm size, range of garments, output, and garment assembly systems as seen in table 5. There were four problems related to the number of employees, with three respondents indicating that they had no problems in this area. The most common problem was large orders to be filled in a short time, mentioned by 54% of the respondents. Most of them solved this problem by hiring temporary workers or working overtime, while one intended to invest in more equipment and a larger factory. This was very different from solutions offered in literature for large workloads. According to Jarnow and Judelle (1974), most firms in the USA subcontracted extra work to other manufacturers, but only one of the firms studied in Nairobi did the same.

In contrast, 15% of the firms indicated that they were working below capacity due to an insufficient number of orders. This was most often solved by sending some workers on leave until work volume increased, then alternating

production times in the sections of the factory and rotating the remaining staff in these sections. One firm survived by paying its employees according to the amount of work each did, while another noted that it had lost skilled workers to competitors --this firm once had a monopoly in sportswear but was now facing stiff competition from newcomers.

These fluctuations in work volume led to an unfortunate situation where many industries kept employees on casual terms for many years to avoid paying them when workloads were low. When laid off, these casual workers could not benefit from representation of the textile workers' trade union.

The four problems relating to the range of garments produced were given by seven respondents, while two gave reasons for having no problems. One said that customer needs had to be met and no problems could be allowed to interfere with this; while the other used only one type of fabric for all the garments produced, thus easing the process.

Table 5 shows that the most common problem related to the range of garments produced was difficulty in dealing with complex designs. This problem was solved by allocating duties according to the ability of machine operators and training them in new skills. One manager also felt that the in-service courses that their staff attended needed to emphasize the technologies and methods used in the mass

production of garments. To counteract inefficiency from producing a wide range of garments, workers were transferred between assembly lines according to demand. The only problem cited as a result of producing only one type of garment was that competitors sold their goods at lower prices. The firm with this problem solved it by lowering their prices as far as possible yet still meet their costs.

Six respondents gave problems related to expected output. One of those who had no problems in this area said output was dictated by union guidelines which had to be followed. Three of the respondents indicated that the machine operators did not meet production targets. The most commonly cited solution to this problem were replacing or transferring the culprits; counselling, and warning them. It was disturbing that only two felt that motivation and allocating duties according to ability were solutions to this problem. This seemed to indicate that manufacturers preferred disciplinary action when workers failed to meet production targets. This was done rather than retaining them for longer periods to facilitate training for enhanced efficiency and future job security.

Table 5: Problems related to firm characteristics

<u>Problems</u>	<u>N</u>	<u>%</u>
<u>Size Problems</u>		
Large orders wanted in short time	7	54
Insufficient orders so working below capacity	2	15
Competitors have absorbed skilled workers	1	8
<u>Range Problems</u>		
Some workers can't deal with complex designs or operations	3	23
Efficiency is low because of changing between different types of garments	2	15
Cutting out takes very long because of varied sizes	1	8
Limited range of clothing made (only one type) so competitors undercut price	1	8
<u>Output Problems</u>		
Operators don't meet production targets	3	23
Large workload leads to poor concentration by machine operators	1	8
Under-utilization of machines and waste of electricity when workload is inadequate	1	8
<u>Garment Assembly System Problems</u>		
Problems in garment quality (colour shading and stitching)	2	15
Low efficiency due to limited space	2	15
Slow movement of clothes between operators	1	8
Inefficiency because of poor coordination of machine maintenance	1	8
Work taken to wrong machine operator by floormen or supervisors	1	8
Garments fall and get dirty	1	8
* multiple responses allowed		

Most of the firms used only the assembly line or this together with making-through as their garment assembly systems. Of the seven using the making-through system, only one gave a problem, i.e. that quality was slightly lower than when using the assembly line. Similarly, one gave ease in monitoring the quality and output of each individual as a reason for not experiencing problems with making-through.

All the firms visited transported garments manually between machine operators, and three respondents mentioned one problem each, associated with this. Reduced efficiency due to limited space was the most common problem. To solve this problem, one manager suggested relocating to a custom-built factory where efficient mechanical transportation systems could be used. This solution was significant because it led the researcher to realize that the factories visited were not designed for garment manufacture. In fact, many of them were go-downs with poor ventilation and lighting, constantly locked up during working hours for security. These poor working conditions may be a major reason for reduced efficiency and some of the other problems observed.

The problem of garment quality could be solved by labelling garments at all stages after cutting and ensuring that each operator corrected his or her mistakes before the next step. Inefficiency from poorly coordinated machine maintenance was solved by impressing on machine operators the need to take responsibility for their machines'

condition and report faults early. The solution to slow movement of garments between machines was seen in training and supervision of foremen. This would ensure that the clothes did not get stuck at one point or get taken to the wrong part of the production process.

#### 4.5.3 Problems Related to Quality

The largest number of problems identified were those related to quality. All the respondents gave at least one and a total of nine problems were mentioned. Five of these problems were directly related to the inputs, one was related to measurements, while four were related to workmanship as seen in Table 6. These categories matched those identified by Cooklin (1991) and quality related problems observed by Morawetz (1980) in a study of Columbian garment manufacturers.

The most common problems were shrinkage and colour loss of fabric. Only one manufacturer gave complaining to the fabric manufacturers as a solution to shrinkage, while two suggested avoiding brands of threads that were known to fade. No solution whatsoever, to colour change in fabric was offered by any of them. The fact that they did not even suggest complaining to or avoiding distributors of such fabric indicates complacency on the part of the garment industries. However, if all manufacturers insisted on better fabric, the textile industries would have no option but to

improve quality. The continued acceptance of poor quality fabric has cost clothing manufacturers valuable Kenyan garment consumers, as seen in research by Otieno (1990) and Nyang'or (1994) and in the growing popularity of imported garments.

Table 6: Problems related to quality

Problems	N	%
<u>Input Problems</u>		
Shrinkage of fabrics	4	31
Other fabric defects (holes, stains, knots)	4	31
Colour change in fabric	3	23
Sewing threads fade after laundry	2	15
Immature cotton fibres don't take dye evenly so fabric remains with streaks	1	8
<u>Measurement Problems</u>		
Size of garments does not conform to measurements	4	31
<u>Workmanship Problems</u>		
Poor finishing of edges and buttonholes	3	23
Fabric and thread colour mismatched	2	15
Different shades of colour on different parts of same garment	1	8

\* multiple responses allowed

To solve problems with the other fabric defects, fabric was checked early and discarded if flawed by 75% of the manufacturers who experienced this. However, half of those with this problem went ahead to cut garments on the flawed

cloth, then either re-cut the garment pieces that were directly on the flaw or made up the garments with defects as factory seconds.

Difference in size between garments ordered and the finished items were very commonly mentioned. These measurement problems arose from inaccurate cutting out, excessive trimming of seam edges by the over-lock machine, or unnecessarily wide seams. The solutions given were emphasis on accuracy in conforming to measurements when cutting and stitching and adjusting of finished work to clients' size where necessary.

To deal with the poor finishing of edges and buttonholes, two manufacturers intended to buy specialized machines for these processes. Another indicated that adequate time for finishing was necessary for greater accuracy. Despite all of these solutions, it was inevitable that some quality errors would go on to the final products and such garments would eventually be sold as rejects or factory seconds at reduced prices.

