DESIGN IN JUA KALI POTTERY IN KENYA

A project submitted in the partial fulfilment of
the requirements for the degree of
Master of Design, University of Nairobi

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This project is my original work and has not been presented for a degree in any other University

Lorraine Amollo

This project has been submitted for examination with my approval as University of Nairobi Supervisor

Dr J. P. Odoch

To my family

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Definition of terms

Academic design theory:	a set of principles that guide the understanding or practice of design and that are widely accepted in the design academia
Professional design practice:	Commonly used methods and techniques in design as practised by design professionals
Innovation:	Introducing a new or improved technique or product in design
Jua kali enterprise:	A small scale business undertaking in the informal sector in Kenya
Pottery:	Fired clay wares
Traditional:	A thing or act shaped by principles based on experience and practice passed down through *generations*

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Abstract

Contemporary pottery has become increasingly common within the Jua kali sector in and around urban areas in Kenya. Little research however on the creative and innovative aspects of contemporary Jua kali pottery has been done. Having identified this gap in research, I proposed and carried out a study to explore the role of design in Jua kali pottery in Kenya. The hypotheses of the research state that there is a weak relationship between academic theories in design and design practice in Jua kali pottery, and that there is a weak relationship between professional practice in design and design practice in Jua kali pottery. To demonstrate these hypotheses I selected two case studies of Jua kali enterprises engaged in pottery and a third case study of a professional ceramic producer.

To begin with, I reviewed literature on design, the Jua kali sector and on pottery. Though great material exists on each of these three areas, little literature is available on 'design in Jua kali pottery' which in part necessitated this research. The literature review also yielded the specific objectives of the study as well as the conceptual framework that guided the fieldwork.

The methodology for the research entailed developing the conceptual framework, demarcating the scope of the research as well as developing the research design. In accordance with the literature reviewed, the theory on which the conceptual framework is based suggests that design is a process that involves identifiable stages aimed at arriving at a product to serve the needs of the end user. I picked out three key stages in this design process which are deemed to satisfactorily cover the entire design process as suggested by the several writers reviewed. These key stages were: the generation of ideas, production methods and thirdly the promotion of the product. I further elaborated these three stages of the design process in the conceptual framework which served as a guide for the collection of data. Data was collected through observation from two case studies of Jua kali enterprises that deal in pottery namely: Paro cultural Project based in Nairobi and Litoyi Pottery based on the outskirts of Nairobi. The professional ceramic production enterprise that formed the third case study is also based in Nairobi.

The analysis of data collected showed that there is a disconnect between academic design theories and design practice in Jua kali pottery. This disparity also exists between professional design practice and design practice in Jua kali pottery.

In general the potters at the two Jua kali enterprises were for one largely unaware of professional and academic design theories and practises. For this reason they did not in most cases employ the conventional methods of design. In particular, the potters did not use recommended techniques such as researching, brainstorming or sketching in the generation of ideas. They instead arrived at most of their designs by getting ideas from customers or by imitating designs from the market, catalogues and magazines. In production, the potters demonstrated great innovation in the use of local materials to cheaply produce their pottery. The promotion of the products received the least attention as the potters did not make much use of conventional advertising or marketing methods to engage consumers.

The comparative analysis between the Jua kali potters and the professional ceramic producer showed that the latter employed methods such as brainstorming and sketching in the generation and documentation of ideas as well as spending a larger percentage of the total expenditure on promotion of products as compared to the Jua kali potters. The professional ceramic producer also used more efficient methods of production such as electricity powered machinery. The Jua kali potters on the other hand used manual tools and machines that required more energy. The professional ceramic producer also dealt with customers such as hotels who bought in bulk which meant that they had much higher volumes of sale compared to the Jua kali potters who sold mostly to individuals and curio shop owners.

The hypotheses of research were therefore proved to be true in the demonstration that a there is a weak relationship between academic theories and design practice in Jua kali pottery, and that there is a weak relationship between professional practice in design and the design practice in Jua kali pottery. The research therefore recommends that Jua kali potters should be trained in design methods such as brainstorming, sketching, efficient production methods and promotion and marketing of their products. Further, a relevant and applicable design process for Jua kali production should be developed by the design academia for the benefit of Jua kali producers.

Introduction

1.1 Background to the problem

Pottery is said to be one of the oldest crafts on earth (Peterson 1998, Ball 1965). For this reason it has attracted the interest of academics from various circles. Historians, archaeologists and ethnographers among others have studied pottery extensively with the hope to understand man's history and development. Others have probed into the economic and sociocultural issues that affect pottery. Pottery has also invited the interest of artists and designers who wish to explore its creative aspect. For this reason there exist vast volumes of literature on the subject of pottery the world over.

In Kenya, the studies done on pottery have largely focused on traditional pottery as practised by ethnic communities around the country. In this sense, pottery is looked upon within a historical context and is therefore viewed as a diminishing traditional craft. At present, archaeologists and ethnographers have struggled to compile historical information on traditional pottery of different ethnic groups in Kenya (Langenkamp 2000). Professor Simiyu Wandibba, an anthropologist from University of Nairobi has played a key role in this study of pottery with a specific focus on ceramic ethnoarchaeology in Kenya (Wandibba 1999). Margaret Otenyo has also done research on traditional pottery with focus on the kilning techniques and types of clay used by traditional potters in Western Kenya. A more comprehensive study was carried out by Angela Langenkamp, a geographer and potter, who researched on the economic and sociocultural issues affecting contemporary pottery in Kenya. In this research Langenkamp (2000) studied pottery in two contexts. On the one hand, she looked at pottery as a traditional craft in the rural areas and on the other she studied it as an emerging Jua kali industry in urban and peri-urban areas in Kenya. It appears that Langenkamp is the first to refer strongly to pottery as an industry within the Jua kali sector. Conversely, the numerous researches that have been carried out on the Jua kali sector have paid little attention to pottery and have therefore made little reference to it as a Jua kali trade.

The Jua kali sector has attracted phenomenal interest in Kenya. The Government of Kenya as well as the civil society have been actively engaged, if only in theory, in the development of the Jua kali sector. Small scale production within this sector has been

researched on extensively mainly within an economic and sociocultural context (King 1995, Mbugua 1999, IDS 2001). Product design and development within Jua kali production has also received some attention. Of note is the product development method proposed by Mwasi (2006) for Jua kali production. In what she terms as a 'hybrid product development method' she outlines several phases of design, geared towards achieving successful products.

Pottery, as earlier mentioned, has however received little consideration in these discussions on the Jua kali sector. This continued neglect has possibly affected the development of the industry in the country. Despite this, the industry continues to grow as is evident from the mushrooming of sale outlets of Jua kali produced clay wares at road sides within and around Nairobi city. Langenkamp (2000) on the other hand, suggests that the most outstanding intervention in Pottery as an industry is the design and development of the energy saving ceramic stove introduced in the early 1980s in Kenya. According to Langenkamp the emergence of an urban Jua kali pottery enterprise culture resulted in the introduction of this stove better known as the Kenya ceramic jiko or Upesi jiko. With this, Langenkamp goes into an elaborate description of the development of the urban Jua kali pottery enterprise culture. Langenkamp's work has therefore provided valuable background material for this thesis. Her approach to the study is however ethnographic as she states in her research planning and design. The other researchers earlier mentioned have adopted a similar approach with the exception of Margaret Otenyo who carried out experimental studies into the techniques in pottery.

Langenkamp (2000) discusses three distinct approaches to the study of pottery. One is the archaeological approach which encompasses the study of technology, enthno-archaeology, style and change in ceramics all within a historical context. The second is the technical approach which focuses on the artistic and technological developments involved in producing clay wares. The third approach is the ethnographic approach which is the study of pottery to understand the social structures of communities. The technical approach seems the most appropriate for the study of design in Jua kali pottery as proposed in this thesis. A backdrop of the historical accounts on pottery is however important to contextualise the discussion on Jua kali pottery.

It is clear that pottery in the Jua kali sector is a subject worth researching into. I however would not have embarked into this study were it not for a keen personal interest in pottery. I have experience in working with clay and I am convinced that pottery provides vast opportunities for creativity and expression. Clay is a most yielding material that easily lends itself to working and reworking. The possibilities it offers are only limited by the creativity and imagination of the potter. A most miraculous event occurs when the still soluble clay is vitrified in fire to transform it into a hard, fragile body that can last thousands of years if only in sherds. With such interest in pottery I was therefore enthused by the prospect of working with potters as the research would necessitate. I knew I stood to gain a lot from the encounter with the potters who have learned their craft through experience and apprenticeship unlike me who had learnt it in a formal academic setting.

1.2 The Problem

From the background information it is evident that contemporary pottery has become increasingly common within the Jua kali industry in and around urban areas in Kenya. The creative and innovative aspects of contemporary Jua kali pottery have however received little attention in terms of research. Review of literature has also shown that little information on design and its role in the pottery industry in Kenya exists. Having identified the gap in research on Jua kali pottery, I propose to carry out a study to explore the practice of design in Jua kali pottery using case studies of pottery enterprises within and around Nairobi.

1.3 Purpose of the Study

The aim of this study is to establish the practice of design in pottery in the Jua kali sector by studying the relationship between academic theories in design and the practice of design in Jua kali pottery. The study will further compare professional design practice in the pottery industry with design practice in Jua kali pottery. To fulfil this, the study will first seek to establish the design process as proposed by a variety of design writers and use this as academic design theories. Secondly, the study will draw cases of pottery enterprises within the Jua kali sector and the formal sector. The latter will serve to establish professional practise in design.

1.4 Hypotheses

- There is a weak relationship between academic theories in design and design practice in Jua kali pottery. Further, academic theories proposed in design literature have little connection with the design practices of the Jua kali potters.

- There is a weak relationship between professional practice in design and design practice in Jua kali pottery. Professional practice in design here refers to the practices of the professional ceramic producers with formal entrepreneurships.

1.5 Objectives

- To examine the design process as proposed in academic design theories. This is the initial step in examining the first hypothesis and it will be done through the review of literature on design.
- To establish the design process in Jua kali pottery and compare this to the design process in academic design theories. The design process in Jua kali will be established through case study research of two Jua kali pottery enterprises. This objective will help to prove the first hypothesis as well.
- To compare and contrast design practice in Jua kali pottery with professional design practise in the pottery industry. A third case study of a professional ceramic producer will be used to draw comparisons between design practice in Jua kali enterprises and the professional enterprise. This objective will prove the second hypothesis of the study.

1.6 Questions to be answered in the study

- What is the design process according to academic theories and how does this relate to the practise of design in Jua kali pottery?
- Are the theories on design by the academia relevant to the Jua kali sector?
- Does design practise in the professional context answer to the needs of contemporary pottery in the Jua kali sector?
- Are the Jua kali potters aware of professional design methods and do they employ them? If not, why?

1.7 Significance of the study

The study of design in Jua kali pottery will first and foremost set the precedent in an area that has been little ventured into. The study will provide information on design in pottery within the Jua kali sector. In the wider sense it will add to the body of knowledge on product design and development in the Jua kali sector. The research will also open the debate on the relevance of professional practice and academic design theory in the development of small scale production in Kenya.

1.8 Limitations

Having a lean budget and limited time I restricted the research to two case studies in the Jua kali sector and one in the professional sector as the nature of the work required in-depth information.

Information on research methods for design related studies such as the one undertaken here was also not readily available. It was therefore necessary to rely on methods generally recommended for empirical researches.

Literature Review

2.1 Design

The understanding of the word design has evolved through the years. During the renaissance the artists in Italy used the word *designo* in its narrowest sense to refer to the drawings used as guidelines for painting. In its wider meaning the word *designo* was used to imply the creative idea in the mind of the artist. Thus Baldinucci defines it as 'a visible demonstration by means of lines of those things which man has first conceived in his mind and pictured in the imagination, and which the practised hand can make appear'(Osborne 1970, pg 311). Supporting this is the standard dictionary definition of the word design which states that it is 'a preliminary plan or sketch for making something (Oxford 1998, pg 221). A designer is defined as 'a person who makes artistic designs or plans for construction, e g for clothing, theatre sets e t c'. (ibid) Charles Eames, a renowned designer of the 20th Century, defined design as 'a plan for arranging elements in such a way as to best accomplish a particular purpose.' (Miers 1989, pg 14). What is common in all these definitions is that design entails the conception of ideas intended as a plan for producing a thing.

Design can further be seen as an activity aimed at establishing the multi-faceted qualities of objects, processes and their systems in whole life cycles (www.icsid.org Jan 2006). Design therefore takes into account issues such as global sustainability and environmental protection. On the whole, design is and activity that involves a wide spectrum of professions such as products, interiors, graphics, services and architecture (ibid).

Of particular interest to this study, is the definition of product design. An attempt to understand product design forces one to grapple with other terms such as industrial design and applied arts. According to Read (1956) industrial design as a separate branch of the arts is originally a British conception. It was born of the need to instil design in manufacture in the early 19th Century. Read looks on industrial design as the design of products to be produced by machine. This is in keeping with the description of industrial art as a discipline that 'embraces all design related to objects in industry' (Osborne 1970, pg 401). Osborne elaborates that industrial art is therefore as old as industry. Read (1956) goes further to trace the history of Applied Arts back to the development of industrialisation in Britain. He however refutes that the concepts of

Fine and Applied arts are wholly creations of industrialisation. According to him, these two concepts have their roots in the Renaissance. He lists architecture, sculpture, painting, music and poetry as what was considered as Fine Arts in the Renaissance period. He continues that these were the courses offered at the Academies of Fine Arts that flourished around the renaissance.

Osborne (1970) supports Reads theories in his definitions of Applied and Fine Arts. According to Osborne, the discussion on Applied Arts came to the fore during the Industrial revolution when politicians and economists advocated state patronage for the arts due to its perceived contribution towards the industrial revolution in Britain at the time. It was held necessary to discover the best art to teach in the schools of art and design and to apply it to the products of industry. In this context art was largely identified with the ornamentation of industrial products aimed at making them more appealing to the customer.

The concept of Applied Art was that a product can be rendered acceptable by 'applying' artistic design to it. Currently, the held view is that good design in industry must combine suitability for function and respect for materials and techniques with good workmanship and a pleasing appearance (Osborne 1970). The concept of Fine Arts on the other hand has changed from the medieval times to the modern age. In medieval times, activities such painting, sculpture and architecture were regarded as crafts separate from the liberal arts. During the renaissance, these were distinguished from other manual skills and were classified with the liberal arts. During the enlightenment, they were further distinguished from the sciences but not reduced to the level of the crafts and were therefore classified as the fine arts. It is therefore during the enlightenment that the fine arts of painting, sculpture, and architecture were clearly distinguished from the crafts. The crafts were therefore seen as manual tasks requiring little or no academic qualifications (Osborne 1970).

Later on during the industrialisation, the divorce between the fine arts and the crafts presented great challenges for design and production by machine. Manufacturers engaged in mass production would bring in artists to add 'beauty' to finished products hence the term 'Applied arts' as earlier discussed. The craftsmen on the other hand, continued to use hand making techniques (Osborne 1970, Read 1956). Read and Osborne propose that artists and craftsmen should be engaged as designers and involved in the production process from the outset.

2.2 Design in Mass Production

Heskett (1980), states that industrial design has its roots in the craft industry. He argues that the so called man- made world of today is a result of the transformations brought about by a mechanised industry. He continues that the emergence of industrial production from craft tradition is not a linear one from handwork to mechanical production though a clear thread of development is discernable. Design, which he terms as the conception of visual form, has become progressively separated from the act of making. Heskett continues to demonstrate that in craft production, conception and realisation of the product are closely linked and may often be carried out by a single person. He warns that the apparent simplicity in craft production may hide the complexity of the process. Heskett laments that many studies in design have not taken into account the complexity of industrial production. These studies depict design as an 'autonomous, inward-looking relationship between designer and product.' (Heskett pg 7). He points out that emphasis is placed on 'originality' and individual achievement. He claims that this approach is at times reinforced by exhibitions and museum collections which display products as pure forms outside the context within which they are to be produced and used.

> *'The conception of design is not simply a representation in visual form of predetermined values, but a creative, catalystic process in which external factors interact with the beliefs, talents and skills of individual designers or design-groups. The influence of design factors is generally the greatest in establishing parameters for the utilitarian function of a design- that is, the criteria by which it will be judged suitable for intended working purpose'.*
>
> (Heskett, 1980, pg 8)

Heskett further delves into the lives and works of artists, designers, architects, craftsmen and academics who played key roles in the development of mass production. On the whole Heskett ties the development of industrial design to the history of industrial production. He concludes that industrial design has focused on making technology usable in forms that are accessible and comprehensible to the greatest possible number of people. Design, according to him has become a specialized activity in industry, one of the number of activities clustered under the title 'research and development'. He argues that though designers fit into this organisational role they should not be seen as institutional functionaries. Designers, in

his view ought to be sensitive to the needs of society and the environment. He however admits that industrial designers have to contend with the constraints set by organisational requirements and other challenges outside their control.

The earlier writings of Read (1956) bear similarities with the work of Heskett discussed above. In accordance with the time of his writing, Read pointed out that the machine age was almost exactly a hundred years old. He briefly traces the development of this age back to the end of the 18th century with the invention of the steam engine, the spinning jenny and the weaving machine. He terms the revolution in practical life that followed these inventions as amazingly sudden. He quotes a historian as having described this age as having 'exceeded in suddenness the metamorphosis effected at any previous transition from one ethnic period to another' (Read 1956, pg 20). Read continues that it took a generation to build and realise the change brought about by the machine. With the development also came resistance which Read describes as the Luddite Riots of 1811 and 1816 as the acute stage of the resistance. With the resistance overcome, he continues that the machine multiplied and the surviving elements of craftsmanship were gradually eliminated from the process of production.

Both Heskett and Read bring into sharp focus the contribution of the Art and craft movement in Britain as well as the Bauhaus in Germany to the development of design in industrialisation. A century before the Art and Craft movement, Josiah Wedgewood was turning his craft into a mass production endeavour. His works are of singular interest to this research because of the craft he engaged in which was pottery. He is described by Read as one of the greatest industrial geniuses, a man who converted a peasant craft into an industrial manufacture. Josiah Wedgewood was born in 1730 in Staffordshire Britain. He belonged to a family that had followed the craft of pottery for generations. He was apprenticed to Thomas Whieldon for five years where he learned all there was about the local pottery tradition (Read 1956).

Read further describes Wedgewood as a great rationaliser of industry. This, because he strove to eliminate waste, improve processes and created demand where it had not previously existed. According to Read, Wedgehood did not set out to imitate the then valued Chinese porcelain but to provide an alternative which he did with amazing success. He is attributed with building bigger and better kilns, improving the wheel and introducing the turn lathe which enabled precision in pottery. He also improved

the chemical compositions of clays and glazes. He discovered new types of wares such as "black basalts" and "jasper" and also invented the pyrometer for measuring the heat of the furnaces. As his export trade grew he solved difficult problems of packing and transport. Wedgewood grappled with and successfully solved the problems of his craft setting the pace for the industrial revolution later that century (Read 1956). His description by Read as an industrial genius is well deserved.

The Art and Craft movement earlier referred to, was started by another Englishman named William Morris. Unlike Wedgewood, he was not born to a trade but to wealthy parents and educated at Oxford (Read 1956). He started his firm in 1861 along with associates who shared his ideas. Morris's theories were influenced by Ruskin and Pugin who preceded him. Like them he strongly believed that art in the middle ages was better because it was not divorced from craft. He referred to the products of mass production as 'unutterable rubbish' (Pevsner 1968). Morris and his associates considered the machine as evil and they rallied for a return to the crafts. Their modes of production however resulted in expensive products affordable only to the very rich that they despised. Read (1956) attributes the failure of the Art and Craft movement to its false objective which was to oppose the machine. Pevsner (1968) points out that despite this, Morris succeeded in turning the attention of artists and architects to craft and design.