From the discussion above it is clear that the clothing manufacturers dwelt more on quality problems related to inputs; thus shifting responsibility from themselves. They did not address the complaints that Kenyan consumers raised about the workmanship of locally made clothing in studies by Otieno (1990) and Nyang'or (1993). The manufacturers made no mention of weak seams, narrow seams and hems or of unmatched

designs in their quality problems. One solution to eliminating quality problems is by obtaining feedback from their customers and acting on their suggestions. No manufacturer indicated this as one of their duties, yet it is an integral role of QCMs and PMs (Greenwood and Murphy, 1978).

Most manufacturers had earlier indicated that their garment quality did not need improvement, yet all of them without exception mentioned problems related to quality. This contradiction shows that their initial perceptions of garment quality are misleading if taken on their own. They need to take steps to improve quality in order to regain the confidence of local consumers and capture new markets.

#### 4.5.4 Problems Related to the Liberalization of the Economy

When asked problems arising from the liberalization of the economy, a wide range of answers were given, including a number of interesting and unexpected responses. Nine firms gave problems they experienced from liberalization, and unexpectedly, two positive effects of liberalization were mentioned by a number of respondents. The first of these was the ready availability of a variety of cheap inputs such as thread and fabric. The second positive effect of liberalization was availability of unique designs of fabric and garments.

The respondents who had no problems from liberalization

gave interesting reasons why it was not a threat. The first two of these were related to the product line of the respondents (industrial and other uniforms). Two firms indicated that uniforms were not found in "mitumba" while another identified itself (and truly so) as a market leader in uniform manufacture. The other reason for not having problems was given by one firm who said their inputs were all locally made and as such they had no problems or benefits from liberalization. Incidentally, this firm made undergarments and perhaps that is why liberalization wasn't a threat since they had a ready market for their products.

There were a total of three problems related to liberalization as seen in Table 7. As expected, the greatest problem was low-priced imports that were a source of unfair competition. About half of those mentioning this problem saw the government as having the solution; either by reducing the volume of imports or increasing their prices by duty and other taxes. A quarter had resigned themselves to this problem, indicating that garment choice was in the hands of the consumers who had the attitude that imported clothes were better.

Table 7: Problems related to liberalization and solutions

Problems	N	%
Low-priced garment imports give unfair competition	8	61
<u>Solutions:</u> Change in government policy to reduce quantity of imports		
: Government should enforce duty payment		
: No solution since choice depends on personal taste and consumers believe imports are better		
: Must be quality -conscious to compete with import quality		
: Lower own quality to compete with import price		
Further expansion for job creation not possible due to uncertainty about future profitability of venture	1	8
<u>Solution:</u> Reduce duty on inputs, spares, and machinery		
Have had to close production for some months due to low orders	1	8
<u>Solution:</u> Give export compensation and allow duty-free imports because products are exported		

\* multiple responses allowed

Two other solutions to the problem of low-priced imports were total contradictions of each other. One respondent felt they needed to reduce garment quality to compete in price with "mitumba", while two felt that quality had to be improved to compete with that of imported clothes.

Despite the varied responses to liberalization it was clear that it had a negative impact on job security and expansion or creation. The solutions to these two problems,

mentioned by two respondents, lay in government intervention by reduction of duties on capital goods and the provision of export compensation to manufacturers.

#### 4.5.5 Policy and Economic Problems

The final two categories of problems were economic or policy problems and those arising from the drought experienced from mid 1996 to early 1997. The respondents mentioned the following three effects of drought as having created serious problems in their operations. Firstly, low water supply led to the use of borehole water that resulted in stains when processing fabric for dyeing and poor dye uptake. Secondly, power rationing became necessary, resulting in low production and efficiency. The third effect of drought was reduced demand for new clothing resulting from lowered consumer purchasing power since food prices were very high.

Two respondents suggested a need for policy changes to reduce inflation as a solution to these problems. One suggested that higher electricity tariffs be charged rather than rationing while the other said he needed to buy a generator as a solution.

Five policy / economic problems were identified, as seen in Table 8. Competition from local manufacturers and the challenge of maintaining and attracting investors to the clothing industry were the most outstanding problems. Each

was mentioned by two respondents.

These problems were significant because over the last few years the industry has declined due to the reduction of the protection it enjoyed prior to liberalization. The economic / policy problems also touch on inputs (especially cotton) and availability of credit, both of which are crucial to new investors in this sector. VAT (value added tax) on final products also impacts negatively on the industry by making these goods too expensive for customers. All of these problems require policy changes to revive the industry and ensure its strengthening so it can contribute fully to the industrial development of our nation.

Table 8: Policy and economic problems and solutions

Problems	N	%
Competition from other local manufacturers <u>Solutions</u> : High quality workmanship : Well-maintained machines : Make specialty items under license from trademark owners abroad	2	15
Great challenge in attracting and maintaining international investors in the clothing industry <u>Solutions</u> : Reduce bureaucracy in import procedures so import orders can be met in good time : Ease import licensing procedures at ports : Government and political stability for investor confidence : Need for high standards of cleanliness to attract investors	2	15
VAT makes clothes expensive and customers complain <u>Solution</u> : Encourage export of local products to raise foreign exchange and ease tax burden	1	8
Local cotton is very expensive because supply is low <u>Solution</u> : Government should pay farmers promptly so they can be motivated to grow more cotton and thus increase the supply	1	8
Credit is difficult to obtain especially for new firms <u>Solution</u> : Easier access to credit, especially soft loans * multiple responses allowed	1	8

4.6

### Training Needs

In investigating the training needs of the respondents, they were asked two categories of questions as follows. The first was which technical and managerial skills they felt they needed training in. Then, after outlining their duties, they were asked to indicate those they felt they needed training in. Additional training needs were finally identified from the various problems that respondents encountered.

The respondents were given a list of seven technical and seven managerial skills that had been identified from literature as being important for the jobs of QCM and PM. They were then asked to indicate those in which they needed training. Out of the 13 respondents, three felt they needed no new training in technical skills. The technical skills in which the rest of the respondents felt they needed training in are shown in Table 9.

Table 9: Technical skills in which training is required

Technical skill	N	%
CAD (Computer Aided Design)	6	46
Clothing quality control	5	39
Mass production methods	3	23
Statistical ability	3	23
Clothing construction	2	15
Fabric performance	1	8
Clothing design	1	8
<u>No technical skills required</u>	<u>3</u>	<u>23</u>

\*multiple responses allowed

Computer Aided Design (CAD) and clothing quality control were the technical skills that most respondents required training in. CAD is a new field of knowledge and that is probably the reason it was a popular choice. Clothing quality control is offered in Kenya Textile Training Institute as an in-service course. However, none of these managers had attended this course and perhaps that was why they had an interest in it.

Of the managerial skills, five respondents felt they had adequate skills and required no further training. The eight who needed training identified development of products, customer attitudes towards quality, total quality management, interpersonal communications, and management techniques as the crucial areas. These skills were mentioned by three or more of these eight managers and the actual

proportions are shown in Table 10.

Table 10: Managerial skills in which training is required

Managerial skill	N	%
Development of products	3	23
Consumer attitudes regarding quality	3	23
Total quality management	2	15
Management techniques	2	15
Interpersonal communication	2	15
Efficiency studies	1	8
Factory organization	1	8
No training required in managerial skills	5	39

\* multiple responses allowed

Although the acquisition of managerial skills was not mentioned as a training need by the majority of the respondents, they are still worthy of mention since they show some of these managers' concerns. The long years of experience that most of the managers had may have been the reason for feeling that they had adequate managerial skills.