At the turn of the 20th century, the ideas of William Morris were taking root in other countries other than Britain. In Germany, the 'Deustche Werkbund' was founded in 1907. It was a society whose membership comprised of architects, craftsmen and manufacturers. It is here that functionalism in design took ground. The Werkbund sought for simplicity in design and functional form in products for everyday use (Pevsner, 1968). These philosophies of the Deustche Werkbund were carried on into the Bauhaus. The Bauhaus was founded in 1919 by an architect known as Walter Gropuis. Gropius wanted the Bauhaus school to be anti-academic and he replaced the terms professor and student with master and apprentice respectively. This he did to show that the school was to be craft-based and in touch with the real working world (Whitford 1984). One of the main objectives of the Bauhaus was to unify art, craft, and technology. The machine was considered a positive element, and therefore industrial and product design were important components of machine production (en.wikipedia.org/wiki/bauhaus Feb. 2006). The

preliminary course at the school known as 'Vorkurs' was undertaken by Itten, an artist. The course was an exploration of form and materials. This was followed by an introduction to crafts under a craftsman. The formal problems of design were studied under another artist (Whitford 1984). It is claimed that the 'Vorkurs' is still used today as a guide in teaching modern day Basic Design course. It therefore apparent the Bauhaus has continued to influence architectural and design studies across the globe. (en.wikipedia.org/wiki/bauhaus Feb. 2006).

Whitford (1984) confirms that modern industrial design takes much of its doctrinal basis from the Bauhaus. This is confirmed by Papanek (1972) when he states that 'no design school in history has had greater influence in shaping taste and design than the Bauhaus' (Papanek 1972, pg 23). According to Papanek the Bauhaus became the first international forum on design because its students and staff were drawn from all over the world, and its influence spread when these people later set up design offices and schools in their countries.

Today industrialisation is a reality that has to be reckoned with the world over. Indeed the countries of the world gauge national development according to the level of industrialisation in a country. The most 'developed' countries are often referred to as the IACs- Industrially Advanced countries (Richman, Schreurs, Wilde 1991). African Nations are invariably referred to as developing countries and are seen as engaged in the struggle towards industrialisation. The governments of these countries are ardent, if only on paper, to see their nations fully industrialised in the near future.

2.3 Product design and Development

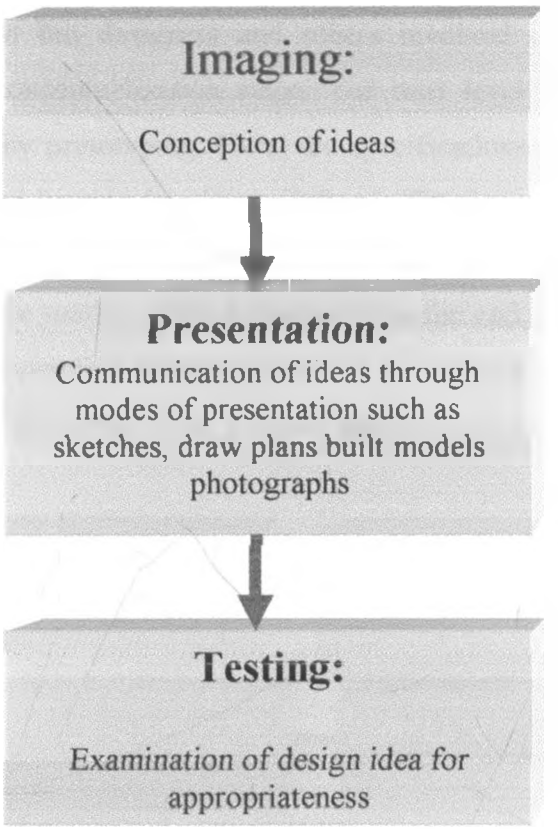
'The planning and patterning of any act towards a desired, foreseeable end constitutes the design process' (Papanek, 1972, pg 1). This design process begins with the generation of ideas. The idea of the product conceived by an individual or group is then developed into a product that is ready for use (Langdon and Rothwell 1985). This is reflective of the understanding of the Italian word *designo* as the creative idea in the mind of the artist as discussed earlier. Zeisel (1981) acknowledges that design is difficult to describe as it involves what he terms as intangible elements such as intuition, imagination and creativity. He however defines it as 'an ordered process in which specific activities are loosely organised to make decisions about changing the physical world to achieve identifiable goals' (Zeisel pg 5). This process is complex

and includes several analytically distinct elementary activities which are imaging, presentation and testing' (Zeisel pg 6).

Ziesel (1981) continues to discuss imaging as the ability to go beyond the information given. This 'imaging' is what is commonly referred to as creativity by lay persons. Zeisel insists that the term imaging is more appropriate as it directly refers to the formation of a mental image or to the conception of an idea. These images that the designer forms in the mind provide the larger framework within which to fit specific pieces of the problem as they are resolved (ibid). After imaging, Zeisel describes the next activity of presentation as a way to externalize and communicate the images. The modes of presentation which could be sketches, draw plans, build models or photographs ought to be suited to its intended use. These presentations are not identical to the mental images in the designer's mind but are implications of the images.

Finally, Zeisel describes testing as the moment when the designer steps back and with a critical eye examines the design idea. The designer compare the tentative design presentation against an array of information such as 'the designer's and the clients implicit images, explicit information about constraints or objectives, degrees of internal design consistency, and performance criteria- economic, technical, and sociological' (Zeisel pg 9). This 'testing is a feed-back and feed-forward process, adjusting the relation between a design product as it develops and the many criteria and qualities the product is intended to meet' (ibid).

Zeisel (1981) delves into the characteristics common to design and uses these characteristics to explain the work that designers do. There are the three elementary activities of imaging, presenting and testing as previously discussed. To carry out these activities designers require information about the problem in question. This information acquired through research is useful to arrive at design decisions and to evaluate the design alternatives. As the designer gains new insights and information, the predictions about the final product are continually modified. 'The design process is thus a series of conceptual shifts or creative leaps' (Zeisel pg 6). These shifts occur as a result of repeated movement through the three elementary activities. Represented in a flow chat, the design process according to Zeisel would look as follows:

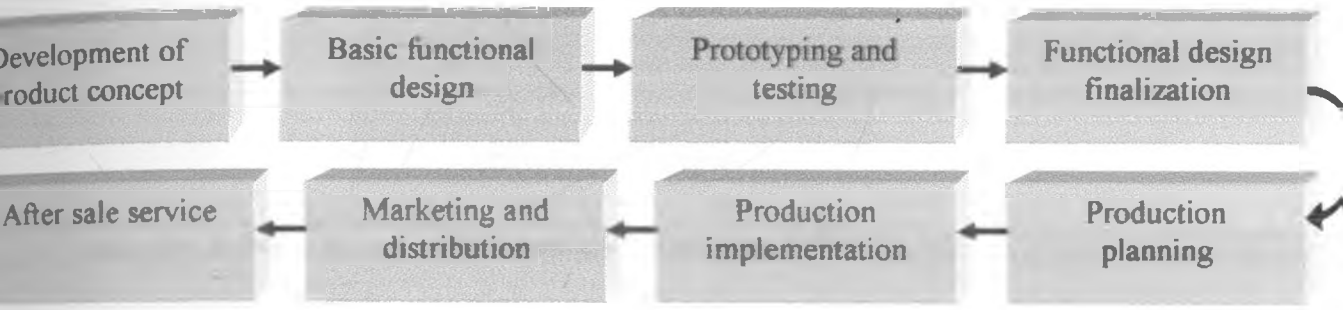


Flow chart 1: Design Process adapted from Zeisel (1981)

Zeisel (1981) continues that through out the process the designer aims to reach one acceptable response within a range of possible solutions. Acceptability is largely measured by how well adapted the product is to its environment and how coherent the constituent parts of the product are with one another. Here, Zeisel points out that there often exist an infinite number of potentially acceptable responses to a problem and designers may fall into difficulty when it comes to choosing the best solution. To arrive at what is acceptable, designers make decisions about the practical and substantive attributes of the objects to be designed. Zeisel categorises these attributes into two: contextual responsiveness which is the degree to which objects respond to external conditions, and internal coherence which is the degree to which components of an object are consistent with one another.

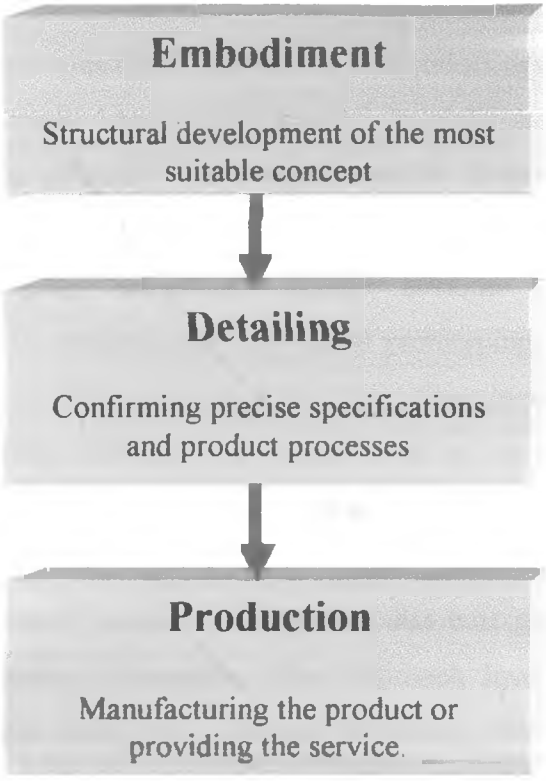
Similar to Zeisel's descriptions, Moss (1996) refers to the design of a product as a process that he refers to as the product realization process. He outlines the process of product realization in eight clear stages though in reality as he acknowledges, the stages do overlap. The first stage of conceptualization involves the innovation of a

new product or the redesigning of an existing model. This stage is considered a marketing function but designers and others involved in the process should be included in this conceptualization stage. The next level is basic designing of the product followed by prototyping. Here, the specifications for the product's function and its manufacture have to be clearly defined. The design is then finalised and the manufacture of the product is planned and implemented. The final product can then be launched into the market. Here feedback from the end user is sought after. After distribution it is imperative to provide service after sale for the end users. The flow chart below shows the stages of the product realization process as set down by Moss.



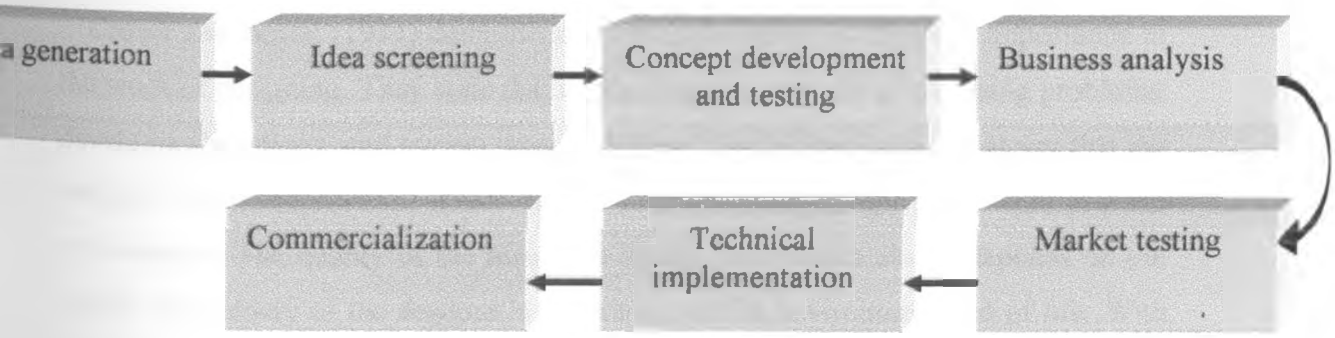
Flow chart 2: Product realization process adapted from Moss (1996)

Zeisel (1981) and Moss (1996) do differ in their descriptions of the stages in the process of design. Moss includes production, distribution and interaction with the end user as part of the process of realizing a product while Zeisel puts down testing of the design idea as the final stage in the process. The two writers do not however differ much in their explanations of the activities of a designer. They concur that design requires innovation and entails the realization of ideas into products for use. Cooper and Press (1995) similarly set down the stages in the design process as embodiment, detailing and production. Like Moss (1996) they include production in the process. Their explanations are condensed in the following flow chart.



Flow chart 3: Design Process adapted from Cooper and Press (1995)

According to Breckon and Prest (1983) the design process begins with a need to solve a problem. To do this, the designer requires a design to provide the guidelines on how to solve the problem in question. Through research and evaluation the designer collects all the necessary tools and information required to solve the problem in line with the design brief. With these, the designer develops ideas for a design which is then planned and realized. The product has to be tested and evaluated to ensure that it is a solution to the problem as stated in the design brief. The discussions of Breckon et al (1983) tie in with what has been reviewed thus far.



Flow chart 4: Product development process adapted from www.en.wikipedia.org (feb 2006)

Flow chart 4 demonstrates the discussion on the product development process from the electronic encyclopedia known as Wikipedia. Its elaborated further that ideas for new products can be obtained from customers, the Research and Development department of a company, competitors, focus groups, employees, or trade shows. 'Formal idea generating techniques include attribute listing, brainstorming, morphological analysis, problem analysis, virtual prototyping, and rapid prototyping' (www.En.wikipedia.org/ideageneration Feb 2006). Elsewhere, product development is seen as involving the definition of requirements of the design and the use of customer evaluation and feedback on prototypes to refine these requirements. (www.npd-solutions.com Mar. 2006) The discussion further shows that an alternative approach of 'evolutionary product development' has emerged largely based on the results of some Japanese companies. This approach involves regular, on-going assessment of customer needs and customer feedback, shorter development cycles with a more limited set of new requirements (www.npd-solutions.com Mar. 2006). In this approach great emphasis is therefore laid on interaction with the end user.

Lugt (2006) in his discussion on methods of generating ideas, points out that many businesses in the West fight to remain competitive by adopting idea generation techniques in the hope of promoting creative idea generation by their employees. Brainstorming, he claims, is one of the common techniques used. The ideas generated are usually put down in written language or in the form of sketches. Designers particularly make extensive use of sketches while generating ideas. Design thinking researchers regard this activity of sketching as a means to spur creative thought (Lugt 2006). Purcell and Gero (1998) confirm that the interaction that designers have with their sketches is seen as essential to creativity in design activity (Purcell and Gero 1998).

Crowe and laseau (1984) demonstrate that note-making is of prime importance in the work of designing. They state that design requires practice at analysing problems, developing solutions, and testing those solutions. To do this Crowe et al say that the designer needs information about the specific problem, design precedents and the environment. The quality of the results in design, the writers claim, depends on the quality and variety of the designer's experience of the environment and of life. With this, Crowe et al advocate for the practice of note taking by designers. They add that opportunities for note taking are as numerous as the daily experiences one has. To

carry this out effectively, designers have to be keen observers with the ability to perceive detail and communicate effectively. Crowe et al proceed to suggest a variety of methods such as sketching, writing and photography that a designer could use to record experiences. These visual records may later come in handy when one has to generate an idea for a design. Crowe et al are convinced that note taking is imperative for one who wishes to develop there creativity and improve their skills in design. They conclude that creative people develop a refined taste for ordinary experiences from which they draw inspiration for their work. Breckon and Prest (1983) attest to this by stating that it is important for a designer to be able to draw.

In an attempt to define the process of design and product development the reviewed writers use differing terminologies to describe what they see as the activities aimed at the realization of a product. What is evident is that there are underlying principles that guide the design process which all the writers attest to. The process as the writers demonstrate requires generation of ideas that are then evaluated and finally realized into a product. Some of the literature further includes distribution or commercialization of the product in this process. Here interaction with the end user is imperative for the analysis of the product's appropriateness.

2.4 Industrialisation in Africa

The Western concept of industrialisation has met with little success in most African countries. Carr (1988) attributes this abysmal performance to the transfer and use of inappropriate technologies. He continues that the strategies adopted for industrialisation in Africa have been unsustainable. The author gives the collapse of the manufacturing industry in Kenya as an example of these failed efforts. He continues that industrialisation efforts in Africa have been unable to create employment and has led to the loss of employment opportunities in the traditional sector. Carr provides a case where the setting up of a plastic shoe industry in a third world country led to the collapse of the existing local leather shoe industry. The plastic shoe industry required very few workers and produced high volumes of shoe supply at very low costs using imported machinery and raw materials. The affected local leather shoe industry made use of a much larger labour force with many players such as shoe makers and repairers, shoe shiners and suppliers. The net result was a decline in both employment and real income within the country (Carr 1988).

The singular failure at large scale industrialisation has led to the proliferation in Africa of small scale industries most of which are informal. The Informal sector has since then become a hot subject for discussion. King (1995) traces the history and development of the informal sector in Kenya. According to King, the term Informal sector was first used by Keith Hart whose studies were focused on the work done by Frara migrants in Accra, Ghana. King continues that it was however in Kenya that the informal sector was first regarded as a policy priority in the employment mission done by the International Labour Organisation in 1971. King shows that in Kenya however, it is increasingly more common to use the term 'Micro and Small Enterprises (MSEs) of the Jua Kali sector' or 'Non-farm activities' in the rural areas. King's studies of over 20 years have culminated in publications on the informal sector within Africa. His publication of 1995 on the *Jua Kali in Kenya* is a study that provides a comprehensive picture of the development in the informal sector.

King (1995) traces the use of Jua kali as a term back to the 1980s when the then minister of Technical training and Applied technology endorsed the use of the term Jua kali sector in place of the informal sector in 1988. According to Henault and Phillip (1995), a Small and Meduim sized enterprise (SME) is a firm employing fewer than 50 people. They continue that a Jua kali enterprise is even smaller with less than 20 people. Elsewhere an MSE is defined as a small, informal, non-agricultural business with usually one person as the owner operator in some cases working with unpaid family members or one or two other employees (IDS, 2001).

Earlier, it was shown that the transfer of inappropriate technologies to Africa led to the poor performance of industries and the subsequent emergence of small scale industries. The term appropriate technology also referred to as intermediate technology was originally a concept involving the application or adaptation of technology to fit a particular context (Jeans 1999). The popularisation of the concept of Intermediate technology is attributed to Eugene Schumacher in the 1960s who called for the use of modern technology to solve the problems of creating work rather than concepts of efficiency and increased outputs that displace workers. Its emphasis is on the needs of people rather than products (Heskett 1980). According to Jeans (1999), almost all new technologies are designed to meet the demands of industrialised countries. He argues that technical expertise today that is geared towards large scale production is unaware of the technological problems of the SMEs.

Harper (1984) argues the case for the use appropriate technology in third world countries by advocating for the adaptation of technology by the small scale entrepreneurs to suite their own needs. He also urges that indigenous technological inventions are often better suited to serve the needs of the local people and provide more opportunities for employment.

2.5 Micro Enterprise in Kenya

Policy makers in the government as well as Non governmental organisations (NGOs) and donors have adopted appropriate technology and business development as the way forward in the effort to empower the MSEs. The Government of Kenya (GOK) has set up several departments under the ministry of Trade and Industry aimed at better serving the needs of small scale businesses. Further, the GOK has written several policy papers such as sessional paper number one of 1956 and number two of 1991 and 1992, all these in relation to the Jua kali sector

Kenya has about 1.3 million micro and small enterprises (MSEs) employing some 2.3 million people. The average size of an MSE is 1.8 workers and the contribution of MSEs to the GDP as of 1998 was 18.9%. (CBS, K-Rep, ICEG 1999). The contribution of the MSEs to the development of the country is clear. The government and the civil society recognize the potential of this sector and have made efforts to support the Jua kali sector. The rising rate of unemployment in the country means that more and more people are forced to join the informal sector to meet their daily needs.

Most of the businesses in the Jua kali sector are family-based with skills acquired through traditional apprenticeship. The techniques used in production are simple and do not require complex machinery. The informality of the Jua kali makes it easy to set up businesses, as they require minimum start up capital. The negative side of this is that there is a proliferation of enterprises that remain small due to high competition and lack of investment opportunities. A study done by the International Labour Organisation on the Jua kali, sites constraints such as inadequate skills, technology, support services and infrastructure. The National MSE baseline survey 1999 shows that the major constraint facing MSEs nationwide is lack of market.

Numerous researches endorsed by both the GOK and NGOs have been carried out on the MSEs. It would therefore seem that a lot of attention is being paid to this sector. The GOK particularly in all its policy papers, places a premium on its intervention efforts to upgrade MSEs by creating an enabling environment for their establishment and growth. Government plans however continue to be criticised for having frameworks that are too general and unimplementable. These frameworks are hardly ever followed by budgetary allocations or the institutions to implement them (IDS 2001).

Muchilwa (personal communication, 24th March 2006) confirms that the interventionist policies adopted by both the government and the NGOs have been misplaced and have achieved poor results in improving the livelihoods of Micro and Small scale entrepreneurs. King (1995) claims that the Donor community has broken the most ground in assisting micro enterprise in Kenya. According to him, the government has achieved little in assisting entrepreneurs start and grow. Manu (1999) states that efforts over the past three decades at enterprise development in Africa have not yielded significant impact or growth. This view is supported by Harper and Ramachandran (1984) who demonstrate through case studies how over dependence on external support causes entrepreneurial set ups to collapse as soon as the external support is withdrawn.