In attempting to identify the duties in which the respondents needed training, they were asked to state such duties and also those that they found difficult. It was taken that if a duty was found to be difficult, it was also likely that some training was required in order to perform the duty with ease.

The respondents identified 10 duties in which they needed training. But only in three of these duties was training needed by more than half of those mentioning the duty. Table 11 shows all of those duties in which training was needed and the number of respondents who performed each duty (whether or not they required training in it). Table 12 then shows the number of managers who needed training in each duty and what proportion they were of those performing each duty.

Table 11: Number of respondents performing each duty

Duty	N	%
Oversee security	1	8
Give management suggestions on quality	1	8
Mix dyes for fabric printing	2	15
Public relations	2	15
Cutting out garments ordered	3	23
Check quality of finished garments	3	23
Coordinate orders with inputs	7	54
Allocating duties to machine operators	8	61
Checking production targets	8	61
Receiving and sorting orders	9	69

\*multiple responses allowed

Table 12: Proportion of managers who require training in each duty

Duty	N	%
Oversee security	1	100%
Give management suggestions on quality	1	100%
Mix dyes for fabric printing	1	50%
Public relations	1	50%
Cutting out garments ordered	1	33%
Check quality of finished garments	1	33%
Coordinate orders with inputs	2	29%
Allocating duties to machine operators	2	25%
Checking production targets	1	13%
Receiving and sorting orders	1	11%

\*multiple responses allowed

None of the duties in which most respondents needed

training were among the top-ranked duties mentioned by three or more respondents (in Table 3 earlier). To try and establish a more representative list of training needs, the duties that respondents found difficult were outlined as seen in Table 13 and Table 14.

Table 13: Duties described as difficult

Duty	N	%
Give management suggestions on quality	1	8
Plan expansion of factory operations	1	8
Security	1	8
Mix dyes for fabric printing	2	15
Ask operators to rectify mistakes	2	15
Public relations	2	15
Assign duty to machine operators	3	23
Pack finished goods	3	23
Check quality of finished goods	3	23
Make schedule for cutters	3	23
Coordinate orders with inputs	7	54
Check production targets	8	61
Check fabric for defects	7	54
Receive and sort orders	9	69

\* multiple responses allowed

Table 14: Proportion of respondents who described each duty as difficult

Duty	N	%
Give management suggestions on quality	1	100%
Plan expansion of factory operations	1	100%
Security	1	100%
Mix dyes for fabric printing	1	50%
Ask operators to rectify mistakes	1	50%
Public relations	1	50%
Assign duty to machine operators	3	38%
Pack finished goods	1	33%
Check quality of finished goods	1	33%
Make schedule for cutters	1	33%
Coordinate orders with inputs	2	29%
Check production targets	2	25%
Check fabric for defects	1	14%
Receive and sort orders	1	11%

\* multiple responses allowed

training were among the top-ranked duties mentioned by three or more respondents (in Table 3 earlier). To try and establish a more representative list of training needs, the duties that respondents found difficult were outlined as seen in Table 13 and Table 14.

Table 13: Duties described as difficult

Duty	N	%
Give management suggestions on quality	1	8
Plan expansion of factory operations	1	8
Security	1	8
Mix dyes for fabric printing	2	15
Ask operators to rectify mistakes	2	15
Public relations	2	15
Assign duty to machine operators	3	23
Pack finished goods	3	23
Check quality of finished goods	3	23
Make schedule for cutters	3	23
Coordinate orders with inputs	7	54
Check production targets	8	61
Check fabric for defects	7	54
Receive and sort orders	9	69

\* multiple responses allowed

Table 14: Proportion of respondents who described each duty as difficult

Duty	N	%
Give management suggestions on quality	1	100%
Plan expansion of factory operations	1	100%
Security	1	100%
Mix dyes for fabric printing	1	50%
Ask operators to rectify mistakes	1	50%
Public relations	1	50%
Assign duty to machine operators	3	38%
Pack finished goods	1	33%
Check quality of finished goods	1	33%
Make schedule for cutters	1	33%
Coordinate orders with inputs	2	29%
Check production targets	2	25%
Check fabric for defects	1	14%
Receive and sort orders	1	11%

\* multiple responses allowed

In tables 11,12,13, and 14, there seems to emerge a strong negative relationship between the number of respondents performing a duty and the percentage of those mentioning the duty who found it difficult or needed training in it. In the duties performed by only one or two respondents, these respondents were more likely than not to indicate that they found the duty difficult or that they needed training in it. On the other hand, in duties performed by seven or more of the respondents, only a few of them (less than 30%) indicated that they found these duties difficult or that they needed training in them. This seems to show that the duties done by most respondents (top ranked duties) were such that the respondents were competent and did not need training in them.

Table 15: Top ranked duties in which training is needed and described as difficult

Duty	N	%
Assign duties to machine operators	3	23
Coordinate orders with inputs	2	15
Check production targets	2	15
Receive and sort orders	1	8
Check quality of finished products	1	8

\* multiple responses allowed

Table 15 shows all the top ranked duties in which the respondents needed training and which they also described as

difficult. There were a total of five such duties, and it will be noted that respondents who found difficulty in certain tasks or needed training in them was very small (only one or two), while three found allocating duties to machine operators difficult.

Two more training needs were identified from the problems respondents faced in their job and the solutions they suggested. The first was difficulty in estimating fabric required and subsequently pricing of products especially for new orders. This problem is not uncommon, and is cited by Morawetz (1980) as one encountered by clothing manufacturers in Columbia. The second was difficulty in planning production, especially at the end of the year when many orders are received at the same time and required in a very short while. The other training need identified referred specifically to graduates or trainees from clothing and textiles or fashion design institutions. They were said to command relatively high pay but were not qualified or exposed enough to do as good a job as tailors with lower education who had risen over the years through on-the-job training.

Each of these training needs was mentioned by one respondent each. Though they were pointed out by a minority, they are still worth taking note of since they are an indication of the concerns that the managers in the industry have.

In determining the training needs of the managers in the clothing industry, no generalizations can be made from their duties or the problems they face. This is because there are no top ranked duties that are identified by a majority both as being difficult and in which they require extra training. Similarly the training needs identified from problems represent the view of only 23% of the respondents and are not representative of the sample.

The low numbers of respondents indicating that they had training needs could be as a result of reluctance to admit that some tasks were difficult or that they needed training. Such reluctance may have arisen from the attitude that such admissions of difficulty could be interpreted as signs of incompetence. On the other hand, it is possible that most of the managers genuinely had no distinct training needs as far as their responsibilities were concerned.

However, it is felt that the fact that distinct training needs did not emerge from all these questions may be accounted for by the training background of the respondents. This is considering that almost half of the managers (46%) had not received formal pre-service or in-service training in the technical subjects directly related to their jobs. This lack of formal training may have led them to downplay the importance of training, hence the observation that a minority identified training needs in their duties. This is not surprising since, in any case,

most of them had held their jobs for long periods and may have felt that lengthy experience, rather than specialized training, was more important for job effectiveness.

Nevertheless, the managers did identify some technical and managerial skills in which most of them needed training. Again, a majority did not need the training but for those who did, in-service training could fill this gap since it is a flexible mode of training and can be done at the same time as they continue to work. All these observations show that most of the managers felt they were competent in both technical and managerial skills. They also felt able to perform their duties appropriately and in no need of further training to perform them better.

#### 4.7 Relationships Between Firm Characteristics and Problems

Contingency tables were drawn up to analyze the relationships between the following four firm characteristics: type of garment produced, firm size, target market, and capacity of output; crosstabulated against problems related to output, number of workers, liberalization, and managerial problems. The relationships between the two sets of variables are summarized using percentages in the discussions below.

##### 4.7.1 Type of garment produced

The manufacturers were divided into three groups according to the type of garments that they produced. These were undergarments, uniforms and other types of clothing.

Table 16 shows that all the manufacturers of uniform mentioned that they had no managerial problems. On the other hand, half of those making other garments had one or more managerial problems. Twenty-five percent of those making undergarments had managerial problems while 75% of those making other garments had managerial problems.

The results in Table 16 show that producers of undergarments and uniforms were less likely to have managerial problems than producers of other types of garments. Two reasons may be given for this trend. Firstly, undergarments and uniforms have fewer design options and are, therefore, easier to produce than other types of garments. Secondly, uniforms and undergarments are made in a limited size range (usually small, medium and large), making them quite straightforward to produce. These two factors may have resulted in manufacturers of these types of clothing having fewer managerial problems.

Table 16: Relationship between type of garment produced and managerial problems

	Have one or more managerial problems		Have no managerial problems		Row total	
	no.	%	no.	%	no.	%
Undergarments	1	8	3	23	4	31
Uniforms	0	0	5	39	5	39
Other	3	23	2	8	4	31
Column total	4	31	9	69	13	100

There was also a strong relationship between the type of garment produced and problems related to liberalization of the economy as seen in Table 17. All the manufacturers of uniform indicated that they had no problems related to liberalization, whereas all those making other types of garments (apart from undergarments) had one or more problems related to liberalization.

Table 17: Relationship between type of clothing produced and problems related to liberalization

	Have one or more problems related to liberalization		Have no problems related to liberalization		Row total	
	no.	%	no.	%	no.	%
Undergarments	4	31	0	0	4	31
Uniform	0	0	5	39	5	39
Other	4	31	0	0	4	31
Column total	8	61	5	39	13	100

The reason for this trend is the unique specifications given by institutions for their uniforms. These style and size specifications make it difficult to import the large numbers of the various types required in a short enough time to meet the needs of all the different clients.

Manufacturers of undergarments mentioned problems such as competition from imports. Undergarments such as briefs and brassieres are imported new and sold at lower prices compared to the locally produced ones. Manufacturers of other types of

garments were affected to a greater extent by competition from imports because old clothes ("mitumba") are considerably cheaper than locally manufactured clothing.

Crosstabulation was done between type of garment and capacity of output. A firm was considered to be working at capacity if it had adequate work in progress and sufficient orders to keep their employees occupied. Table 25 shows that all the manufacturers of uniforms indicated that they were working at capacity. In contrast, 25% of undergarment manufacturers and 75% of other manufacturers were working below capacity.

Table 18: Relationship between type of clothing produced and capacity of output

	Output is below capacity		Output is at or above capacity		Row total	
	no.	%	no.	%	no.	%
Undergarments	1	8	3	23	4	31
Uniform	0	0	5	39	5	39
Other	2	15	2	15	4	31
Column total	3	23	10	77	13	100

This trend can also be attributed to competition from imports arising from the liberalization of the economy. The low proportion of undergarment manufacturers (25%) affected may have been due to the ready market for new undergarments throughout the country and the slight price difference seen

between the local and the imported undergarments. This can be observed with the street hawkers who stock both local and imported briefs at a price difference of between 10 and 20 shillings.

#### 4.7.2 Capacity of Output

Table 19 shows that over half (67%) of the firms working below capacity also had one or more managerial problems, while only 20% of firms with adequate work had managerial problems. Where work was inadequate it was necessary to lay off some workers or reschedule them to keep them all occupied, creating a managerial crisis that was difficult to resolve.

Table 19: Relationship between capacity of output and managerial problems

	Have one or more managerial problems		Have no managerial problems		Row total	
	no.	%	no.	%	no.	%
Work output is below capacity	2	15	1	8	3	23
Work output is at or above capacity	2	15	8	61	10	77
Column total	4	31	9	69	13	100

Table 20 shows the relationship between capacity of output and problems related to liberalization. All manufacturers working below capacity also had problems related

to liberalization, while all those without problems related to liberalization were working at capacity. This indicated that manufacturers experiencing problems related to liberalization were more likely to be working below capacity as well.

Considering that many clothing firms in Kenya closed down as a result of competition from imports, it is clear that there is a relationship between capacity of output and the liberalization of the economy.

Table 20: Relationship between capacity of output and problems related to liberalization

	Have one or more problems related to liberalization		Have no problems related to liberalization		Row total	
	no.	%	no.	%	no.	%
Output is below capacity	3	23	0	0	3	23
Output is at or above capacity	5	39	5	39	10	77
Column total	8	61	5	39	13	100

#### 4.7.3 Target Market

The manufacturers produced clothing for the local and export market, some exclusively targeted the local market while others targeted both. It was expected that those manufacturing for export would be less likely to have problems related to liberalization, having adjusted to the challenge by seeking export markets.

Table 21 shows that the eight manufacturers with problems

related to liberalization were equally distributed in the two categories of markets. Sixty percent of those without problems related to liberalization produced exclusively for the local market. These results were contrary to the expectation that manufacturers would be versatile in markets targeted, as a means of coping with liberalization.

Table 21: Relationship between target market and problems related to liberalization

	Have one or more problems related to liberalization		Have no problems related to liberalization		Row total	
	no.	%	no.	%	no.	%
Produce for local market only	4	31	3	23	7	54
Produce for both local and export markets	4	31	2	15	6	48
Column total	8	61	5	39	13	100

#### 4.7.4 Firm Size

The firms were grouped in the following two size categories: medium scale firms had between 20 and 49 workers, and large scale ones with 50 and more workers. It was expected that the medium scale firms would have fewer problems related to liberalization due to their ability to respond to external circumstances as stated by Chuter (1988) as a characteristic of such firms.

Table 22 shows that more of the medium scale firms (80%)

had problems related to liberalization, compared to 62% of large firms. This indicates that the medium size firms with between 20 and 49 workers had not taken advantage of the flexibility they had due to their size, to cope with the challenges of liberalization better than the large firms with over 50 workers.

Table 22: Relationship between firm size and problems related to liberalization

	Have one or more problems related to liberalization		Have no problems related to liberalization		Row total	
	no.	%	no.	%	no.	%
Medium scale firm (20 to 49 workers)	4	31	1	8	5	39
Large scale firm (50 and more workers)	5	39	3	23	8	61
Column total	9	69	4	31	13	100

Most of the medium-scale firms (80%) had problems related to output, whereas most large firms (75%) had no problems related to output. Garment manufacturers with less than 50 workers were more likely to have problems meeting their production targets than larger firms. This finding was similar to firm characteristics identified by Chuter (1988) who states that smaller firms are able to adapt rapidly to customer demands, though they have difficulty meeting large orders.

#### 4.8 Relationship Between Competencies and Training Needs

Crosstabulations were done between the competencies of the managers and their need for additional training in technical skills and in managerial skills. The competencies were as follows: work experience, type of experience, training background and type of training received.

##### 4.8.1 Work Experience

The managers were divided into two groups according to the number of years that they had worked. Table 23 shows that all managers with only up to three years experience felt that they needed training in one or more managerial skills. On the other hand, 60% of the managers with more than three years experience felt that they needed no further training in managerial skills.