Harper et al (1984) state that craft training in particular, if provided in a purely academic way with no regard for economic viability of the craft, renders trainees unable to engage in lucrative business activities. Inadequate access to markets is another major set back for the development of MSEs (Mbugua 1999). In Kenya, as Mbugua points out, poor access to local markets is partly caused by a narrow product range which leads to high competition and market congestion. This is evident from the horizontal rather than the vertical growth by most MSE firms. Another cause provided by Mbugua is that of poor product design and packaging, low quality of products, poor pricing and lack of product improvement. Inadequate access to market information and to large markets is another reason that Mbugua gives for the poor performance of MSEs.

In the international scene, the MSEs face greater challenges such as lack of information and access to external markets which prevent them from exporting their products. They also lack the financial and promotional support from the government

to enable them to access external markets (Mbugua 1999). Amongst the numerous proposals for the interventions necessary to improve MSEs, Mbugua suggests that product design and development activities by NGOs are needed to improve the products of MSEs.

With particular reference to craftwork, Liboulle (1992) proposes that creative work amongst artisans has to be enhanced if the MSEs are to develop. He laments the conformist attitude of craftsmen that drives them to reproduce traditional models instead of reworking them to fit in with contemporary use. Millard (1992) claims that product range is the most important asset of a small handicraft business. He continues that 'newness is a very important promotional tool' (Millard1992, pg 97). Apart from product range, use, quality and packaging are important elements that have to be considered in craft production. To increase sales in the export market, Millard recommends that countries wishing to export handicrafts should fight off competition from industry by studying their own unique traditions and adapting these to the life-styles of the modern consumers.

2.6 Pottery in Kenya

The types of businesses that fall under the Jua kali remain unclear. Though the term came into use in the 1980s, King (1995) confirms that as late as 1990 the then ministry of Training and Applied Technology that undertook the exercise of registering Jua kali workers, did not provide a definition of what a Jua kali business might be. King demonstrates how initially Jua kali only referred to work done predominantly by blacksmiths and metal workers out of doors, in the open air. The term extended to mechanics and finally broadened to encompass Kenyan -African (as opposed to Asian or European decent) technological capacity. King's writing on the Jua kali along with other literature reviewed makes little or no reference to pottery. On the other hand, the literature reviewed on pottery in Kenya has little or no reference to pottery as a Jua kali undertaking.

In history, pottery is documented as having existed in Kenya since the upper Palaeolithic era. Too fragile to travel yet too permanent to disappear even in a broken and abandoned state, pottery has served as an archaeological record of the span of human settlement (Langenkamp, 2000). Scholars of different disciplines have studied pottery and ceramics within the context of their specialisations. According to Langenkamp (2000), there are two distinguishable contextual frameworks within which these studies are done: historical, archaeological and cultural anthropological / ethnographic studies on the one side and practical, sociocultural and development studies on the other side. In Kenya most of the research done on pottery has been carried out by historians, archaeologists, ethnographers and anthropologists (Langenkamp, 2000). Wandibba (Personal communication, 15th Feb. 2006) an enthnoarchaeologist attests to this fact.

Wandibba is a professor in enthnoarchaeology at the University of Nairobi and has carried out extensive enthnographic and archaeological studies on pottery around Kenya. Together with other historians Wandibba has recorded the history of pottery in Kenya. In his discussion, Wandibba (1999) points out that pottery is popular with archaeologists because it is material object that lends itself to analyses which can produce information on many aspects of the prehistoric past. He goes on to review archaeological and ethnographic studies done in Kenya so far. The first study as he states, was done by Roderic Blackburn who studied Ogiek pottery in the early 70s. Following this, other studies have been carried out among the Akamba, Luo, Luhya,

Agikuyu among other ethnic groups by a variety of researchers.

Wandibba (1999) continues to discuss pottery within the four broad themes of production, organization, use and disposal and finally change. Under production, he looks at how raw materials are acquired, how vessels are formed and decorated and how they are fired. Here he shows that Kenyan potters obtain clay from river banks, lakesides, marshy camps or hillsides. The clay is then tempered with sand, grog or granitic rock to reduce plasticity. Other potters mix different types of clay to get the right consistency. The clay is then wedged and impurities removed. This clay is ready for working but it is at times stored in holes for later use. This improves its workability (Wandibba 1999).

Handmaking techniques such as coiling and pinching are the most commonly used. Finishing techniques such as paddling and scrapping are then applied to the finished pot and then the surface is decorated by cutting or impressing. The most elaborate forms of decoration in Kenya are by potters in the Lake Victoria Basin namely the Luyha and Luo (Wandibba 1999). When dry, the pots are fired using wood fuel or other materials such as cow dung, grass, leaves, stalks or grain. The potters use open firing to fire pots and observe for the pots to turn brown or shades of red to know that they are ready. The potters may then apply organic material on the pots while they are still hot. Luo potters splash the rd hot pots with an infusion made by boiling the bark of *Bridelia scleroneuroides* or *Albizia coriaria.* This darkens the pots and seals the pores on the walls of the pot. Other ethnic groups also use plant extracts or cow dung to colour the pots and render them non porous. (Wandibba 1999).

In the discussion on social organisation, Wandibba mentions that pottery is predominantly a woman's craft. The women pass on their skills to their daughters and daughters in law along with the beliefs and taboos surrounding the craft. Under Use and disposal, Wandibba states that traditionally pottery is utilitarian as it used to satisfy the various household needs such as cooking, storing and serving food. Each community has names for its pots depending on their use. The pots illustrated in Illustration 1 are from the Bukusu of Western Kenya. The pots have their Bukusu names which refer to their use. The women potters as Wandibba points out do not carry out this activity full time. They have to carry out their other daily chores in the homestead. In their spare time they make enough pots for use in their own households and the surplus is sold in the weekly markets. Pots can also be bartered for food stuffs.

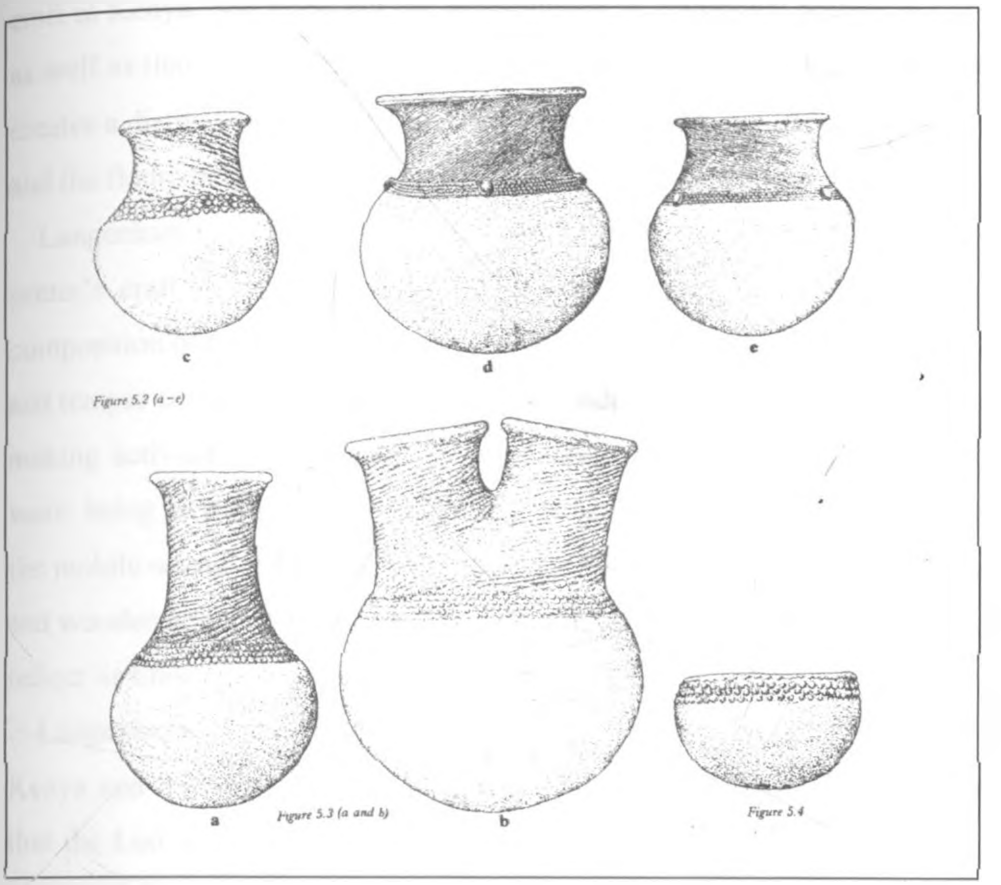


Illustration 1: Bukusu pots (Source: Wandibba 1999 pg 29)

Finally in discussing change, Wandibba (1999) demonstrates that with regard to techniques of production, it appears that potters still use the methods adopted by their forefathers. He reviews various researches done in the 1980s and 1990s that show that the methods of production have remained basically the same compared to methods used earlier in the century. Certain changes such as decoration, and the fuel used for firing have been observed. Other major changes such as the use for pottery has also occurred. Kitchenware such as factory produced metal cooking pots and pans have largely replaced the earthenware traditional cooking pots (Wandibba 1999). To sum it up, Wandibba briefly points out that cultural changes have resulted in the production of new forms of pottery and the extinction of others. He mentions that many potters are now producing flower pots and kettles, both of which he adds, are alien to traditional potting in Kenya.

Langenkamp (2000) has extensively studied pottery in certain areas in Kenya with a sociocultural and developmental approach. She delves into the study of what she

describes as the structural changes and the contemporary performance of the potter's craft in Kenya. She maps out the development of traditional pottery in the rural areas as well as that of what she terms as Jua kali pottery in the urban areas. She therefore creates a distinction between traditional pottery which in some cases is on the decline and the flourishing Jua kali pottery in the urban and peri-urban centres.

Langenkamp (2000) observes that the location and distribution of the traditional potter's craft in Kenya is related to geographical features such as the geological composition of the soil and the climate. Availability of raw materials like suitable clay and temper combined with a widely settled society are preconditions for vigorous pot-making activities. She says the reason behind this could lie in the nature of pottery ware: being heavy as well as fragile it is better suited to permanent settlements than to the mobile set-up of pastoral and nomadic societies which in the past preferred gourds and wooden containers. She continues that in general, the containers used by a society reflect its lifestyle and diet.

Langenkamp goes on to describe the background of different ethnic groups in Kenya and how their way of life has influenced their material culture. She declares that the Luo and Abaluyia of Western Kenya have had a vibrant industry in pottery compared to the other tribes in Kenya. This is confirmed by Barbour and Wandibba (1989) who state that pottery production is flourishing in western Kenya particularly among the Luo and Abaluyia communities while the status of the craft among the Kikuyu, Kamba, Meru, Adavida and Swahili in central, eastern and coastal parts of the country is barely surviving. On the other hand, the craft is declining among the Embu, Dorobo, Okiek, Endo, Pokot and Somali.

Barbour et al (1989) attribute this disparity in performance to the difference in recognition for the wares in both the national and international markets. They highlight the fact that Luo and Abaluyia pottery ware has procured markets in many parts of the country, is sold in periodic markets in rural areas, on the streets, in urban working class markets, tourist markets, crafts-shops and galleries and has become subject to external trade. Meanwhile Kikuyu, Kamba, Meru, Adavida and Swahili pottery is subject to a rather narrow production and market set-up targeting the local rather than national or overseas demands.

In discussing Jua kali pottery, Langenkamp (2000) traces its development from traditional pottery. In particular, she demonstrates how Jua kali pottery in Nairobi has

evolved from traditional Luo and Abaluyia pottery. Specially mentioned in her work are the Isukha potters from Kakamega district in Western Kenya who have set up flourishing pottery businesses in Nairobi. Some of these potters were trained at Ilesi in Kakamega which Langenkamp describes as the home to a flourishing rural pottery industry that has become a major source of income and employment in the location. Langenkamp further describes her encounter with enterprises such as the 'Jua Kali Pottery Enterprise' in Nairobi which she claims no longer carries the pattern of the traditional pottery of western Kenya but resembles Mediterranean terracotta ware as shown in illustration 2. Langenkamp states that since the early 1990s these pots have been increasingly seen for sale at roadside displays and garden centres in Nairobi. Inquiring about their origin among roadside merchants, Langenkamp discovered that the 'Jua Kali Pottery Enterprise' owned and managed by an Isukha potter known as Fabian L. was one of their main suppliers. Illustration 3 is a flow chart by Langenkamp which shows the emergence and development of Jua kali pottery in Nairobi from Ilesi pottery by Isukha male potters of the Avasagala clan.

Langenkamp also acknowledges the existence of ceramic and pottery industries that are formally registered enterprises. The writer mentions enterprises established in Nairobi such as Kazuri Ltd., Clayworks Ltd., Terra Ltd., Jitegemea Ltd., and Bosmere Ltd. These enterprises differ from the Jua kali enterprises in that they belong to the formal sector and their products are glazed which make them more expensive. They mostly target wealthy art lovers and the foreign market. The writer further demonstrates these formal enterprises make use of professional design services and use more mechanised methods of production.

Illustration 2: Planters and flowers pots (Source: Jua Kali Pottery Enterprise)

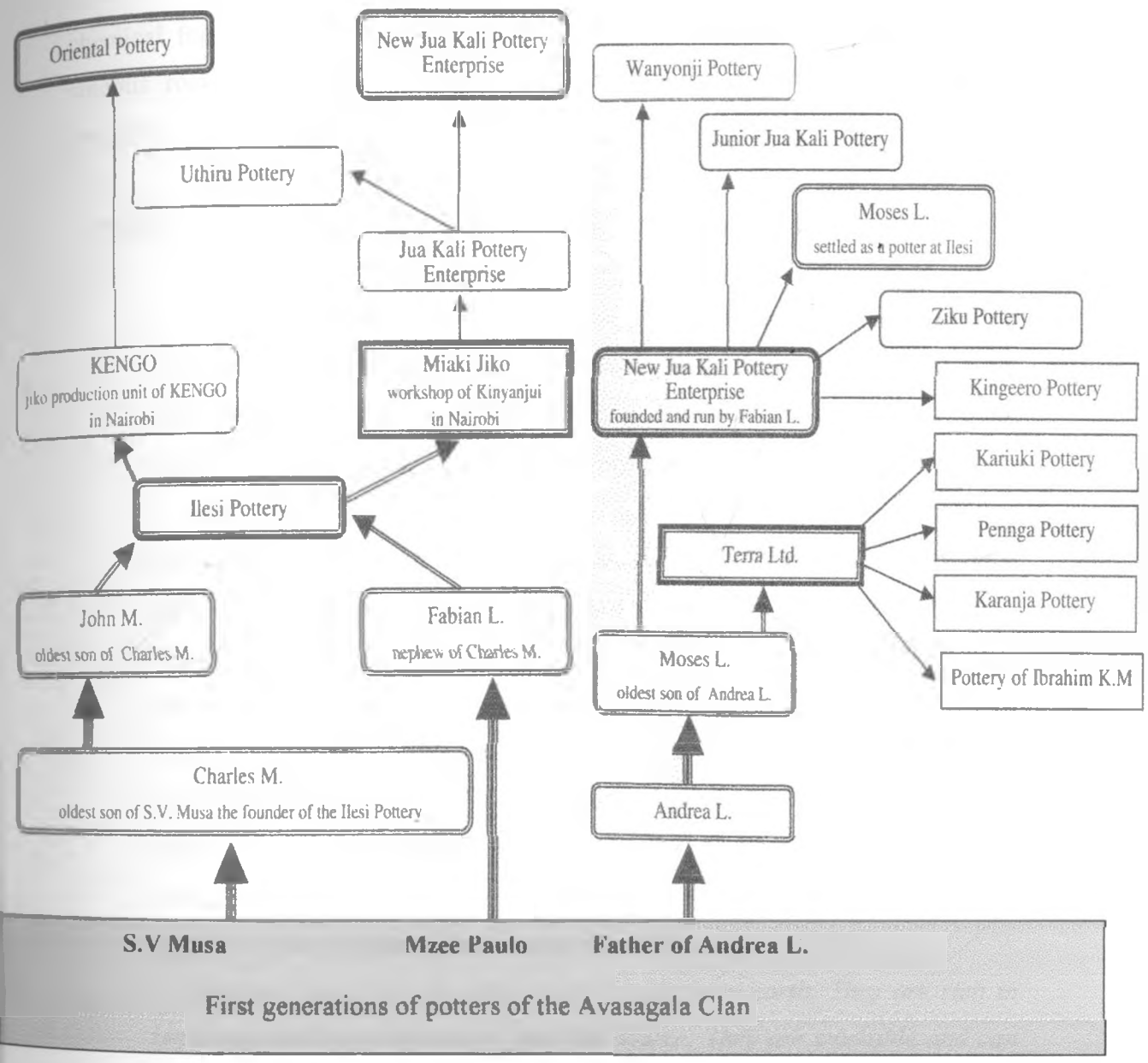


Illustration 3: The evolution and rise of the Nairobi based Jua kali pottery scene according to Langenkamp's research (Source: Langenkamp 2000, pg 278-279)

2.7 Working with Clay

Clay is made up of decomposed rock (Pearch 1998). It is a mineral dug or mined from the earth composed of alumina, silica, and chemically combined water. Its chemical formula is Al_2O_3-$2SiO_2$-$6H_2O$. Clay is continuously being formed from igneous rock and its weathering and movement from the source of formation determines its colour and workability (Peterson 2002).

Peterson (2002) categorises types of clay geologically into four categories:

> ***China clays:*** *Are the first clays formed at the base of the mountain and have few impurities. They are whitest when fired, most heat resistant, least plastic and most rare. Kaolin or china clay is in this category. They become hard, dense and vitreous when fired at temperatures of 1740℃ to 1785℃.*
>
> ***Ball clays:*** *Are next in purity and most plastic. They consist of fine particles brought about by water movement and rock grinding. They have high shrinkage in drying and firing, and become dense at 1260℃ - 1370°C. Kaolin and ball clays are the usual components of porcelain. They fire to nearly white.*
>
> ***Fire clays:*** *Are readily found in mountain and desert areas of the world. They have course particles and have extra uncombined silica. They fire to beige, tan, gold, red and brown. They are preferred for their resilience and strength. These are commonly used for firebricks, flue lining, blast furnaces and heavy clay products. They become dense at 1205℃ - 1260℃.*
>
> ***Surface clays:*** *Are the most prevalent clays on earth. They are rich in impurities and have moved far from the source. They are workable and can constitute a clay body to be used entirely by themselves with no addition of flux or filler. All indigenous societies use surface clays with little or no addition. They fire to rusty red or any colour except white depending on the metallic oxides combined with them in the earth.*
>
> *(Peterson 2002 pg 22).*

A simpler categorisation provided by Share and Teller (1981) classifies clay into two depending on how they are produced. Residual clays or primary clays are

produced by the settlement of decomposed rock particle next to their parent rock. These clays are less plastic and have larger particles than clay produced by the second process. Sedimentary or secondary clays on the other hand are formed by the wind and water which carry particles far from the site of the parent rock. The clay particles are finer and this makes secondary clays more plastic (Share et al 1981).

Otenyo (1984) studied the chemical compositions and the physical properties of clays from different parts of Kenya. She set out to draw comparisons between clays from the Western part of Kenya and clays from Nyeri in Central province of Kenya. From her experiments she concludes that clay from Western Kenya records higher wastage due to breakage during firing.

In the preparation of clay, the basic clay component that is the natural clay is tempered with a filler and flux. The filler is used to subdue the sticky quality of the clay. A filler may be sand, dirt, ground up particles of already fired up clay known as grog or silica. Flux on the other hand is used to change the normal firing temperature of a given clay. This can be feldspar or bone ash/ bone china (Peterson 2002).

Peterson categorises finished wares as earthenware, stoneware and porcelain depending on the composition of the clay used.

> ***Earthenware-*** *fired clay work that is porous, relatively light in weight and easily chips. Tribal societies use surface clays fired at low temperatures to produce earthenware. Technical definition: it absorbs 10 to 15% of its unglazed weight when boiled for one hour in water.*
>
> ***Stoneware-*** *fired clay work that is quite hard, holds liquids and is not easily broken. It was developed in China over 2000 years ago and later in Europe in the middle ages. It requires a higher firing temperature than that of earthenware or more flux can be added to high temperature clays to make them dense at low heat. Technical definition: absorbs 2 to 5% of its unglazed weight when boiled in water for one hour.*
>
> ***Porcelain-*** *fired clay that is hard, dense and vitreous, usually translucent if thin, and generally white or off-white. The Chinese were the first to make it. Technical definition: it absorbs 0 to 1% of its unglazed weight when boiled in water for one hour.* (Peterson 2002 pg 17-20)

The techniques of forming clay are greatly varied but the most common to all societies is hand making (Ball and Janice 1965). Common hand making techniques are coiling, pinching and slabbing (Share et al 1981). In Kenya, the common techniques amongst traditional potters are the pinching and coiling techniques with coiling as the most used (Wandibba 1999). The pinching method involves pressing a hole into a ball of clay then pinching and squeezing the clay upwards. The coiling method requires one to roll out clay into coils and then joining the coils while moistening and scoring the surface to join the coils. Slabbing or slab building involves rolling out clay into flat slabs that are then joined together by scoring and moistening (Peterson 2002).

The greenware or unfired vessel can be finished and decorated in a variety of ways. According to Wandibba (1999) potters in Kenya use the finishing methods of paddling and scraping. Paddling is the beating of a wet pot or leather hard pot to alter its shape, size and surface characteristics. Scraping is used to thin the walls and remove surface imperfections. When the pot has attained a satisfactory shape, it is smoothened by hand or using a pebble (Wandibba 1999). This smoothing is also known as burnishing as it gives a shiny finish to the surface (Share et al 1981). The pots are then decorated by cutting from or impressing into the surface. In Kenya, the most elaborate forms of decoration are executed by the potters from the Lake Victoria Basin namely the Abaluyia and the Luo (Wandibba 1999). Other forms of decoration such as painting or glazing can also be used (Share et al 1981).

Before firing the vessel is still raw clay and can be dissolved in water. After firing at temperatures of about 900°C or 1680°F the clay body is transformed into pottery (Share et al 1981). Bonfire heating which is commonly used by tribal communities reaches to about 700°C. Common surface clays used by these communities usually vitrifies at much lower temperatures than other clays (Peterson 2002). The first kilns or enclosures for firing were invented around 5000BC by the Chinese who were then able to fire china clay body to fine porcelain which required high temperatures. Today there are a variety of kilns such as manual kilns, gas kilns and electrical kilns.

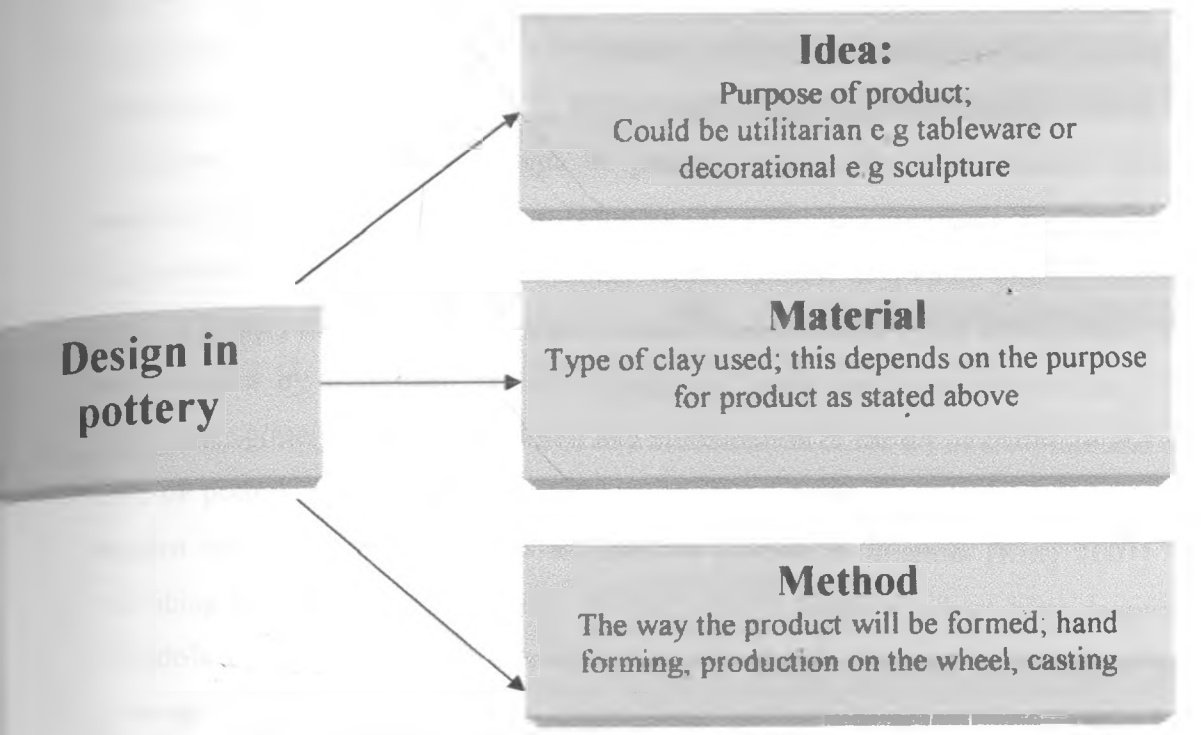
After the first firing the vessel can be glazed and fired a second time. Glazes are made from several basic ingredients added to silica, the essential glass-forming oxide. Flux added to the silica lowers its temperature and stains and oxides are used to add colour to the glaze (ibid). In Kenya as earlier discussed, the Luo add a dark finish to

fired pots by splashing onto their surface an infusion made by boiling the bark of *Bridelia scleroneuroides* or *Albizia coriaria* (Wandibba 1999).

2.8 Design in Pottery

Design in general has been discussed in the first section of the literature review. The focus of this research being design in pottery, the review will now enter into the discussion of design within the context of pottery. In design of pottery, Thomas (1973) puts down three factors as the most important. These are idea, material and method. The first factor of idea is dependent on the purpose of the product. Here Thomas provides the example of products for utilitarian purposes such as tableware or products for decorational use such as sculptural pieces. The tableware in this case has to be functional and easy to use and maintain. Sculpture on the other hand is meant to captivate the senses. By this, Thomas tries to demonstrate that idea is dictated by need. Thomas continues that the second and third factors which are the material and method depend on the first one of idea. Here he articulates that the type of clay to be used and the method in which it is worked is influenced by the use of the product. Going back to the examples he provides, clay for tableware has to be of the right type and consistency if the wares are to be produced on the wheel. Forming on the wheel will also influence the shape of the wares. Conversely, sculptural forms may require course clay to provide texture and the desired form may best be achieved through hand making techniques.

To condense the discussion, the views by Thomas would are demonstrated below:

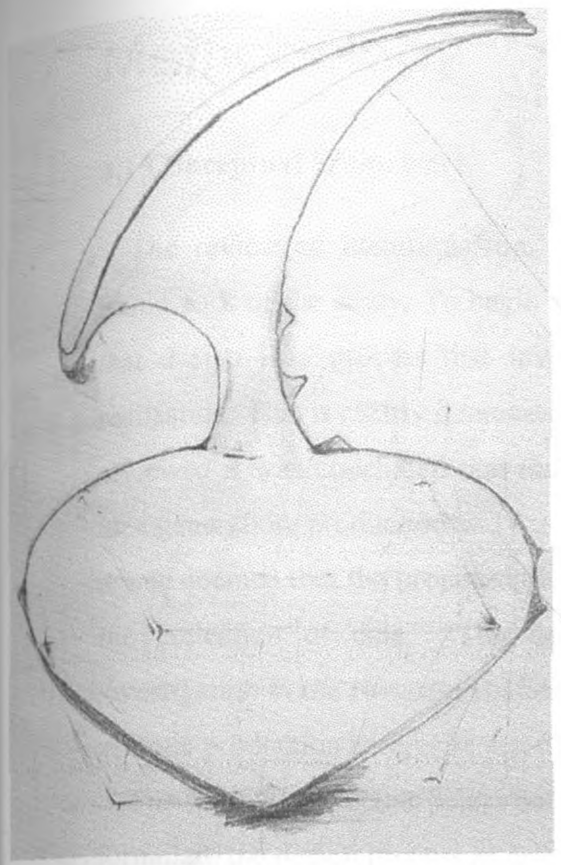


Flow chart 5: Design in Pottery adapted from Thomas (1983)

Thomas (1983) therefore appears to lay importance on the idea for the product as it influences the material and method to be used. Dickerson (1974) on the other hand is categorical that no aspect of pottery is more important than the other. He states that pottery... 'is the art of perfect order and harmony.' (Dickerson 1974, pg 43). He continues that 'the potter must strive to create a work which exudes an unequivocal sense of rightness, suitability and harmony between all its aspects. There should be no hierarchy- that is to say no element which overpowers the rest.' (ibid). Dickerson however admits that harmony cannot be achieved immediately and the learner therefore has to accept certain principles which the learner can later transcend when greater experience and insight is gained. These principles which Dickerson terms as basic principles of ceramic design are: form, function and appearance. Under form, Dickerson claims that a ware should reflect the technique used to make it. He states that 'the pot must speak of its genesis and unfold a chronicle of the process of becoming' (Dickerson 1974, pg 44). The second principle of function requires that the ware should have satisfactory functional performance. Lastly under appearance, Dickerson discusses the visual appearance which according to him involves

decoration and glazing of the ware. Dickerson (1974) and Thomas (1983) appear to differ in their understanding of design in pottery but this difference is only superficial as the two writers bring to light the same considerations using different categorisations. The aspects of use or function, method or forming process, as well as appearance or form are discussed by the two using differing terminologies.

Reviewing literature on design in pottery would not be complete without mentioning the works of Magdalene Odundo. Of particular importance to this study is the methods employed by Odundo in her work. Trained in graphic design, Odundo took up pottery and later on travelled to Asia, South America and Africa where she was inspired by traditional pottery techniques (www.magdaleneodundo.com May 2006). Her pottery is often considered as a combination of the art of sculpture and the craft of pottery. She is said to infuse an ancient lineage of craftsmanship with a modern spirit to create works of art that are considered timeless (King 2001). In describing her work at an exhibition, Vaizey (2001) a lecturer and art critic describes Odundo's pots as sculptures as well as vessels of clay that are both archaic and contemporary in spirit. Odundo uses purely hand making techniques and an individual vessel can take up to several weeks to complete. She burnishes and uses slip to decorate the surface and then uses oxidation and reduction techniques during firing to obtain different colour finishes for her pots (Odundo 1994). She does admit to getting inspiration for her work from the human body and Viazey (2001) attests to this when he describes her pots as anthropomorphic with shapes reminiscent of the human form. Illustration 4a and 4b show sketches and Illustration 4c and 4d show pots done by Odundo. In her sketches she demonstrates a mastery of visual documentation of her ideas and then proceeds to produce them using different techniques to achieve interesting finishes.



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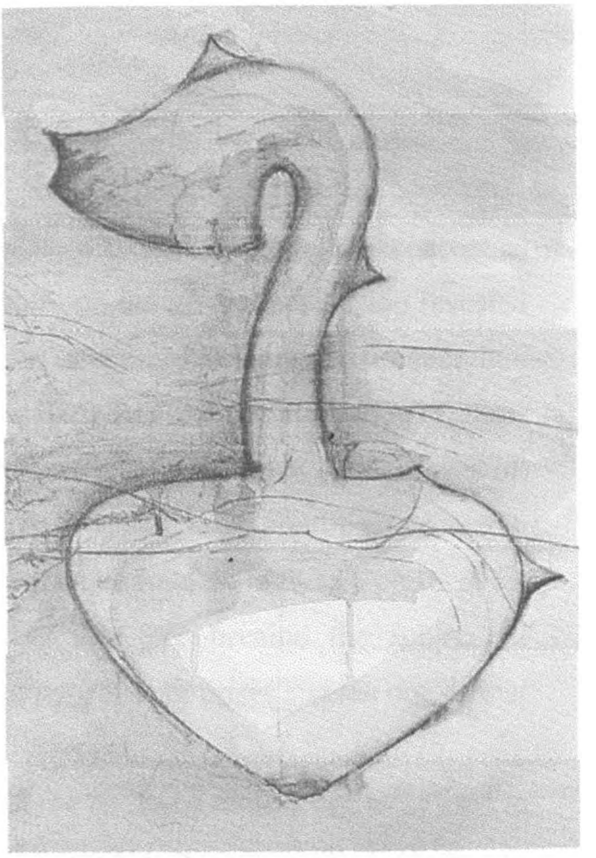

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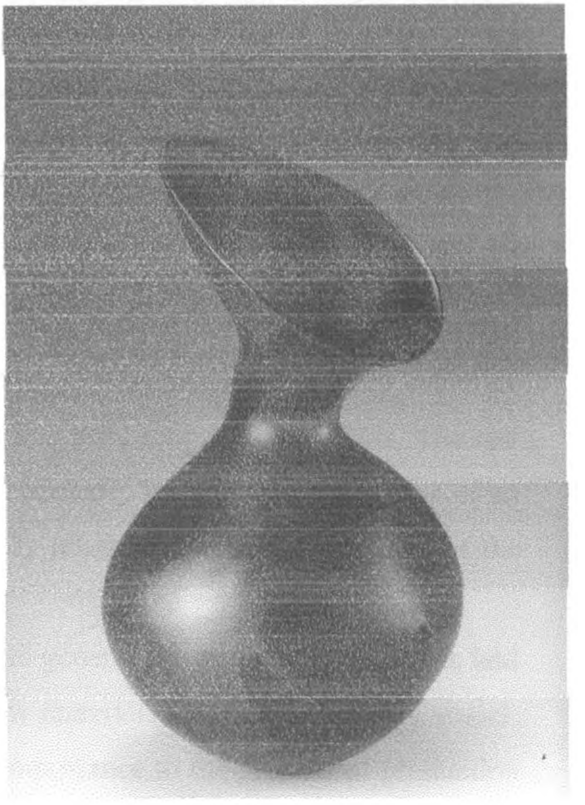


4d

Illustration 4 (a-d): Source: King (Ed) 2001 pgs 28,6, 24, 50)

Methodology

3.1 Conceptual Framework

The review of literature from page 7 to 35 was used to form the conceptual framework of the study. To begin with, literature on design and production revealed that design is a process that involves various stages of bringing a product into realisation. This is clearly demonstrated in flow chart 1 to 5. From the various authors reviewed it was concluded that the design process entails the three major stages of: idea generation, production and promotion of the products. From preliminary research it was deemed that the proposed design process can be suitably used as a protocol for the collection of data. The design process therefore became the subject of investigation in the two case studies of Jua kali pottery enterprises and the one formal ceramic production enterprise selected for the research.

The following account points out the ideas of the reviewed writers that were used to formulate the design process as articulated in the conceptual framework. According to the literature reviewed on design and product development, design involves a process of bringing an idea for a product into realisation. As will be shown the reviewed writers concurred that the process begins with an idea or several ideas that are tested and the best is then implemented. Here the writers used differing terminologies to refer to the stages of designing. Zeisel (1981) referred to the first stage of conceiving ideas as 'imaging'. He further explained that the ideas or the images the designer has in mind for the product are presented as a sketches, working drawings or models that are then tested to find the most suitable. Moss (1996) presented a more elaborate process that included prototyping, production and marketing of the product. The rest of the writers presented similar arguments that basically included the generation of an idea, its implementation, production and finally interaction with the end user of the product.

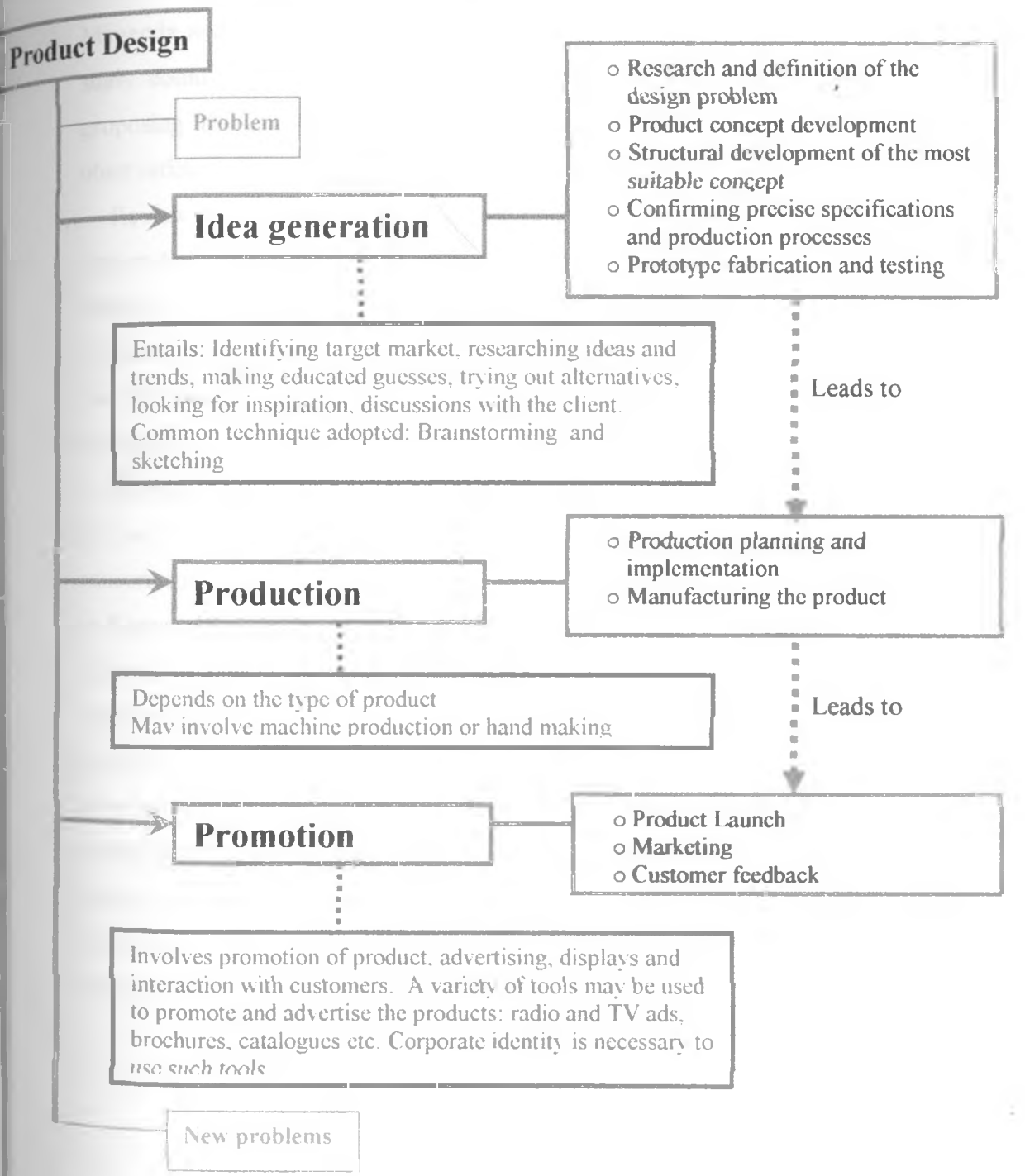
On the other hand, the literature on pottery in general showed that emphasis is laid on production methods, from acquisition of raw materials to firing of the clay vessel. Even the literature on design in pottery gave importance to the process of production in discussing the aspects of use, method, form and appearance in pottery making. It is in the works of Magdalene Odundo, a renowned potter, that the aspect of idea

generation based on inspiration and experience as well as presentation of ideas in the form of sketches was apparent. This could be attributed to the academic background of the potter in design. Her production methods are also markedly different in that she produces one off pieces with each taking several weeks to produce. Her works are exhibited in museums and are therefore not for everyday use as is the case with Jua kali products. Odundo's pots cannot therefore be seen as consumer products which in most cases are mass produced and are meant for daily use. Odundo's works are promoted mostly in art circles and each piece fetches a considerably high price.