This finding was as expected, since long years of experience equip someone with more managerial skills. In contrast, a person with less experience would be more likely to require additional training in managerial skills.

Table 23: Relationship between length of previous work experience and need for training in managerial skills

	Need training in one or more managerial skills		Do not need training in managerial skills		Row total	
	no.	%	no.	%	no.	%
Have up to 3 years of work experience	3	23	0	0	3	23
Have more than 3 years experience	4	31	6	46	10	77
Column total	7	54	6	46	13	100

This finding was as expected, since long years of experience equip someone with more managerial skills. In contrast, a person with less experience would be more likely to require additional training in managerial skills.

The managers had different types of work experience. Some had previously done supervisory and managerial duties, while others did not have previous experience in management. The study showed that managers who had previously held managerial and supervisory positions were less likely to express a need for training in managerial skills.

As seen in table 24, all the respondents who had not held managerial posts indicated that they needed training in managerial skills. Most (60%) of those who had done supervisory and managerial jobs felt they needed no other managerial skills.

Table 24: Relationship between type of experience and need for training in managerial skills

	Need training in one or more managerial skills		Do not need training in managerial skills		Row total	
	no.	%	no.	%	no.	%
Have experience in managerial duties	4	31	6	46	10	77
Do not have experience in managerial duties	3	23	0	0	3	23
Column total	7	54	6	46	13	100

#### 4.8.2 Training Background

The training backgrounds of the managers varied widely, and on the basis of this they were divided into two categories. Some managers had received training in one or more of the related subjects (clothing construction, quality control, personnel management), while others had received unrelated training. The relationship between the need for training in technical skills and the subject area of previous training was investigated.

Table 25: Relationship between content of previous training and need for training in technical skills

	Need training in one or more technical skills		Do not need training in technical skills		Row total	
	no.	%	no.	%	no.	%
Have training in subjects related to job	4	31	3	23	7	54
Have training in unrelated subjects	6	46	0	0	6	46
Column total	10	77	3	23	13	100

Table 25 shows that seven respondents had received training in related subjects while six had not. All of those with unrelated training stated that they needed additional technical skills. An additional 42% of those with related training also felt that they would benefit from additional technical skills. A smaller proportion of these managers with related training would have been expected to have training needs in technical skills. However, it is not surprising that 42% did, since technology is continually changing in garment manufacture.

#### 4.8.3 Type of Training Received

The managers had received their training in two main ways. Majority (69%) had formal training while the rest of them had on-the-job training. All those who had received on-

the-job training felt they needed additional training in technical skills. Most of those with formal training (67%) also felt they needed additional training in technical skills as seen in table 26. This training need was in line with findings by Biggs et al (1994) and Coughlin (1986) who stated that it was necessary to offer training in technical skills to workers in Kenya's clothing industry in order for it to meet its full potential.

Table 26: Relationship between nature of training received and need for training in technical skills

	Need training in one or more technical skills		Do not need training in technical skills		Row total	
	no.	%	no.	%	no.	%
Have formal training	6	46	3	23	9	69
Have on-the-job training	4	31	0	0	4	31
Column total	10	77	3	23	13	100

The managers with on-the-job training were more likely to require additional training in technical skills because they were not exposed to formal testing in their skills that would give them confidence in their abilities. A smaller proportion of the managers with formal training needed training in technical skills. This need can be attributed, once again, to the changing technology in garment manufacture.

Table 27: Relationship between nature of training and the need for training in managerial skills

	Need training in one or more managerial skills		Do not need training in managerial skills		Row total	
	no.	%	no.	%	no.	%
Have formal training	4	31	5	39	9	69
Have on-the-job training	3	23	1	8	4	31
Column total	7	54	6	46	13	100

As seen in Table 27, almost all the respondents (75%) with on-the-job training felt that they also needed training in managerial skills, whereas only 44% of those with formal training felt this need. This seems to indicate that those with formal training were better prepared for their jobs than those with on-the-job training. This could be attributed to their rising through the ranks over a number of years without formal training and assessment.

5.0 **Summary, Conclusions and Recommendations**

5.1 Summary

5.1.1 Purpose of the Study

The purpose of this study was to investigate the training needs of the Quality Control Managers and Production Managers in clothing industries in Nairobi, in terms of their technical and managerial skills. The study also investigated the relationship between their competencies and their training needs as well as the relationship between firm characteristics and the problems that managers faced.

5.1.2 Research Objectives

The study sought to achieve the following research objectives:

1. To determine the characteristics of selected clothing manufacturing firms in Nairobi.
2. To establish the technical and managerial competencies of the Quality Control Managers(QCMs) and Production Managers(PMs) in selected clothing manufacturing firms in Nairobi.
3. To find out the responsibilities that the QCMs and PMs held.

4. To establish what problems the respondents faced in doing their jobs and the solutions they suggested to these problems.
5. To investigate the training needs of the QCMs and PMs.
6. To determine the relationship between the firm characteristics and the problems that respondents faced.
7. To determine the relationship between the competencies of the respondents and their perceived training needs.

#### 5.1.3 Procedure

The study sample consisted of the Quality Control and Production Managers in 13 medium and large-scale clothing manufacturing industries in Nairobi. These 13 firms are the ones which were willing to participate in the study, out of a sample of 35 clothing industries contacted between June 1996 and April 1997. The study was conducted using an interview schedule administered by the researcher to each manager. The data collected was analysed, then summarized using frequencies, percentages and chi-square.

#### 5.1.4 Major Findings of the Study

The results showed that most of the firms were large-scale and produced undergarments or institutional uniforms. They used the assembly line system of garment assembly and most of them sold their products only in the local market.

Most of the managers were men, and the most common age

category in which they fell was between 34 and 44 years. In terms of their competencies, most of them had worked for over ten years in a managerial capacity and had college or university education. A majority of them had received formal pre-service training in subjects that were directly related to their jobs and almost all of the managers felt that they were adequately prepared for their jobs in both technical and managerial skills.

All of the managers combined the roles of QCM and PM, and most of the duties that they engaged in were supervisory or managerial. Most of their duties centered around production management, and only three of the eleven top ranked duties most of them did were directly related to quality control.

In terms of training needs, most of the managers felt that they did not need additional training in managerial skills. Only three (23%) felt they needed training to enable them to gauge their customers' attitudes toward quality, and an additional three (23%) needed skills in product development. Forty-six percent (six) of the managers felt that they needed training in the technical skills related to computer aided design of clothing, while 39% (five) needed training in clothing quality control.

All of the manufacturers had problems related to garment quality. The most commonly cited ones were to do with the fabric and thread they used as inputs for

manufacture. The other problem affecting them most was competition from low priced garment imports, cited by 61% of the manufacturers. Most of them also had managerial problems arising from combining the roles of the QCM and PM, which overworked them and reduced their effectiveness. Slightly more than half (54%) of the firms had problems meeting large orders required in a short time because they had an inadequate number of staff.

Concerning the relationship between the type of clothing produced and problems related to liberalization analysis showed that none of the manufacturers producing uniforms had problems related to liberalization. In contrast, all of the manufacturers of other garments indicated that they had problems related to liberalization. The manufacturers of uniforms and undergarments were also found to be less likely to have managerial problems than those making other types of garments.