All in all it is apparent that pottery has not been strongly considered as a product that goes through the design process. Its consideration in this context might yield the sort of success in industry that was achieved by Josiah Wedgewood who transformed local pottery production in Britain into a large industry (Read 1956). In this very issue of industrialisation, Kenya and Africa in general have not been very successful. Numerous reasons are attributed to this the most prominent being poor governance and transfer of inappropriate technology. The result of this abysmal performance in large scale industry has led to the emergence of micro enterprise better known a Jua kali sector in Kenya. Numerous trades fall under the Jua kali though pottery has received little consideration as one of these trades. Seemingly, Langenkamp (2000) set the precedent when she studied in depth the development of pottery in urban and peri-urban areas of Kenya. In her research she traces the development of Jua kali pottery in urban areas from traditional pottery in the rural areas. The understanding of Jua kali pottery for this research was consequently drawn from the works of Langenkamp (2000). The writer further describes what she terms as formal ceramic and pottery industries established in urban areas. These industries commonly employ professional design practises as well as more mechanised production methods as compared to the Jua kali enterprises.

Zeisel (2006) recommends that concepts which help to order information are formed from available data. In line with this, the conceptual framework of the study was formulated from information gathered from the review of literature. The framework is the basic design process and it includes the three earlier mentioned stages of idea generation, production and promotion. Flow chart 6 demonstrates the conceptual framework of the study as derived from the information above.

The design process is broken down into three stages as shown by the grey arrows across →. Each stage is further broken down into a series of activities as shown by the grey line across ——. Each stage also has certain aspects that are taken into consideration as it is carried out as shown by the brown line going down ⋮. There is in addition a problem or need that initiates the design process and new needs that come up at the end of promotion which starts the process again.



Flow chart 6: Conceptual framework

3.2 Research Design

According to the problem of the study on page 4, design in pottery is an area that has not been studied extensively so far. It was therefore considered appropriate to undertake it as a descriptive research aimed at bringing clarity to an area that is little explored (Zeisel, 2006). Further, the conceptual framework and preliminary studies revealed that the data required were largely qualitative in nature. According to Mugenda and Mugenda (1999) and Serekan (2003) data collection in a descriptive study could best be done through observation. Zeisel (2006) seconded this by proposing that empirical testing in design related fields can be done through observation and sampling.

Review of literature revealed that the population of the study made up of Jua kali potters as well as professional potters were mostly concentrated within and around Nairobi. This was attested to by Langenkamp (2000) in her study of pottery in Kenya. The case study method was deemed the most appropriate sampling method because the information required was in-depth and contextual in nature. (Mugenda and Mugenda, 1999).

The choice of case studies was conditioned by the availability of information on the Jua kali sector and the Pottery industry in Kenya. The Government ministries concern such as the Ministry of Trade and Industry as well as the Ministry of Labour in Kenya do not have complete records on the Jua kali enterprises nor the pottery industry in Kenya. The reasons provided are that some Jua kali enterprises are not registered at all while others are registered with different bodies such as the City council, the ministry of culture and the ministry of Trade and Industry. These records have not been compiled to provide one comprehensive record on the Jua kali enterprises. The case studies were therefore selected from the Pottery enterprises known to the researcher. The potters themselves were well informed concerning the pottery industry in Kenya and were helpful in providing information about other enterprises.

3.21 Data collection and analysis

The collection of data was done through observation which was deemed as the most suitable way to collect data that was largely qualitative in nature. The modes of collection employed were: unstructured interviews, photography, note taking and sketching. From the preliminary research, the potters had responded positively to these modes of data collection. Reports of the interviews and photographs are available in the appendices.

Unstructured interviews *were chosen because one, the potters in, the Jua kali* enterprises were more comfortable with this informal method which allowed for use of Swahili language. Secondly, when there was a lot of work in the workshops the interviews were conducted while the potters were working and this was best done through informal discussions. A protocol for the interviews was prepared in advance and these are available in the appendices. In the formal enterprise, the interviewee thought it best to write down the answers required to save on time. These have also been made available in the appendices. **Photography** was used to capture the activities in the workshops. A digital camera was used so as to make the transfer to computer easy. **Note taking** and **sketching** were also used to capture points and activities that required greater detail. These too, can be found in the appendices.

The collected data was then analysed using analytical techniques appropriate for case studies. The techniques deemed most appropriate are those recommended by Yin (2003). The techniques are: pattern matching, logic models and cross-case synthesis. Edited images from photographs taken at the workshop were also used extensively in the analysis. **Pattern matching** as explained by Yin (2003) is one of the most desirable techniques in case study analysis. This technique entails the matching of data collected to a predicted pattern. In this study, a pattern of activities that characterise design in pottery were predicted as presented in the conceptual framework that is based on the review of literature. The data collected from the two case studies will therefore be analysed based on this predicted pattern. The second technique to be used is **Logic models** which are simply chains of events over time or in sequence. The third technique of **cross-case synthesis** will involve the comparison of data from the three cases. Where appropriate, the analysis will be condensed into tables and figures for easier reading. In other instances it will be necessary to use lengthy explanations to elaborate on certain issues. **Bar graphs** were also used to

represent quantitative data that was available. Table 1 shows a summary of the collection and analysis of data

Finally, in the recommendations logic models have been used to demonstrate the proposed way forward for design practise in the Jua kali industry.

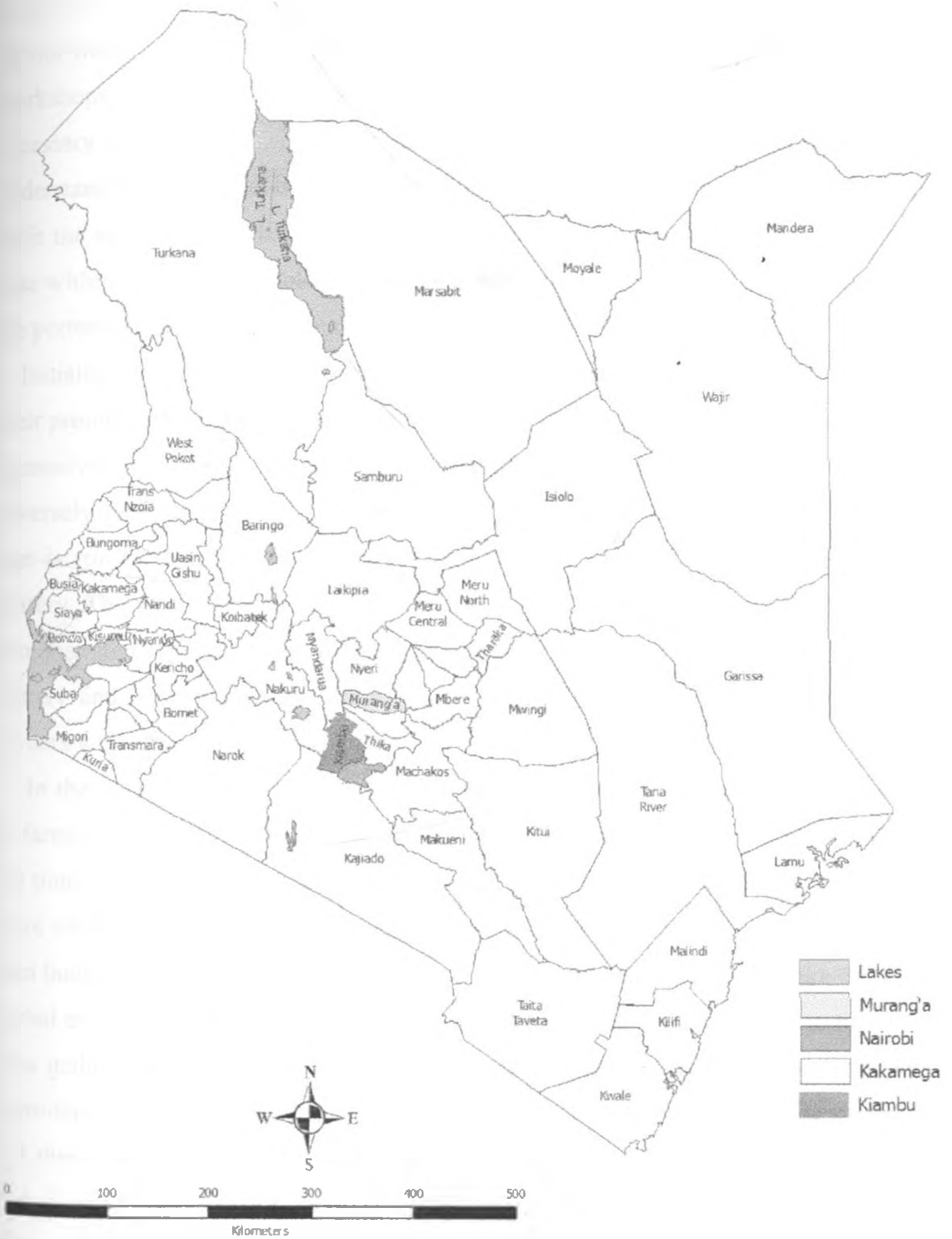
Information	Data required	Mode of collecting data	Analysing data
Idea generation for designs	• Research and sourcing of ideas • Presentation of ideas • Prototyping and testing	• Unstructured interviews • Sketches and photographs	• *Pattern matching* • Logic models • Cross-case synthe • Edited images • Bar graph
Production process	• Acquisition of clay and other raw materials • Preparation of raw materials • Method of working clay and modeling • Decoration techniques • Drying and firing greenware • Storage and packaging • Product range	• Unstructured interviews • Photographs and sketches	• Pattern matching • Logic models • Cross-case synthe • Edited images • Bar graph
Promotion of products	• Product launch and advertising • Target market and sale outlets • Customer feedback and after sale service	• Unstructured interviews • Photographs and sketches	• Pattern matching • Logic models • Cross-case synthe • Edited images • Bar graph

Table 1: Data collection and analysis

3.22 Scope of Study

The study was conducted within Kenya, shown in grey in Map 1. The case studies were selected from within and around the Capital city of the country which Nairobi, indicated by the black spot. The case studies were selected from within and around Nairobi because it is the commercial centre of the country and the Jua kali sector as well as the formal sector are most developed in the Capital city. Map 2 shows the areas within Kenya which are referred to throughout the study.

Map 1: Map of Africa showing the position of Kenya and Nairobi



Map 2: Map of Kenya showing the areas referred to in the study

The case studies were further limited to three cases within and around Nairobi because considerable amounts of time were required to collect data for the study. Due to the intermittent nature of their work that is highly dependent on orders, the potters do not work everyday. On some days and especially in some cases I would visit the workshops when little or no work was taking place. Because of this, it became necessary to visit the workshops severally in order to reasonably capture and understand the activities at these workshops. It was therefore deemed convenient to limit the study to only three cases so as to gather substantial information from each case within the time available for the research. Whenever possible I arranged to meet the potters outside their working hours for further discussions.

Initially, three case studies from the Jua kali were selected for the research based on their prominence within the Jua kali sector as well as the vast experience of the potters themselves in pottery. These were: Ilesi pottery workshop in Kakamega that is adversely mentioned in the literature review. The second was Paro cultural project that is run by two potters with good experience in industrial mass production of pottery. The third, Litoyi pottery was selected because the potters namely the owner demonstrated a high degree of innovativeness in the generation of ideas. Unique Pottery and Clayware designs both based in Nairobi were also approached but the owners were unwilling to participate in the research.

In the case of Ilesi pottery workshop based in Kakamega, the potters are engaged in farming activities and only come to the workshop when there is an order. During the times that I visited Ilesi there was no work going on at the workshop. The potters were willing only to demonstrate what they do at the workshop at a fee. Having a very lean budget, I was unable to cover this cost and was therefore forced to make do with verbal explanations of the activities and photographs of the workshop. Due to this, the data gathered from Ilesi pottery workshop was insubstantial and was therefore not considered for analysis but was used to draw comparisons with the other case studies.

I therefore settled for two case studies within the Jua kali that were conveniently within reach and where potters were willing to participate in the research. **Paro cultural project** is an entrepreneurship run and co-owned by two potters. It was started in 2004 by Charles Ojwang' and Dismas Otieno and is based in Shauri Moyo area, Jogoo Road, Nairobi. **Litoyi pottery** is owned and run by Ronald Shisundi who has employed nine people in the establishment. Litoyi began in 2004 and it is situated

in Gachie area which is in Kiambu district on the outskirts of Nairobi city. Ronald has vast experience as a potter being the son of Charles Musa who is the manager of Ilesi pottery workshop. He therefore learnt pottery from a very early age and by the time he was eight years old he was already producing small clay wares that his father fired and sometimes sold. Charles and Dismas of Paro on the other hand started working as potters much later in life when they came to Nairobi. Both worked at Jitegemea pottery, Eastleigh Community Centre, Nairobi, a medium scale industry run by the PCEA church. Here they gained experience in industrial production methods of pottery. The two case studies therefore presented excellent opportunities for drawing comparisons.

From preliminary research into the two case studies, it became evident that the two selected case studies were appropriate for various reasons. The potters in each case were vastly experienced in pottery and were best placed to provide information on the general status of Jua kali pottery in Kenya. This information was necessary for purposes of generalising the analysis of the study.

For purposes of comparison it was further deemed necessary to study a case within the formal sector. Ceramic production enterprises within the formal sector were mentioned in the review of literature. Of great prominence is Kazuri Ltd and Jitegemea pottery both based in Nairobi. The two enterprises sell there products widely locally and also have international markets. They were however considered inappropriate for the study because of their large size and long standing within the pottery industry. Further the two are established as endeavours to assist the poor and therefore receive funding from other organisations. These characteristics affect the way these enterprises operate which is vastly different from the Jua kali enterprises which are small and purely commercial. The selected case study in the formal sector was therefore selected because of its small size and commercial orientation. It is known as **African Clay & Arts (ACA)** an enterprise that was set up in 1994 with the aim of producing and marketing ceramic wares. The enterprise currently has four staff members: two directors who oversee the running of the business, one trained designer and one trained potter. The business is formally registered as a small company.

Analysis

The analysis of data was first done separately for each case in line with the conceptual framework. This was done to clearly demonstrate the design process in each case which paved way for the comparative analysis. The information gathered from each case was done so as to fulfil one of the objectives of the study which was to add to the body of knowledge on design practise in the pottery industry. As mentioned in the methodology the three cases were Paro cultural project and Litoyi from the Jua kali sector and African Clay & Arts from the formal sector.

4.1 Paro Cultural Project

Paro is situated in a plot of land in Shauri moyo area of Nairobi that is owned by a Church organisation and leased out to Jua kali artisans. It is easily accessible from the Central business district of Nairobi city. It was established in 2004 and is registered as an artists association with the Ministry of Culture, GOK. The workshop is a semi permanent structure of iron sheet and wood with space at the back to work out of doors. There is ample space for the two potters to work in and store their raw materials and products in the workshop. The two potters co-own the enterprise and work together at the workshop as shown below.

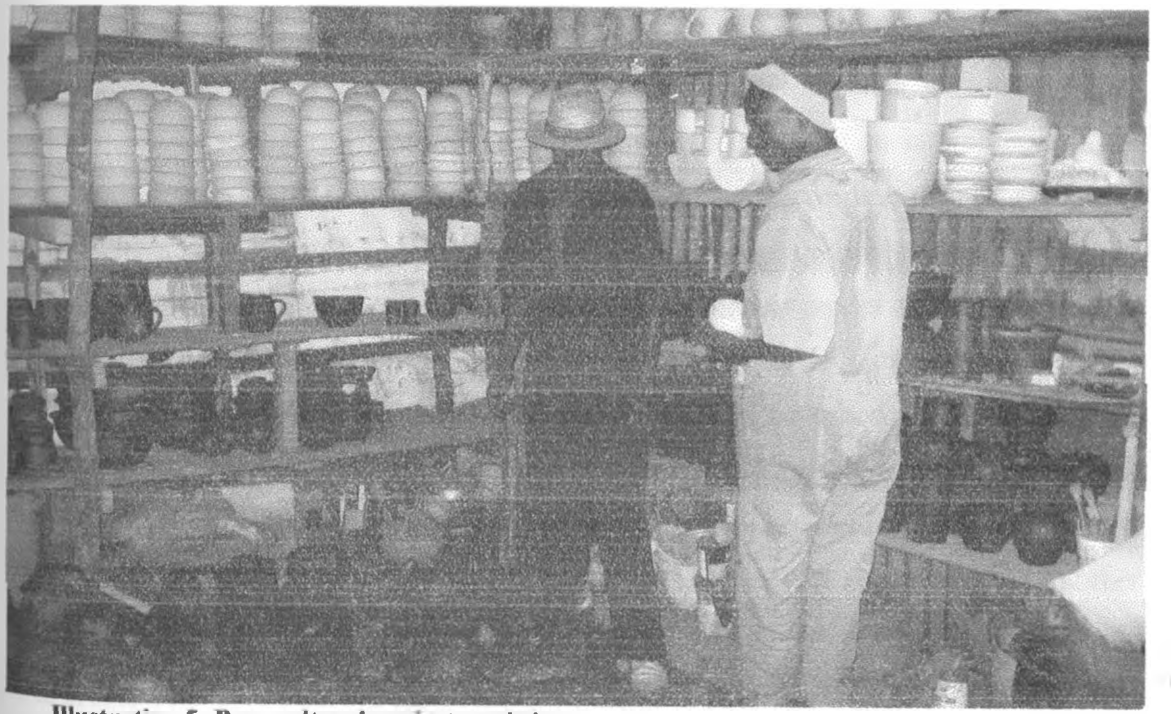


Illustration 5: Paro cultural project workshop

Though none of the potters is trained in design or ceramics they are both vastly experienced potters. One had worked as a potter with Jitegemea Pottery at the Eastleigh Community Centre (ECC) in Nairobi for 12 years. After working for 12 years as a potter, he was promoted to manager of the pottery workshop, a position he held for four years. The second entrepreneur came to Nairobi and worked as a potter in the same Jitegemea Pottery, ECC for six months when he moved to YMCA Shauri moyo to work as an assistant instructor in the pottery workshop. He later moved to an NGO known as 'Save the Children' and worked as a trainer in the pottery workshop at the vocational training centre for street children. Here he experimented with different types of clay and firing techniques. This job provided him opportunities to visit various pottery workshops in Nairobi and Western Kenya.

The two potters at Paro are engaged in the pottery business to generate income for their families and therefore strive to make it a profitable endeavour. Both potters also agree that self-employed is much more fulfilling as they reap the fruits of their own labour. They intend to expand the business in future and thereby provide employment for others. These two needs of generating income and achieving self-fulfilment seem to be the main drive for engaging in the pottery business. Prior experience in the pottery industry is also a strong reason for choosing pottery as a business.

The practice of design engaged in by the potters at Paro is largely conditioned by their customers' needs as well as the availability of materials and technology. Before generating ideas for designs, the potters try to find out what their customers want. This they do as they promote the available products and get to interact with new customers. The available products are in turn developed according to their skills and materials available. The entire design process therefore appears to have a circular model as demonstrated in flow chart 7 rather than a linear model as demonstrated in the conceptual framework in flow chart 8.

The idea generation stage can therefore be said to be preceded by the need to generate income, the materials and techniques available and the requirements of the customers. These needs in one sense may appear to be setbacks to the design process as the potters are limited to certain designs and methods of production. In another sense these needs help the potters to specialize in certain designs and techniques and to create a niche market for themselves.

The interviews with the potters at Paro are available in *Appendix 2*.

4.11 Idea Generation

At Paro the main source of ideas for designs comes from the customers. When prospective customers approach the potters most of them specify what sought of products they want. The potters then proceed to produce according to the customer's specifications. They also get ideas for new designs by looking through pictures of existing products from catalogues and magazines. The pictures below are examples of pictures from magazines used by the potters. As they deal mostly in Kitchen and table ware, the potters have magazines and cookery books that show such wares. Sometimes the potters modify designs of products they have already produced to arrive at new designs. It takes about 2 days to generate ideas and make prototypes.