Regarding the relationships between competencies and training needs in technical and in managerial skills, most of the managers with more than three years work experience indicated that they needed no training in managerial skills, whereas those with less experience were more likely to require training. Managers who had previously held managerial and supervisory jobs were also less likely to require training in managerial skills than those whose previous experience consisted of only physical duties. There

was also a relationship between the content of formal training received and the need for training in technical skills. Most managers with training in unrelated subjects indicated a need for training in technical skills. More of those with on-the-job training also required training in technical skills than those who had received formal training.

This study broadened knowledge on the challenges facing garment manufacturers and the managers working in individual firms. It is hoped that this information will be used by the relevant institutions and individuals to improve the clothing industry.

## 5.2

### Conclusions

The following conclusions have been made:

1. Most managers had appropriate training in relevant subjects and long years of experience in their duties. Despite this, they all experienced the problem of low garment quality. Having managers with the appropriate competencies was not enough to ensure that clothing manufacturers produced high quality garments.
2. All of the managers combined the roles of QCM and PM, but most of their duties centred on production management. Only three out of the eleven duties they most frequently performed involved quality control. With such

diverse roles, the managers could not have a meaningful impact on improving the quality of garments.

3. Most of the managers had never participated in any in-service training and only a minority of them stated a need for training in quality control. Considering that they all had problems with low garment quality, it seems that many were reluctant to admit training needs in this area. They saw training as a threat to their authority, rather than appreciating it as a means of career development.

4. Most manufacturers experienced problems due to competition from cheap imported clothing except those making undergarments and uniforms. Producing these items which have a ready market cushioned the manufacturers from the negative effects of liberalization.

### 5.3 Recommendations

On the basis of the findings of this study, the following recommendations are made:

1. The clothing manufacturing industries should each hire an additional manager to relieve the Quality and Production Managers of some of their duties. This measure will enable one manager to concentrate fully on quality control, thus reducing the conflict of interests that affect quality considerations when one person does both jobs.
2. Garment manufacturers should encourage their

employees to enrol for in-service courses and do Government Trade Tests and receive certificates for their skills, rather than relying solely on on-the-job training where skills are not tested.

3. The Ministry of Research, Technical Training and Technology should develop a course in assessing consumer attitudes to clothing quality, quality control, and computer aided design. These aspects can be incorporated in existing programs or be developed into a series of workshops to be offered to the managers over time to fit into their busy schedules.

4. To enhance the product quality, the garment manufacturers should be more forceful in ensuring that they get products of higher quality from textile manufacturers. This can be done by complaining to the manufacturers of inferior fabrics and returning them for replacement. The garment manufacturers should also work together to pressure textile manufacturers to produce better quality by boycotting poor quality inputs. These measures would encourage Kenyan consumers to continue buying locally made clothing and boost the textile industry.

5. The government should take measures to reduce the negative effects of liberalization experienced by the clothing industry. It should reduce the level of clothing imports or enforce regulations so full taxes are paid on all garment imports. These measures will make prices closer to

those of local clothing and offer Kenya's textile industry some protection from unfair competition.

6. The government should also encourage investment in the industry to enable it to develop to its full capacity. This can be by reducing taxes on machinery and equipment imported to enhance efficiency and product quality.

7. The government should facilitate garment export by negotiating promptly with trading partners to create favourable conditions for Kenya. It should also guard against corrupt trade practices such as trans-shipment that put local manufacturers at a disadvantage in the international market.

#### 5.3.1 Suggestions for Further Research

Further research can be carried out on the following aspects arising from this study:

1. A similar study can be carried out with machine operators as the respondents rather than managers.

2. A study similar to this one can be carried out in the textile manufacturing industries.

3. The characteristics of small and micro-scale garment industries can be investigated, together with the training needs of their employees and the challenges they face as a result of liberalization.

4. A study evaluating the effectiveness of clothing related courses offered in technical training institutions

can be done. The study could investigate how well these certificate and diploma courses meet the needs of garment manufacturers.

5. The challenges that trainees in technical institutes face when they go for industrial attachment could be researched on. This could give an indication of knowledge and skills that are required in the industries, but which are not addressed in the trainees' course of study.

## REFERENCES

- Biggs, T. et al (1994). Africa Can Compete! Export Opportunities and Challenges for Garments and Home Products in the U.S. Market. Washington D.C.: The World Bank.
- Blackburn, J. A. "Clothing Trade" Chambers's Encyclopedia. 1973 edition.
- Chuter, A.J. (1988). Introduction to Clothing Production Management. Oxford: BSP Professional Books.
- Cooklin, G. (1991). Introduction to Clothing Manufacture. Oxford: BSP Professional Books.
- Coughlin, P. (1986). The Gradual Maturation of an Import Substitution Industry : The Textile Industry in Kenya. Unpublished manuscript.
- Greenwood, K.M. and Murphy, M.F. (1978). Fashion Innovation and Marketing. New York: Macmillan Publishing Co., Inc.
- Government of Kenya. (1988). Directory of Industries, 1986

Edition. Nairobi: CBS, Ministry of Planning and National Development.

" (1991). Republic of Kenya Statistical Abstracts. Nairobi: CBS, Ministry of Planning and National Development.

" (1992). Economic Survey. Nairobi: CBS, Ministry of Planning and National Development.

" (1993). Economic Survey. Nairobi: CBS, Ministry of Planning and National Development.

" (1994). Employment and Earnings in the Modern Sector, 1991. Nairobi: CBS, Ministry of Planning and National Development.

" (1995). Report on Closed Down Industrial Firms in Kenya. Nairobi: Ministry of Commerce and Industry.

Horn, M.J. (1975). The Second Skin. Boston: Houghton Mifflin Company.

Jarnow, J.A. and Judelle, B. (1974). Inside the Fashion Business. New York: John Wiley and Sons.

Kelley, K.J. (1997, Sep 15). "U.S. Study Gives New Hope To Kenya Textile Exporters." East African, p. 28

Kendall, E.L. and Sproles, G.B. (1987). Professional Development in Home Economics. New York: Macmillan Publishing Company.

Kenya Association of Manufacturers Industrial Index and Members List.

Kenya Institute of Education. (1989). Technical Education Programs (TEP): Artisan Training Program. Garment-making Course Syllabi and Regulations. Nairobi, Kenya Literature Bureau.

Keregero, K. J. (1981). A Study for Identifying Critical Requirements for the Job of Extension Workers for Tanzania as a Basis for Designing a Strategy for Designing Training. Ph.D Dissertation, University of Wisconsin: Madison.

- Kyenze, S. (1995, Jan 10). "Tax Plan for Mitumba" Kenya Times, p.1
- Lester, R.H. et al (1977). Quality Control for Profit. New York: Industrial Press, Inc.
- Logan, W.B. "Vocational Education". Encyclopedia Britannica. 1984 (15th ed.)
- Lynton, R. P. and Pareek, U. (1978). Training For Development. West Hartford: Kumarian Press.
- McCormick, D. (1989). Garment Making in Nairobi: A Research Proposal. Unpublished manuscript.
- Mager, R. F. and Beach, K. M. Jr (1967). Developing Vocational Instruction. Belmont: Fearon Publishers.
- Merkel, R. S. (1991). Textile Product Serviceability. New York: Macmillian Publishing Company.
- Mills, H. R. (1974). Teaching and Training. London: The Macmillan Press Ltd.

Morawetz, D. (1980). Why the Emperor's New Clothes are not Made in Colombia: World Bank Working Paper. No.368. Washington, D.C.: The World Bank.