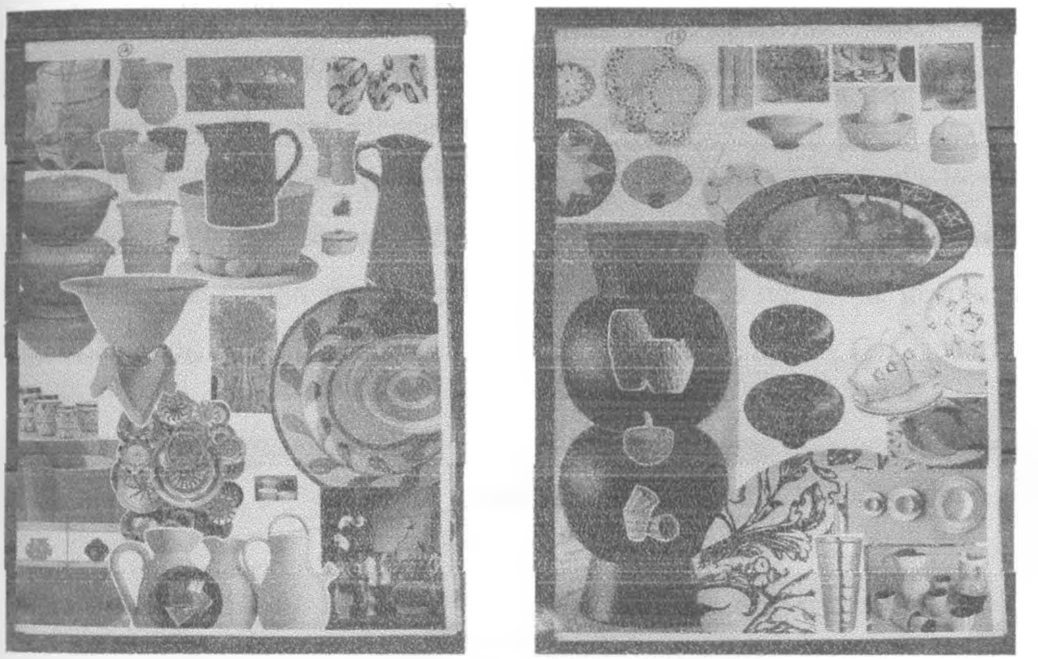


Illustration 6: Images from magazines used by the potters to get ideas

4.12 Production

1. Sources of raw materials:

The clay used at Paro is obtained from Nyeri district in Central province of Kenya. The clay is bought from land owners who sell it at the price of Ksh. 10 000 a lorry which is about eight tonnes and transported to Nairobi where the workshop is located. The eight tonnes of clay is enough to produce wares for a full year. The other raw materials are bought from industrial manufacturers.

a) Preparation of clay

The potters buy enough raw materials for one year and store this at their workshop. The raw clay obtained from Nyeri is primary clay that requires elaborate preparation. They buy one tonne of clay at Ksh. 10, 000 which is enough for the whole year. From past working experience and from their own experiments, the potters have developed a formula for the preparation of this clay as follows:

Raw clay- 1 ¾ of a bucket that has 20litres capacity

Feldspar- 1 ½ of a tin that has 5litres capacity

China clay- 1 ½ of a tin that has 5litres capacity

Fire clay or grog- ½ of a tin that has 5litres capacity

The grog serves as a filler to reduce the plasticity of the clay while the feldspar and china clay are flux that reduces the temperature at which the clay vitrifies. This mixture is then thoroughly blended with water to a slurry mixture that is sieved to remove impurities. The well blended mixture that is free of impurities is then poured into a trough and left to dry for a week in the hot season or two weeks in the cold season. The trough is constructed of wood and lined with linen cloth that does not rot easily. Ideally the trough should be made of brick that is not prone to rotting like wood. The drying clay is covered using polythene to allow for slow and even drying.

Illustration 7: Clay preparation

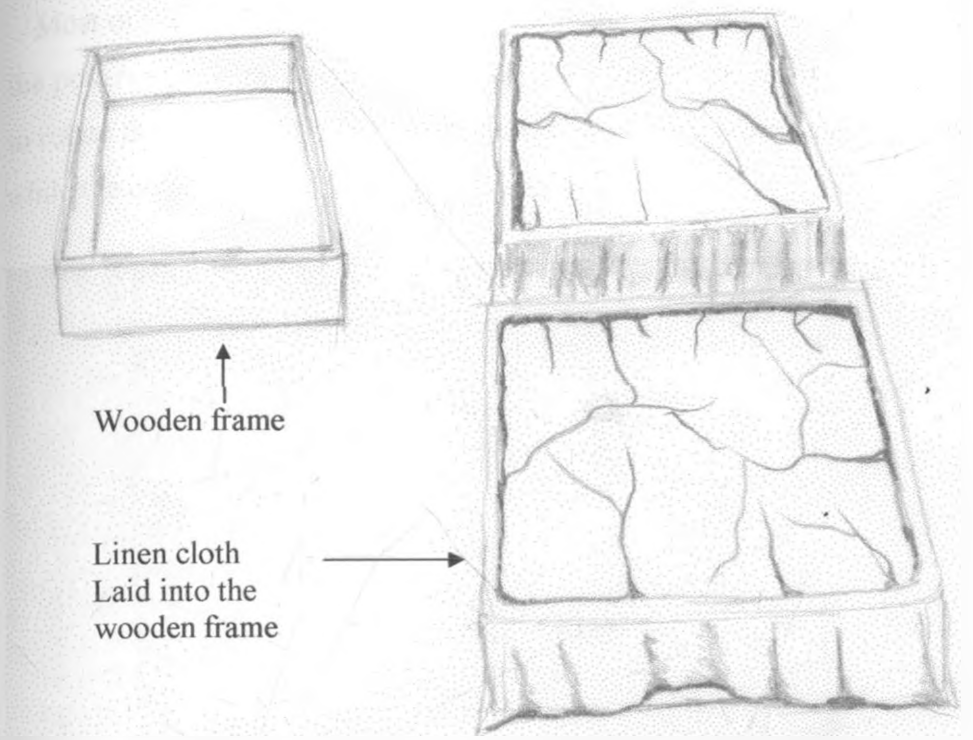


Illustration 8: An illustration of the drying trough lined with linen cloth

Illustration 9: Dried clay is kneaded and left to stand to dry some more

b) Modelling

Most of the vessels are produced on the potter's wheel. The wheel was designed by the potters and made from scrap metal. The wheel is manually operated by pedalling to rotate the wheel. To make large vessels, one potter pushes the pedal with one foot while the other models the vessel on the wheel.

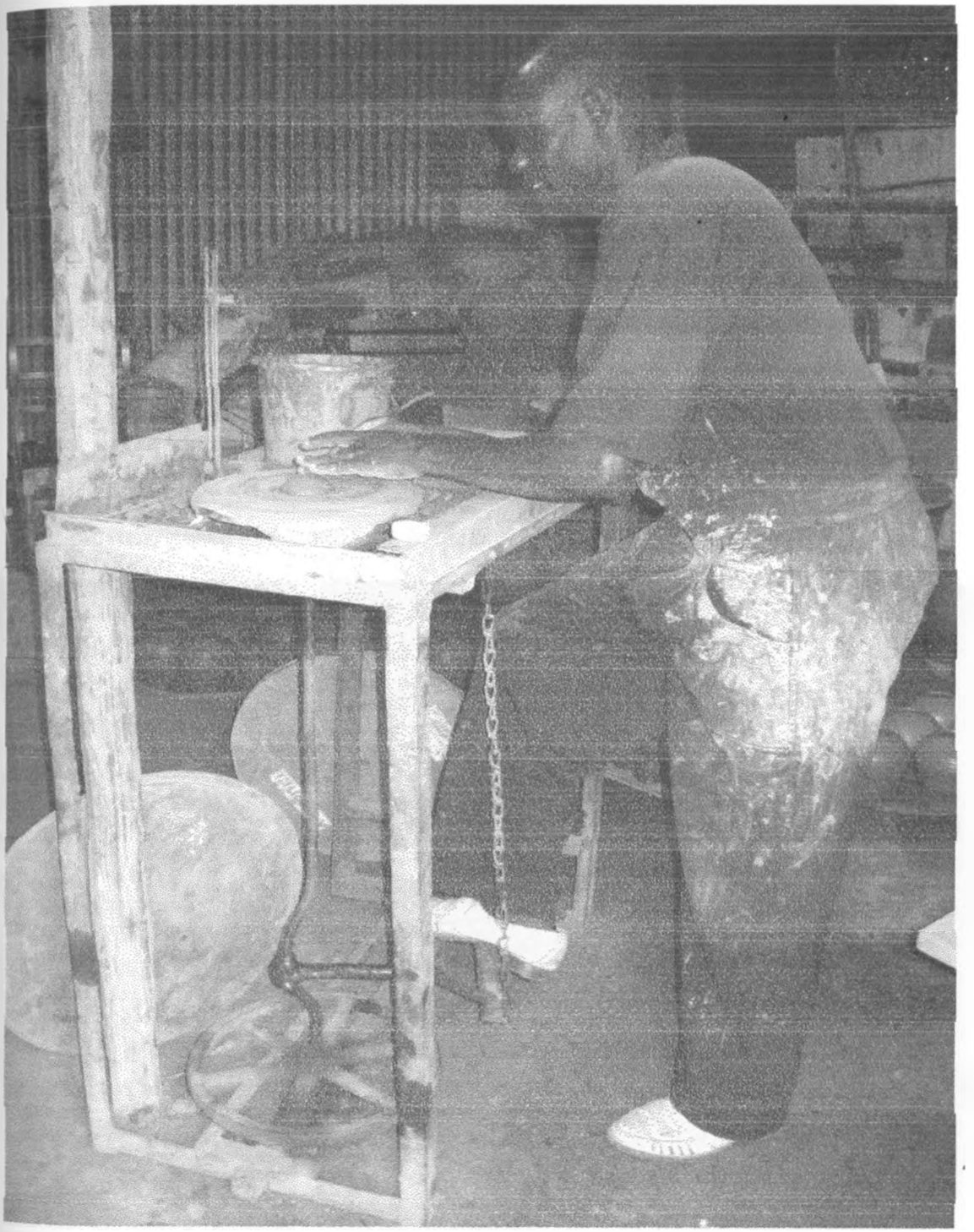


Illustration 10: Modelling on the manual potter's wheel

c) Drying

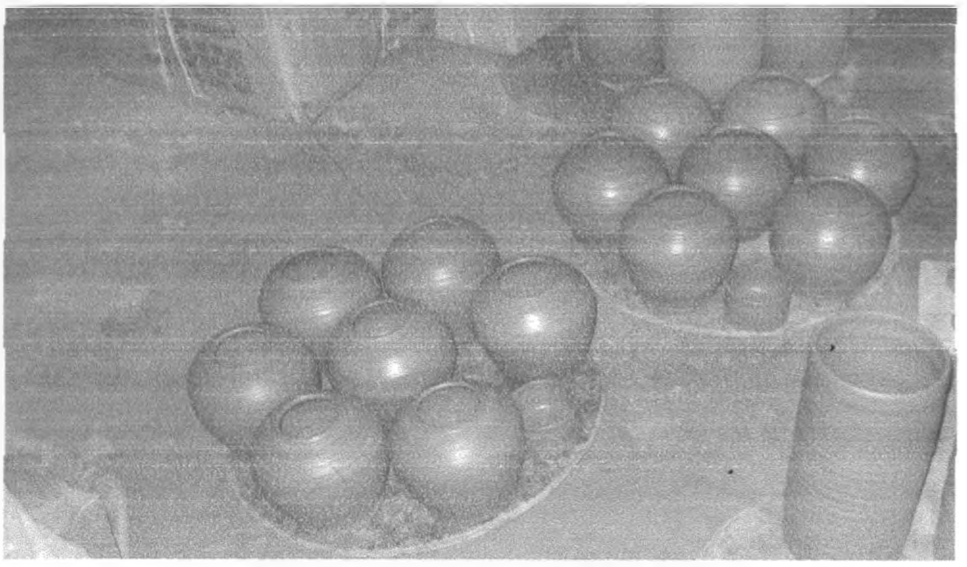


Illustration 11: Vessels modelled on the wheel and left to dry before firing

d) Decoration

Most of the tools as shown above left are improvised from used metal, wood and plastic. Some are used to measure, shape and dry the clay body during modelling while others are used to decorate the modelled vessel as shown above right and below.

Illustration 12: Tools used for decoration and the decoration process

e) Firing

The potters use a charcoal-fired kiln to fire the greenware to bisqueware at temperatures of about 900 ° C. The greenware are fired for around 10 hours and then allowed to cool for 10 more hours. Charcoal is inserted in between the metal mesh and the brick wall. The greenware are then top loaded into the kiln and carefully arranged one on top of another inside the mesh until the kiln is full. The Charcoal is then lit and the kiln covered with an iron sheet and left to bake until all the charcoal is spent.

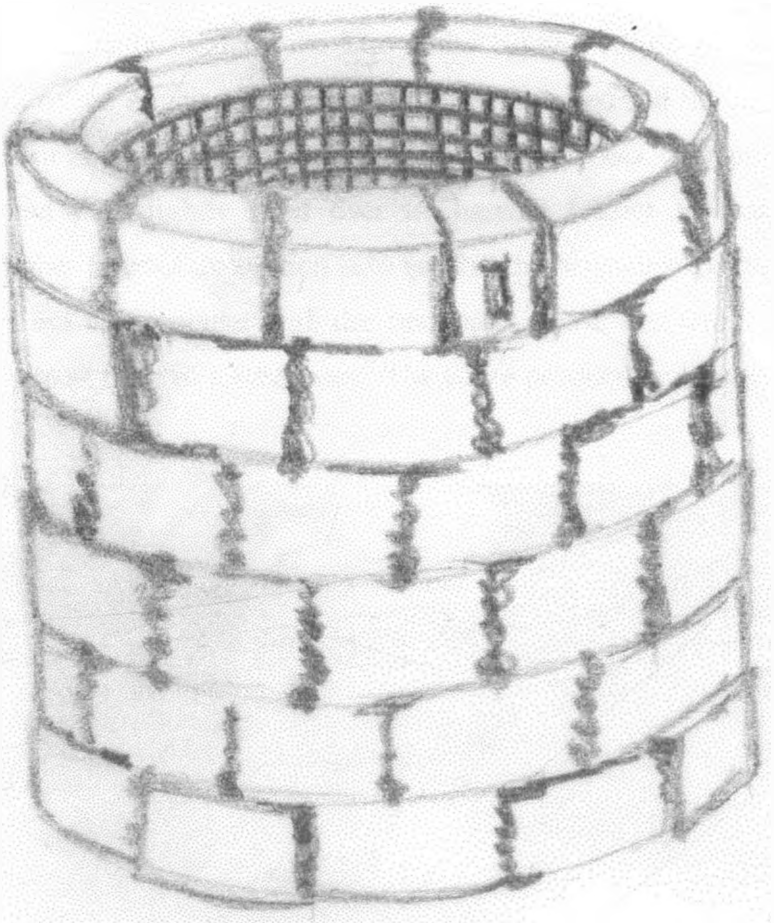


Illustration 13: An illustration of the kiln used at Paro

When the charcoal is spent, the wares are left to cool for about ten hours after which they are cool enough to handle. They are then removed and decorated. Breakages during firing are not uncommon and the larger wares are more prone to this. The type of clay mixture used by the potters is requires high temperatures to fire so breakages may be due to low firing temperatures. The potters later ensure that the vessels are well fired by checking for a high pitched clanging sound when the wall of a vessel is gently hit. If the vessel is not well fired then it is fired a second time.

f) Staining

The fired wares can then be decorated by staining them plant extracts. This method of staining is traditionally used by the Luo and Abaluyia communities in Western Kenya. The bark of the Acacia tree (Oruech in Luo) is boiled and the liquid which is very dark in colour is used to give a dark finish to the fired pots. The pots are dipped in the liquid and then lightly fired over a charcoal brazier to make the stain permanent. Another form of decoration is to varnish the bisqueware though this form of decoration is not very popular with the customers. Varnished wares are also not appropriate for use as table or kitchenware. The entire production process takes about 25 days.

Illustration 14: The bark of the 'oruech' used to stain bisqueware

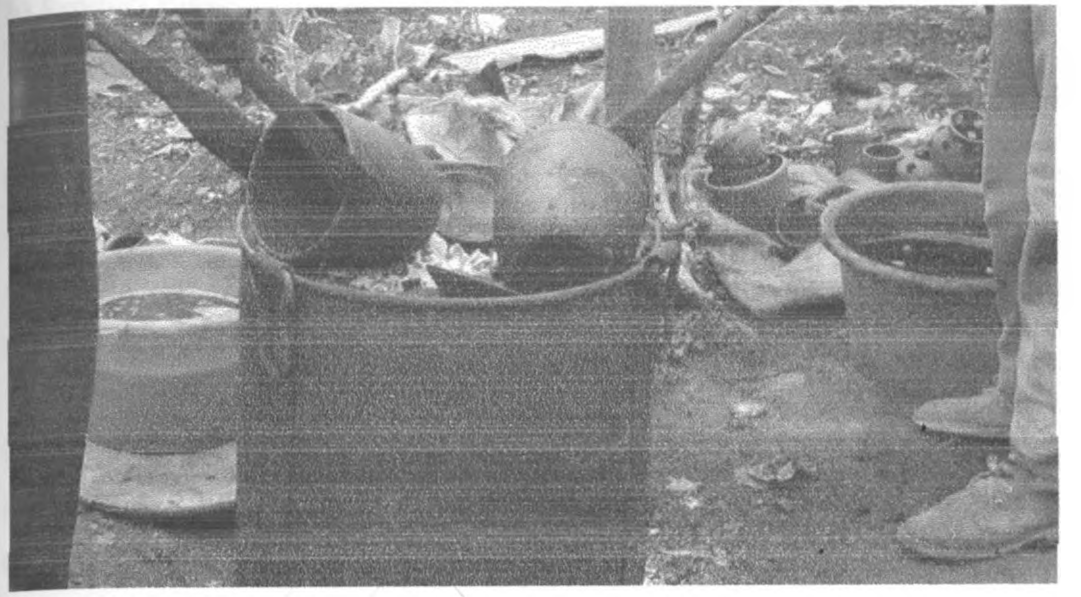


Illustration 15: The bisqueware is stained and fired lightly over a charcoal burner

g) Storage and packing

The finished products are stored on the shelves. Stacking is possible as the vessels are of a standardized size. Stacking allows for easier storage and saves on space. It also serves as a good display for the product range as shown below.

Illustration 16: Finished wares stacked on the shelves and packed in used cartons

h) Product range

The range of products is varied consisting of tableware such as dinner sets, condiment sets, cups, mugs and jugs. Kitchenware range consists of cooking pots and casserole dishes. There are also decorative items such as candle stands and flower pots. Special items such as table food warmers, garlic pots and oil burners are also available in the range. These latter three are popular with customers of Asian descent who use them for their religious and cultural ceremonies.

The products of Paro are largely suited for a modern lifestyle as the designs are imitative of modern kitchenware. The potters have also discovered a niche in the market which is the demand for Asian cultural designs. This range of products seems to bring in the largest revenue as their demand is large and constant.

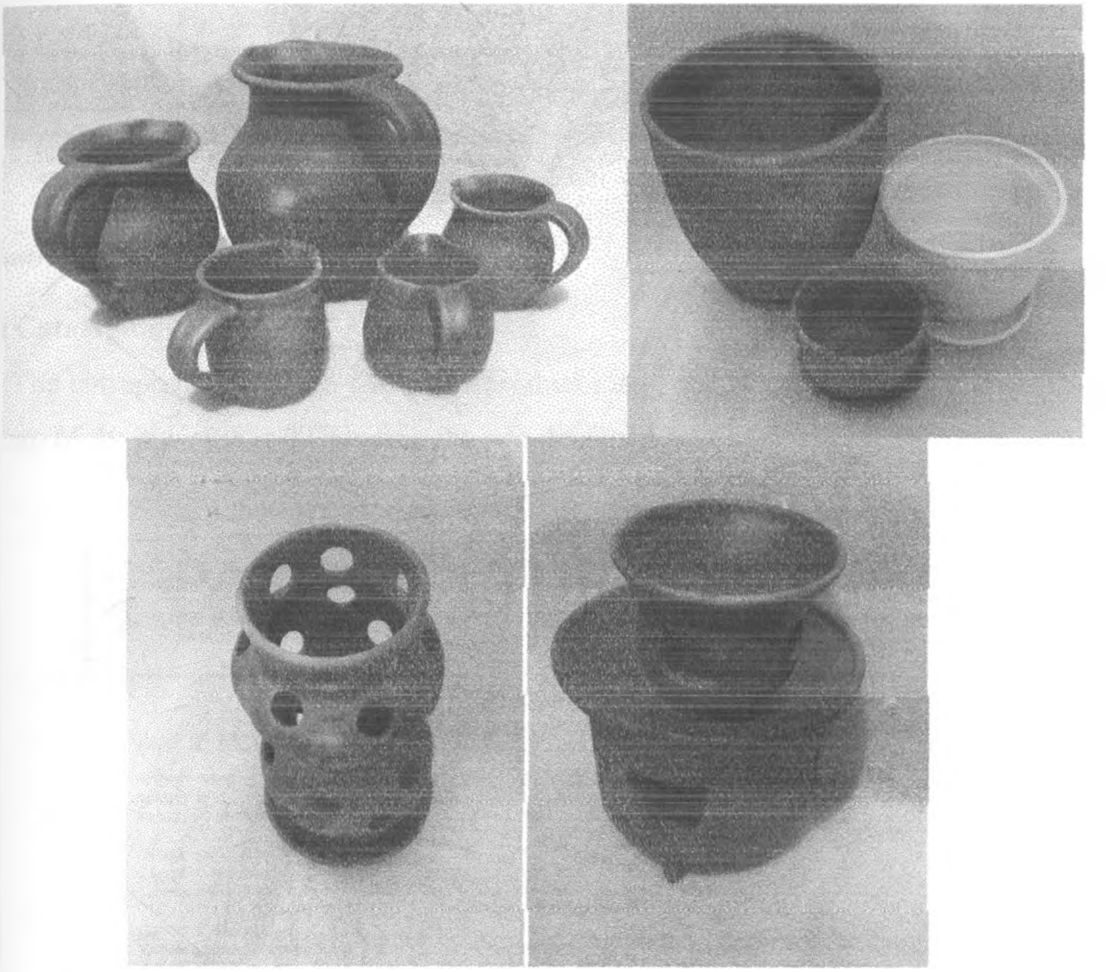


Illustration 17: Finished products by Paro

4.13 Promotion

a) Business card

Paro has a business card a sample of which is shown. The card contains only the name and location of the business and the contacts of the entrepreneurs. The name 'Charles Ojwang' is added in pen. There is no information on the enterprise's products.

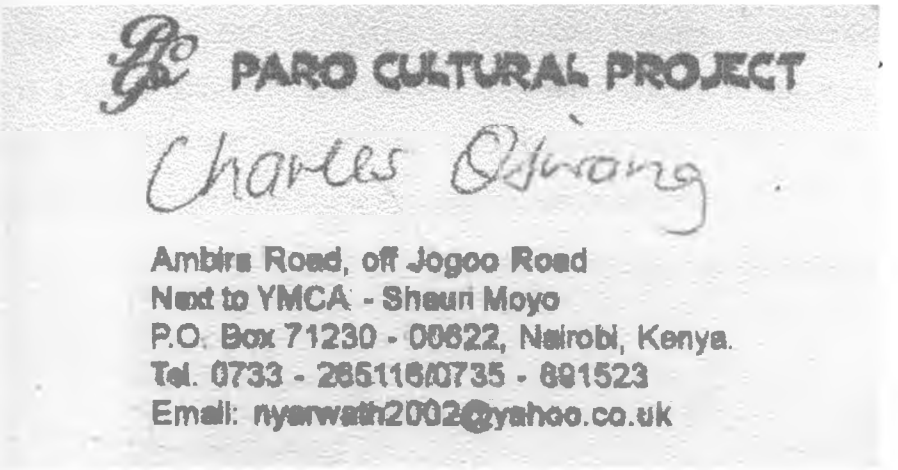


Illustration 18: Business card used by Paro

b) Cataloguing

The entrepreneurs have a list of the product range and prices as shown above. The Logo of the business is different in the two documents.

PARO CULTURAL PROJECT

P.O. BOX 71230 - 00622
NAIROBI, KENYA

TEL. 0733 – 265116 / 0735-891523
E-mail: nyarwath2002@yahoo.co.uk

POTTERY PRICE LIST

NAME OF ARTICLE	PRICE @ in Kshs
Ashtray small	80
Ashtray large	150
Ashtray X- large	250
Candle stand small	80
Candle stand medium	180
Candle stand large	280
Candle shade straight	500
Candle shade twin-belly	600
Candle shade round	500
Garlic pot	250
Oil burner	300
Wine pot	550
Toothpick	80

Illustration 19: List of Products at Paro

Below is a catalogue of the products which is a photo album with photographs of products on one side and the prices written by hand on the adjacent page. This catalogue is not commonly used however and the potters prefer to show prospective customers the product range arranged on the shelves of the workshop. The potters do not launch new products and neither do they use conventional ways to advertise their products. They have never sought professional design services in the designing of their logo which appears in different forms in their business documents. The catalogue that is a photo album is unattractive. The photography is not well done and the writings by hand are unappealing. The measurements are not provided and the customer cannot therefore know the real size of the product.

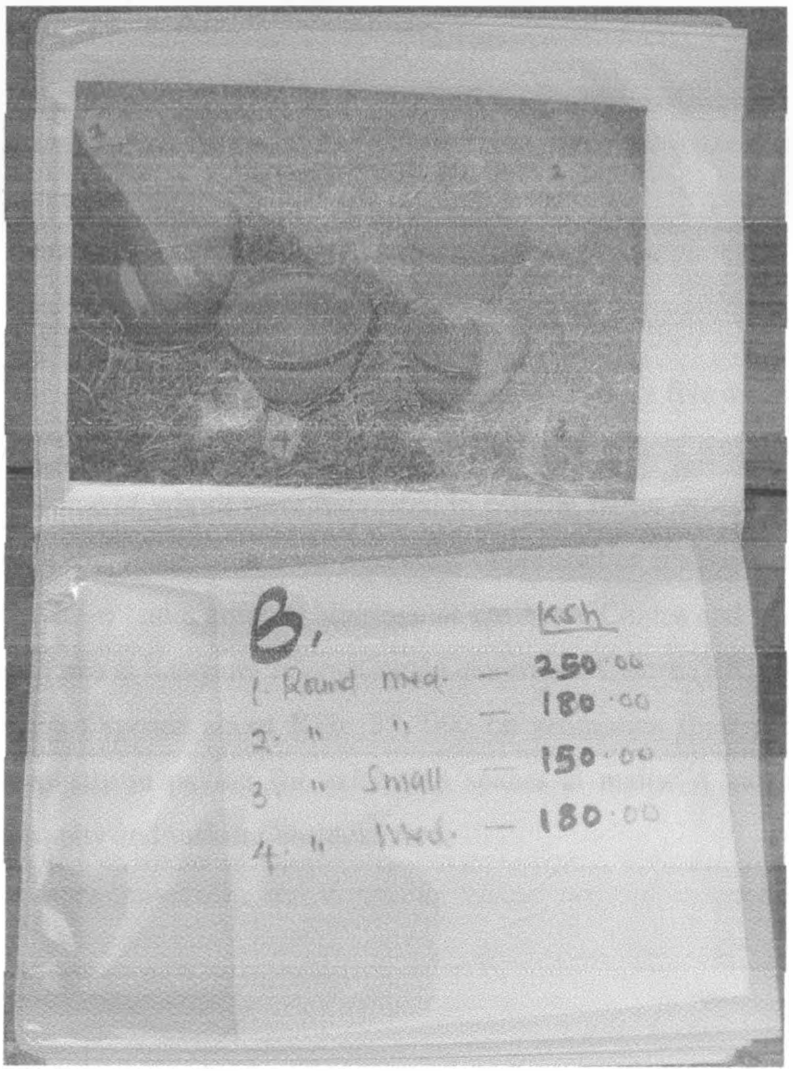


Illustration 20: A photo album used as a catalogue of products at Paro

c) Exhibition

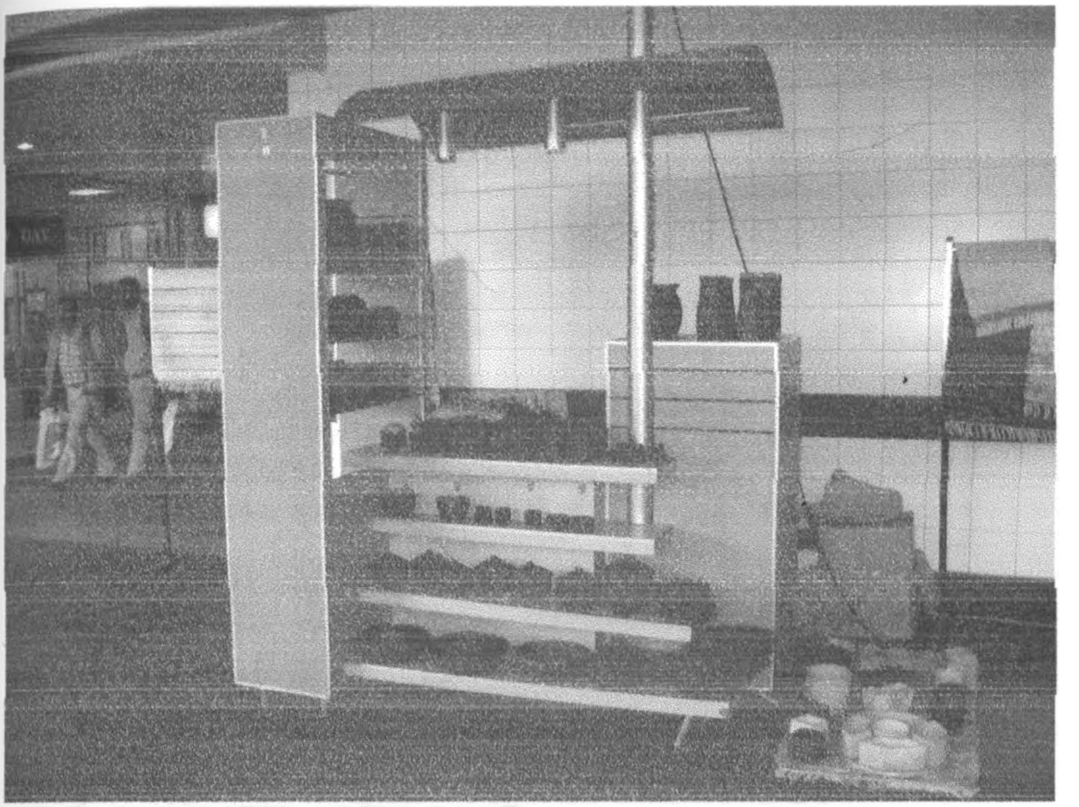


Illustration 21: An exhibition by Paro at a mall

During the research the entrepreneurs organised to exhibit their work at the Sarit centre, one of the major shopping malls in Nairobi city. It was a five day exhibition at the cost of Ksh. 10 000. The entrepreneurs sold many products and got to interact with customers some of whom were interested in placing larger orders. According to the potters such exhibitions have been their best opportunities for meeting long term customers. They have had similar exhibitions at the Yaya Centre and participated in organised exhibitions at Kenyatta International Conference Centre (KICC).

On average Paro spends about KSh. 35, 000 on promoting their products. This expenditure is mostly in paying for exhibition spaces at malls. A small amount is spent on photography and making business cards

4.2 Litoyi pottery

Illustration 22: Litoyi workshop

Litoyi pottery was established in 2004. It is situated in Gachie area of Kiambu district in central province. It is accessible from the Central Business District of Nairobi as it is close to the outskirts of the city. Ronald Shisundi is the manager of the enterprise which has employed nine potters, four of whom are casual workers and only come in when there is extra work. He is from Ilesi in Kakamega where he learnt pottery in his father's workshop. Ilesi is renowned for its vibrant pottery production. All the other potters at Litoyi are from Ilesi and are related to Ronald in one way or another. They all invariably learnt the trade from at home in Ilesi and later moved to Nairobi to look for work as potters.

Before starting his own business, Ronald worked for his relative Fabian, who is a well known potter in Nairobi. Fabian and Ronald's father Charles Musa were involved in the research carried out by Angela Langenkamp (2000) on pottery in Kenya as discussed in the literature review. From this it is evident that Ronald comes

from a background rich in pottery production. He does not have any academic training in the craft or in design. After completing primary school education, Ronald did not continue with formal education and moved to Nairobi in 1992 where he worked for Fabian in the *New Jua Kali pottery enterprise* before starting his own enterprise.

In the literature review, Langenkamp mapped out the family tree of Isukha men from Ilesi, who got involved in pottery starting from Ronald's grand father S.V Musa. This is shown in illustration 3. Prior to this, pottery was a woman's craft. The Isukha men of the Avasagala clan according to Langenkamp (2000), were the pioneers of Jua kali pottery in Nairobi. Ronald and the other potters at his workshop confirm this and also claim that Fabian L. is one of the best known potters in the city. John Musa, the eldest son of Charles Musa and therefore Ronald's elder brother is also a well known potter in Nairobi. It can therefore be concluded that the greatest influence in Ronald's choice of trade is his family background and experience. The other potters at Litoyi are also adept at modelling in clay due to their long experience in pottery which started at an early age.

When Litoyi was started, the design of products was similar to those produced at *New Jua Kali pottery enterprise.* These were mainly large planters which resembled Mediterranean terracotta wares as shown in picture one. Later, Ronald began to incorporate animal imagery in his designs to make them more appealing to tourists who were his main target market. He also reduced the size of the wares as they were to be used as decorative items and souvenirs rather than planters and flower pots. It can be deduced from this that the generation of ideas is influenced by the target market needs as well as the use of traditional methods of production. The different stages of the design process therefore influence each other in a circular manner as shown in flow chart 7.

4.21 Idea generation

To source for ideas, the manger refers mostly to books on nature as he uses a lot of animal imagery to create designs for products. His use of animal imagery is not common to traditional pottery. He proceeds directly to prototyping and then shows the other potters who are good in reproducing the designs. Ronald also gets ideas from customers. His regular customers such as shop owners give him ideas for new

past produced replicas of sculptures that customers want reproduced in clay. The manager seems to be very innovative in the generation of ideas as he has moved away from the conventional jua kali pottery designs by generating original ideas. This can be partly attributed to his vast experience in pottery since childhood as well as his own ingenuity. It takes about three days to generate ideas and produce prototypes.

Illustration 23: Some of the books use at Litoyi to source for ideas

4.22 Production

a) Sources of raw materials

The clay used at Litoyi is sourced from Ilesi. Having worked with clay from Muranga, central Province, the potters insist that clay from Ilesi, Kakamega is superior to clay from Muranga. The clay is transported from Kakamega to Nairobi by public means. The sand used as filler is obtained from Muranga. Though the distance from Kakamega to Nairobi is greater than the distance between Murang'a and Nairobi, Ronald insists that using clay from Kakamega is much cheaper than from Muran'ga. The amount of clay used in one year costs about Ksh. 8, 000.

b) Preparation of clay

The ratio for mixing the raw materials for the clay body depends on how plastic the clay is. Normally, a mixture of 50 % clay and 50 % sand produces a usable clay body. Small vessels do not require too much sand as compared to larger wares. To the

clay and sand mixture water is added and the clay body wedged as impurities are removed. Surface or secondary clays such as the one used at Litoyi seemingly do not require mixing with industrial fillers and flux. At times different types of clay are mixed together to obtain a workable clay. This sought of mixing of clay is in no way arbitrary but rather based on the long tradition and experience. Potters at Ilesi mix clay in this way and it appears the practise comes from a long tradition.

c) Modelling

The potters mainly use hand building methods to make vessels. The main body of the wares are made using the coil method that is traditionally used in Ilesi. The use of simple turntables for modelling is also traditional to Ilesi pottery. The potters have however gone further and constructed turntables using scrap metal. The turntable is made from the rim of a car tyre. The circular motion of the rim enables the potter to shape the clay body evenly. The potter sets the rim in motion which turns for a while as he beats the walls of the clay body into shape. He does this until the vessel is satisfactorily evenly shaped. The turntable should not be confused with the potter's wheel like the one at Paro which is mechanically driven and continues in motion at high speed. While the potter's wheel enables one to produce rounded vessel with great ease, the turntable merely acts as a support that can be turned so that one does not have to move around the vessel.

To produce products of exact measurements the potters use a mould made of plaster of paris and fibre glass. A prototype of the product in clay is used to make the mould which can then be used to produce numerous copies of the same product. The mould is however expensive and is only used when many copies of the same measurements are needed.

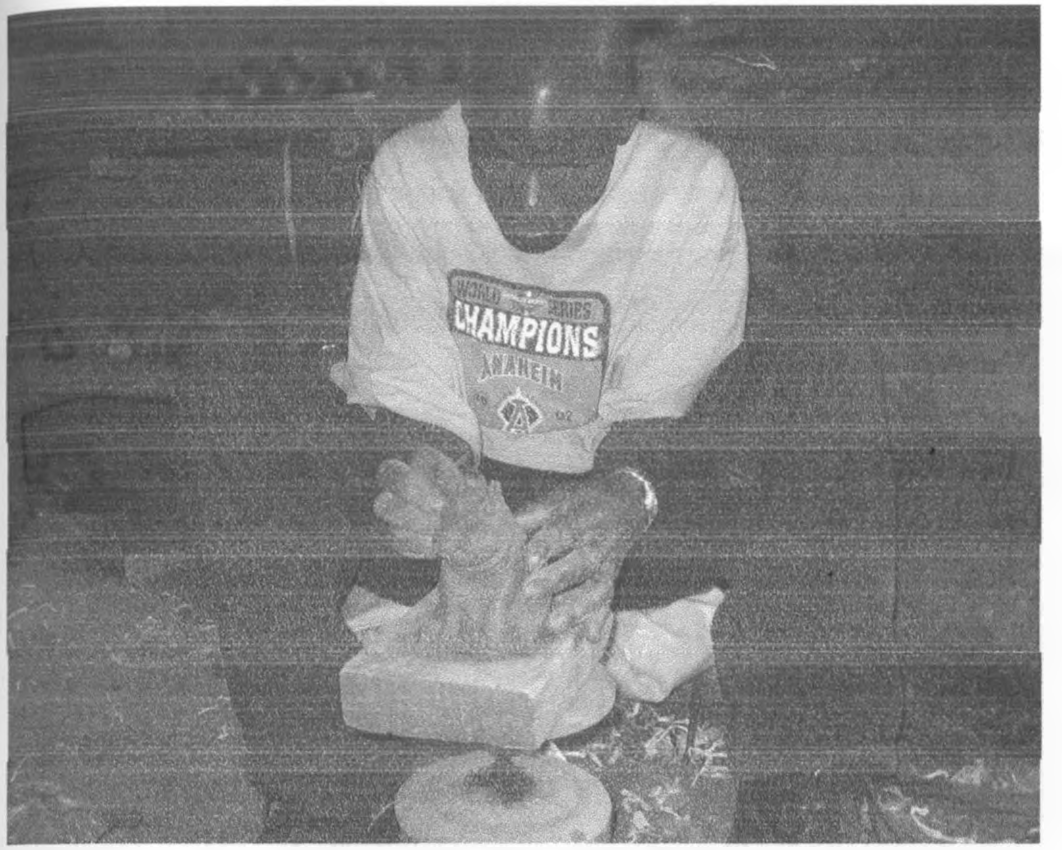


Illustration 24: Modelling being done by hand on a turn table

d) Finishing and decorating greenware

Most of the products at Litoyi have animal imagery added to the main body of the vessel. The main body is modelled on the turn table by one potter while the animal figurines are modelled separately then fixed onto the main body by another potter.

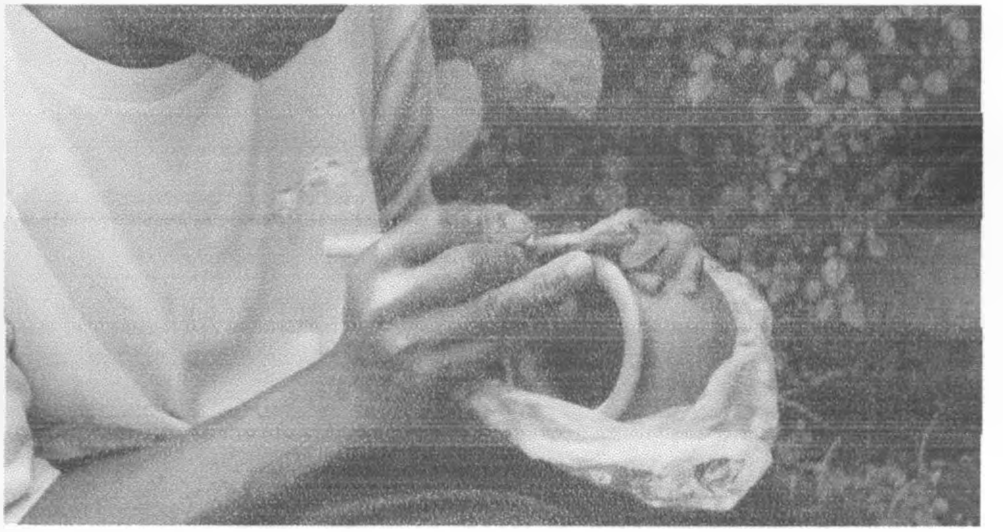


Illustration 25: An animal figurine is added to the modelled vessel

e) Drying

When finished the vessels are put out to dry in the open. In the dry season the vessels dry in a day and can be fired after this. In the wet season, the vessels have to be dried inside the workshop which may take up to several days.