Mwangi, Njeri. (1995, Jan 10). "Move on Secondhand Clothes to Save Firms." Daily Nation, p.12

Mwangi, Patrick. (1995, Jan 10). "Tough Free Sales Rules Announced." The Standard, p.10

Ngugi; P. (1985, Oct 19). "Training Improves Textile Industry." Daily Nation, p.16

Nyang'or, E.A. (1993). Factors Influencing Consumer Selection of Imported Over Local Clothing in Kenya: A Case of Working Women in Nairobi. Masters Thesis, Kenyatta Univ, Nairobi.

Omondi A. (1997, Sep 23). "Report Wants Quotas Lifted." Daily Nation, p.14

Opanga, K. (1997, Sep 28). "Costly Miss for Kenya Trade?" Sunday Nation, p. 14

Otieno, G.K. (1990). Physiological, Psychological and Socio-Economic Factors Influencing Clothing Selection and Buying Practices Among Kenyans: A Study of K.U. Community. Masters Thesis, Kenyatta Univ., Nairobi.

dePaola, H. and Meuller, C.S. (1980). Marketing Today's Fashions. New Jersey: Prentice-Hall, Inc.

Republic of Kenya, (1991). Careers Information Booklet: 1991/92 Nairobi: Jomo Kenyatta Foundation.

Republic of Kenya Development Plan; 1994-1996

Solinger, J. " Clothing and Footwear Industry" Encyclopedia Britannica. 1984 (15th ed.).

Stamper, A. A., Donnel, L. B. and Sharp, S.H. (1986). Evaluating Apparel Quality. New York: Fairchild Publications.

Tate, M.T. and Glisson, D. (1961). Family Clothing. New York: John Wiley and Sons, Inc.

Touliatos, J. and Compton, N.H. (1988). Research Methods in Human Ecology/Home Economics. Ames: Iowa State University Press.

Vanderhoff, M. (1977). Clothes, Clues and Careers. Lexington: Ginn and Company.

Wentling, T. L. (1980). Evaluating Occupational Education and Training Programs. Urbana: Griffon Press.

APPENDIX 1

TIME-LINE FOR THE STUDY

<u>DATE</u>	<u>ACTIVITY</u>
July 1995	Departmental defence of proposal
February 1996	Faculty defence of proposal
March 1996	Correction of research proposal
April to May 1996	Preliminary survey of study area
June 1996 to April 1997	Data collection
May to July 1997	Data analysis
August 1997	Writing of chapter 4
September 1997	Revision of chapters 1, 2 and 3
October to December 1997	Revision of chapter 4 and 5
December 1997	Presentation of first draft of thesis to supervisors
April 1998	Presentation of final draft of thesis to supervisors
August 1999	Presentation of thesis for examination
July 2000	Thesis defence

APPENDIX 2

PROJECT BUDGET

<u>ACTIVITY</u>	<u>COST</u>
Proposal	
typing	1200.00
photocopy	900.00
binding	150.00
Preliminary survey	
transport	250.00
lunch	150.00
Data collection	
introductory letters	200.00
interview schedules	5700.00
transport	2000.00
lunch	1200.00
Data analysis	3000.00
Writing up	
typing	2800.00
editing	600.00
photocopy	3000.00
binding	500.00
<u>TOTAL</u>	<u>21,900.00</u>

Elizabeth Bosibori Oigo,  
Kenyatta University,  
Home Economics Dept.,  
P.O.Box 43844,  
NAIROBI.

The General Manager,  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
NAIROBI.

Dear Sir or Madam,

Re: A Survey of the training needs of Quality Control Managers and Production Managers in Nairobi's Clothing Industries.

I am a postgraduate student at Kenyatta University and in the process of completing the above mentioned study on improving the quality of Kenyan made clothing. Your firm has been selected to take part in the study and I would like to request the participation of your Quality Control Manager and Production Manager in an interview session to provide relevant information.

Being directly involved in quality control, these managers will be in a good position to contribute significantly towards identifying problems they face in quality control and suggest training needs which if addressed will help to further improve the quality of our locally manufactured clothing.

A summary of the research findings will be sent to participating firms at the end of the study. Confidentiality is strictly guaranteed.

I kindly request your cooperation in this endeavour and thank you for your support in advance.

Yours Faithfully,

Elizabeth Bosibori Oigo  
Research Permit No. OP.13/001/26C 87  
c.c. Dr. D.W. Tumuti (Senior Lecturer)  
Supervisor and Academic adviser  
Home Economics Department

INTERVIEW SCHEDULE

SECTION ONE - FIRM CHARACTERISTICS

1. What kind of clothing does this firm produce?

	curr- ently	other times	no. produced per tot/ wkr. day	
1. undergarments				
vests	( )	( )	( )	( )
men's briefs	( )	( )	( )	( )
women's briefs	( )	( )	( )	( )
children's briefs	( )	( )	( )	( )
tee shirts	( )	( )	( )	( )
brassieres	( )	( )	( )	( )
girdles	( )	( )	( )	( )
2. children's /infant's garments				
shirts	( )	( )	( )	( )
blouses	( )	( )	( )	( )
shorts	( )	( )	( )	( )
trousers	( )	( )	( )	( )
dresses	( )	( )	( )	( )
skirts	( )	( )	( )	( )
3. ladies' outer garments				
blouses	( )	( )	( )	( )
jackets	( )	( )	( )	( )
dresses	( )	( )	( )	( )
skirts	( )	( )	( )	( )
trousers	( )	( )	( )	( )
4. men's outer garments				
jackets	( )	( )	( )	( )
shirts	( )	( )	( )	( )
trousers	( )	( )	( )	( )
shorts	( )	( )	( )	( )
5. work clothes				
aprons	( )	( )	( )	( )
overalls	( )	( )	( )	( )
dust coats	( )	( )	( )	( )
6. other (specify)				
_____	( )	( )	( )	( )
_____	( )	( )	( )	( )
_____	( )	( )	( )	( )

2. Are the clothes for  
 1. local market only  2. export only  3. both

3. What is the total number of people working in this firm?  
 1. 20 - 49  4. 200 - 499  
 2. 50 - 99  5. 500 and over  
 3. 100 - 199

4. How many are male? \_\_\_\_\_

5. how many are female? \_\_\_\_\_

6. What system of garment assembly is used in sewing clothes after they are cut?

1. making through - one machine operator stitches an entire garment from start to finish.

2. assembly line - several people stitch a garment by each working on parts of it eg.

sectional - each machine operator sews several steps.

piecework - each machine operator sews only one step.

7. How are garments transported between machine operators and sections of the factory?

1. manually -pushed by hand along a bench or table  
-pushed in a cart or trolley

2. mechanically -conveyor belt

-overhead hangers operated electrically

3. other (specify) \_\_\_\_\_

---

8. How would you rate the quality of the clothing you produce?

1. needs much improvement  4. high

2. needs some improvement  5. very high

3. appropriate

## SECTION 2 - RESPONDENTS' CHARACTERISTICS

9. What is the job title for the position in which you are hired.

---

10. Are you in charge of the quality control department or the production department or both?

- ( ) 1. quality control department only
- ( ) 2. production department only
- ( ) 3. both quality control and production departments
- ( ) 4. other (specify) \_\_\_\_\_

11. How long have you held this post? \_\_\_\_\_

12. Indicate your previous work experience by writing down the job positions you have held earlier and the duration for each. Also indicate whether your major role involved :

- P - physically doing the work
- S - supervising others
- A - advisory or managerial role

Job Title	duration		involvement		
	yrs	mths	P	S	A
1. no previous work experience					
2. _____	( )	( )	( )	( )	( )
3. _____	( )	( )	( )	( )	( )
4. _____	( )	( )	( )	( )	( )
5. _____	( )	( )	( )	( )	( )

13. Did you have previous training in the following areas at the time you joined this firm?

Area	yes	no
1. clothing construction (CC)	( )	( )
2. quality control (QC)	( )	( )
3. personnel management (PM)	( )	( )

14. If your answer above is yes, indicate where you received the training.

Institution	Area		
	CC	QC	PM
( ) 1. Kenya Textile Training Institute	( )	( )	( )
( ) 2. An Institute of Technology	( )	( )	( )
( ) 3. A Technical Training Institute	( )	( )	( )
( ) 4. A Youth Polytechnic	( )	( )	( )
( ) 5. Kenya Polytechnic (Nairobi)	( )	( )	( )
( ) 6. Kenya Institute of Management	( )	( )	( )
( ) 7. Other (specify) _____	( )	( )	( )

15. Have you participated in any in-service training or workshops and seminars related to these areas?

- ( ) 1. yes
- ( ) 2. no

16. If your answer above is yes, indicate the area in which you did it and the duration of the course.

Clothing construction

Title of Course \_\_\_\_\_  
Institution \_\_\_\_\_  
Duration \_\_\_\_\_

Garment Quality Control

Title of course \_\_\_\_\_  
Institution \_\_\_\_\_  
Duration \_\_\_\_\_

Personnel Management

Title of Course \_\_\_\_\_  
Institution \_\_\_\_\_  
Duration \_\_\_\_\_

Other (specify) \_\_\_\_\_  
Title of course \_\_\_\_\_  
Institution \_\_\_\_\_  
Duration \_\_\_\_\_

17. Indicate the title of the highest professional qualification or certificate that you hold.

- ( ) 1. Artisan / Trade Test (specify) \_\_\_\_\_
- ( ) 2. Craftsman (specify) \_\_\_\_\_
- ( ) 3. Master Craftsman / Diploma \_\_\_\_\_
- ( ) 4. Degree (specify) \_\_\_\_\_
- ( ) 5. Other(specify) \_\_\_\_\_

18. What is the highest level of formal education that you have received?

- ( ) 1. primary school
- ( ) 2. secondary (O level)
- ( ) 3. high school (A level)
- ( ) 4. diploma college
- ( ) 5. university (1st degree)
- ( ) 6. university (postgraduate)

19. Gender

- ( ) 1. male
- ( ) 2. female

20. In which age category do you fall.

- ( ) 1. less than 25 years
- ( ) 2. 25 to 34 years
- ( ) 3. 35 to 44 years
- ( ) 4. 45 to 54 years
- ( ) 5. 55 years and over

SECTION 3 - JOB DESCRIPTION AND TRAINING NEEDS

21. Please give a brief outline of your duties and indicate the following additional details related to each duty.

1. How frequently you perform each task.

- (1) never
- (2) less than once a year
- (3) one to six times a year
- (4) monthly
- (5) weekly
- (6) daily

2. The level of importance you would assign each task.

- (1) high degree of importance
- (2) average degree of importance
- (3) low degree of importance

3. The level of difficulty of each task

- (1) easy
- (2) difficult

4. Whether or not you feel a deficiency in the way you perform this task which can be corrected by training.

- (1) yes, feel a need for training
- (2) no, feel no need for training

Job title \_\_\_\_\_

TASK	FREQUENCY OF PERFORMANCE					
	( 1 )	( 2 )	( 3 )	( 4 )	( 5 )	( 6 )
1. _____ _____ _____	( )	( )	( )	( )	( )	( )
2. _____ _____ _____	( )	( )	( )	( )	( )	( )
3. _____ _____ _____	( )	( )	( )	( )	( )	( )
4. _____ _____ _____	( )	( )	( )	( )	( )	( )
5. _____ _____ _____	( )	( )	( )	( )	( )	( )
6. _____ _____ _____	( )	( )	( )	( )	( )	( )
7. _____ _____ _____	( )	( )	( )	( )	( )	( )
8. _____ _____ _____	( )	( )	( )	( )	( )	( )
9. _____ _____	( )	( )	( )	( )	( )	( )



22. Below is a list of job skills, which of them do you consider important for your job, and in which of them do you feel a need for further training?

Important	Further Training	
	yes	no
<u>Technical Skills</u>		
( ) 1. clothing design	( )	( )
( ) 2. clothing construction	( )	( )
( ) 3. clothing quality control	( )	( )
( ) 4. statistical ability	( )	( )
( ) 5. mass production methods	( )	( )
( ) 6. fabric performance	( )	( )
( ) 7. computer aided design (CAD) for clothing	( )	( )
<u>Managerial Skills</u>		
( ) 8. integrating the role of other departments in controlling garment quality	( )	( )
( ) 9. management techniques	( )	( )
( ) 10. interpersonal communication	( )	( )
( ) 11. understanding how the garments the firm produces are made/developed	( )	( )
( ) 12. knowledge of customer's attitudes and requirements regarding quality	( )	( )
( ) 13. Production management	( )	( )
( ) 14. time and motion (efficiency) studies	( )	( )
( ) 15. organization of the factory	( )	( )

23. What other aspect(s) of your job description or job skills would you recommend be added to existing training programs?

---

24. How would you rate your preparation for this job in the following aspects?

Aspect	very adequate	ade- quate	not ade- quate	can not deter-
1. technical skills	( )	( )	( )	( )
2. managerial skills	( )	( )	( )	( )

#### SECTION 4 - PROBLEMS AND SOLUTIONS

Which problems related to the following characteristics do you

encounter in carrying out your job? Please suggest solutions to each problem.

25. Performing both the quality control and production management activities.

Problems \_\_\_\_\_  
Solutions \_\_\_\_\_

26. Managerial problems \_\_\_\_\_  
Solutions \_\_\_\_\_

27. Problems related to the number of workers employed.

Solutions \_\_\_\_\_

28. Problems related to the range of garments produced.

Solutions \_\_\_\_\_

29. Problems related to the expected daily output from workers.

Solutions \_\_\_\_\_

30. Problems related to the garment assembly systems :

a) Making through

Problems \_\_\_\_\_  
Solutions \_\_\_\_\_

b) Assembly line system

Problems \_\_\_\_\_  
Solutions \_\_\_\_\_

c) Manual systems of transporting garments within the factory.

Problems \_\_\_\_\_  
Solutions \_\_\_\_\_

d) Mechanical systems of garment transportation inside the factory.

Problems \_\_\_\_\_  
Solutions \_\_\_\_\_

31. What problems relating to quality do you experience?

\_\_\_\_\_  
\_\_\_\_\_

Solutions \_\_\_\_\_  
\_\_\_\_\_

32. What problems has your industry experienced due to the liberalization of the economy? \_\_\_\_\_  
\_\_\_\_\_

Solutions \_\_\_\_\_  
\_\_\_\_\_

33. Other problems (specify) \_\_\_\_\_  
\_\_\_\_\_

Solutions \_\_\_\_\_  
\_\_\_\_\_

**KENYATTA UNIVERSITY LIBRARY**