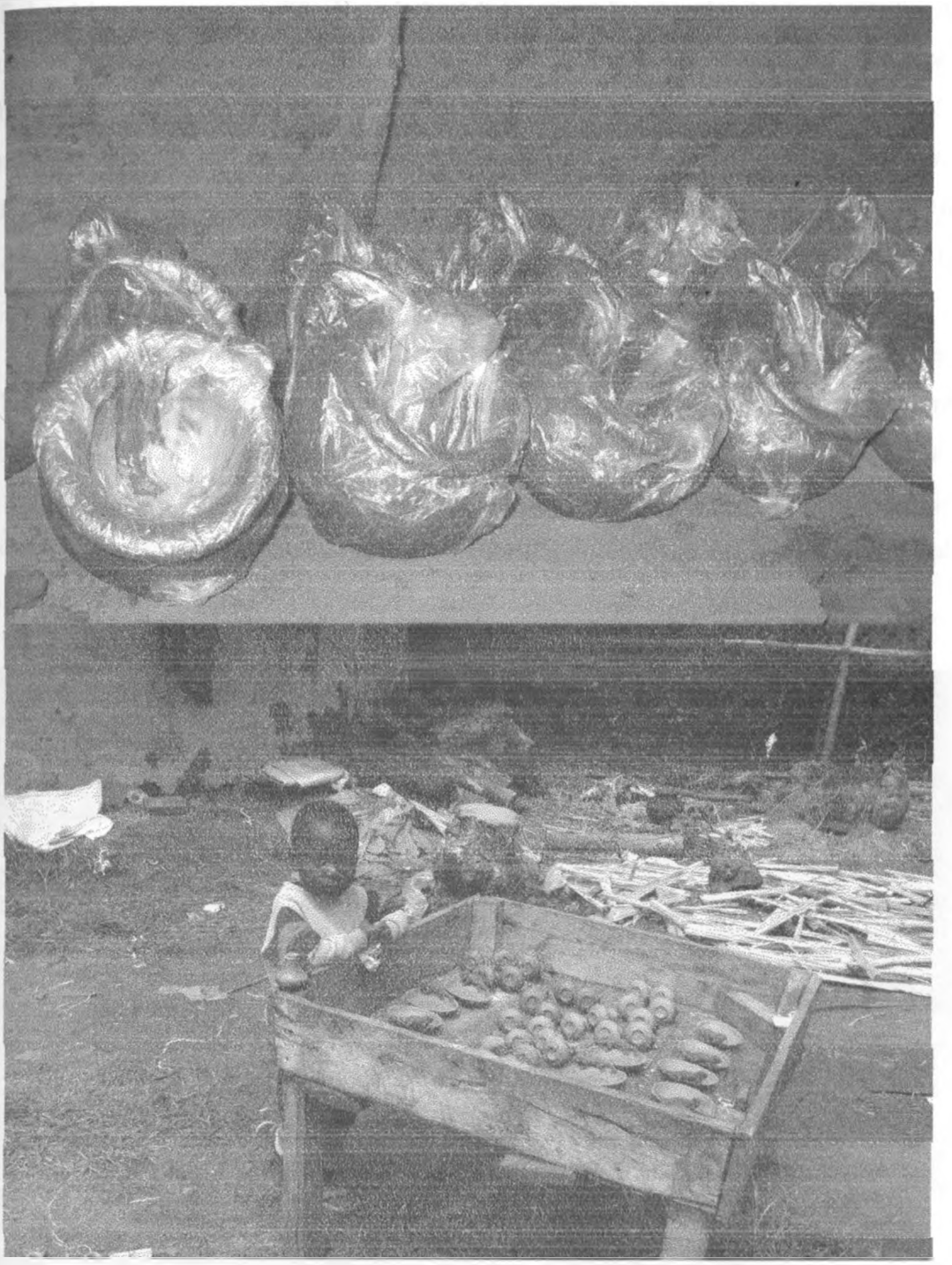


Illustration 26: Modelled vessels allowed to dry

f) Firing and Finishing

The greenware are open fired using wood in an enclosure of stone and covered with grass. It requires firing for about one hour to vitrify the clay body. As mentioned earlier, clay from Western Kenya is probably surface clay that requires temperatures of about temperatures of 700°C and short firing time for the clay body to vitrify. As soon as the vessels are removed from the fire, they are splashed with a plant extract obtained from boiling the bark of the wattle tree known as 'Musenzeli' in Abaluyia language. Dipping the vessels in the liquid achieves a very dark finish. For this form of decoration the vessel has to be hot so that the stain is permanent. Just like the 'Oruech' used at Paro, the 'Musenzeli' is non- toxic and it is traditionally used by potters in Ilesi and the other Abaluyia tribes in Western Kenya.

Open firing requires the use of firewood that has to be bought from the dealers. This form of fuel may be cheap in the short run but in the long run it presents challenges such as the depletion of forests. The potters choose this form of firing as it is the cheapest and easiest. As the vessels produced are not large in size then the fuel required is considerably lower than would be required in the firing of large vessels common with the Jua kali.

Illustration 27: Open firing

The finished vessels are then decorated by accentuating the design using acrylic paints. This is done by painting the animal figures as close to the natural colour of the animal as possible. A brush and cans of various acrylic paints is all that is needed. Acrylics are water based but when dry do not dissolve in water. This means that the paint is permanent and the vessel can be washed as normal. Pots that are used for cooking are however not painted as excess heat may cause the paint to peel off.

The entire process of production takes on average 25 days.

Illustration 28: Staining and painting of bisqueware

g) The product range

Below are some of the wares produced at Litoyi. From left above is a camel shaped container, various containers: wine cooler, pencil holder, soap dish and ash tray on the all decorated with lizard figures, below is a pumpkin shaped container and a dish. The products are all of a fairly small size not larger than 12 inches in height. The smaller wares are easier to produce as they require less clay and do not easily crack during firing. They are also easier to transport and fetch higher returns when sold. Litoyi has however produced a wide range of products samples which were not available at the workshop

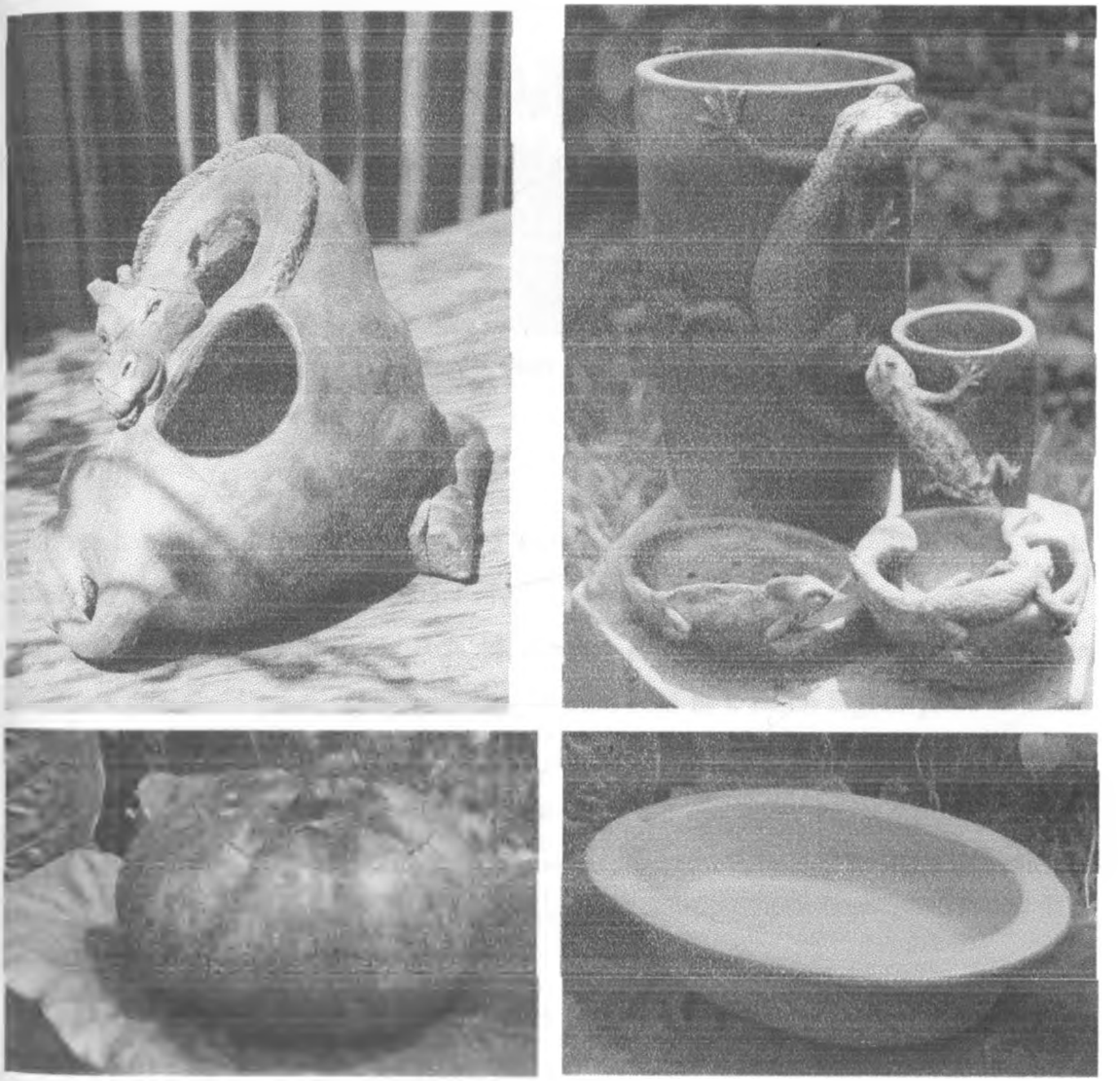


Illustration 29: Finished products from Litoyi

4.23 Promotion

a) Business card, brochure and catalogue

The business does not have a business card, brochure or product catalogue. Ronald uses photographs like the ones shown below to show customers what he has produced in the past. The photographs are not of good quality and are therefore a poor presentation of Litoyi's products. The photos also say little about the product in terms of dimension and Ronald has to explain to prospective customers about the products.

Illustration 30: Photographs use at Litoyi to show available products

b) Exhibitions

Litoyi has had its products exhibited at various exhibitions in Nairobi. This costs about Ksh. 30, 000 in one year. Its products are sold in curio shops in some of the major shopping malls in town. Ronald supplies the curio shop owners who buy his products at a fixed price. The products are then sold at a much higher price in these shops. Ronald also has a modest overseas market and exports regularly to customers in France and the United states. As the quantities are not great, he transports them by air and charges the customer for it. The products are not launched in the conventional as may be done by large scale producers or designers.

4.3 African Clay & Arts

African Clay & Arts (ACA) is an enterprise that was set up in 1994 with the aim of producing and marketing ceramic wares. The enterprise currently has four staff members: two directors who oversee the running of the business, one trained designer and one trained potter. The business is formally registered as a small company.

ACA has both a vision and mission for the business as stated in their brochures. In summary their vision is to produce and market Kenyan pottery internationally and promote local research in the area of ceramics. The mission is to promote small scale entrepreneurship by setting up income generating projects in ceramics. So far it would seem that the business has succeeded in their aim to produce and market pottery. The entrepreneurship has yet to become a hub for research and entrepreneurship in ceramics.

The designer at ACA is academically trained and has a degree area of fine arts and design. This seems to be a main influence in the design process as the methods employed in the generation of ideas are generally those recommended in academic design theories. Availability of capital has also made it possible to acquire machinery for production which in turn has made it possible to produce items considered to be modern such as glazed wares.

From the interviews conducted available in *Appendix 4* it seems that the entrepreneurship was set up to fulfil the need to generate income and promote research in the area of ceramics. The generation of ideas is thus preceded and influenced by these needs.

4.31 Idea generation

The vision of the business being to promote Kenyan pottery, ACA uses themes deemed to be representative of Kenyan culture as inspiration for their designs. The designer therefore uses imagery of traditional Kenyan homesteads, attire and artefacts to generate ideas for designs. Kenyan wildlife vegetation is also a common source for ideas for designs.

To generate ideas, the staff members meet occasionally for brainstorming sessions where they discuss possible ideas for new designs among other business matters. The designer then proceeds to produce sketches and the potter makes prototypes of these. This process takes about ten days.

The following is a sample of sketches done by the designer. The design idea is inspired by gourds commonly used by different communities in Kenya for storing liquids and is further developed into a design for a ceramic container.

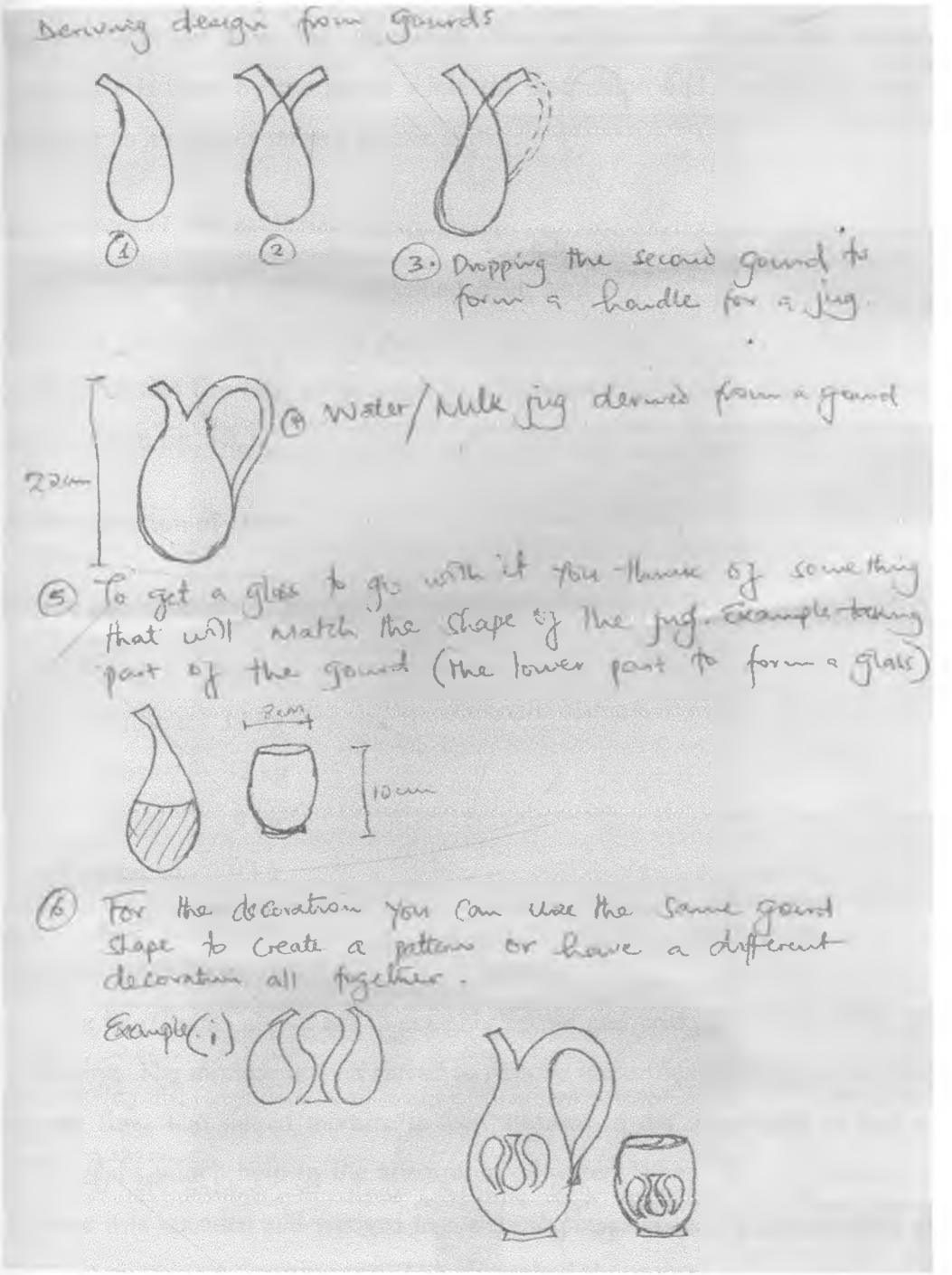


Illustration 31: Sketches done by the designer showing how ideas are developed

4.32 Production

The production process at ACA is elaborate and partly mechanised. It takes about 25 days to produce finished wares. The large workshop is divided into two areas: one for the preparation of clay and production of greenware while the second area is used for finishing and firing the greenware. The preparation of clay and production of greenware is done by the potter while the decoration and finishing is done by the designer as it requires refined artistic skills.

a) Sources of raw materials

Raw clay used at ACA is obtained from Mukurwe-ini, in Nyeri district, Central province. Kaolin, feldspar and silica are obtained from Athi River Mining Company while grog and fire clay are sourced from kahawa West area in Nairobi. These areas are shown in fig. 10.

b) Preparation of clay

The clay mixture is obtained using the following formular:

Clay- 500 kg
Feldspar- 32 kg
Silica- 32 kg
Grog- 9 kg
Fireclay- 9 kg
Kaolin- 25 kg

The ingredients above are thoroughly mixed and soaked in water. This is known as slaking. The mixture is then sieved to remove impurities in an 80 mesh sieve which is very fine. The sieved mixture is then allowed to dry in troughs in laid with red bricks slabs which help in the absorption of water. When the clay dries to a sticky mixture it is kneaded and wedged to a smooth consistency. The clay is then stored in air-tight containers awaiting use. The clay takes about three to four weeks to dry and mature enough to be used.

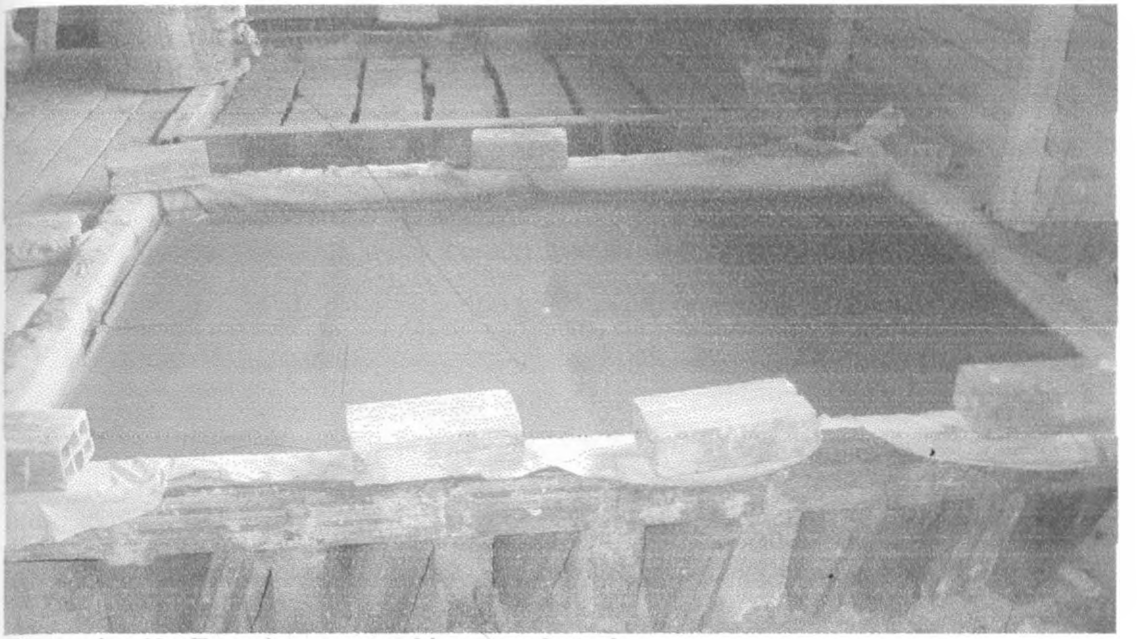


Illustration 32: Clay mixture poured into troughs to dry

c) Throwing and drying

All the wares at ACA are thrown on the wheel. This means that the wares produced all have the rounded form or circular shape. A wide range of variations in form can be achieved on the wheel and by cutting out designs. After the vessels are formed they are allowed to dry slowly in a shaded area. This takes about three to four days.

Illustration 33: Throwing done on an electrical wheel

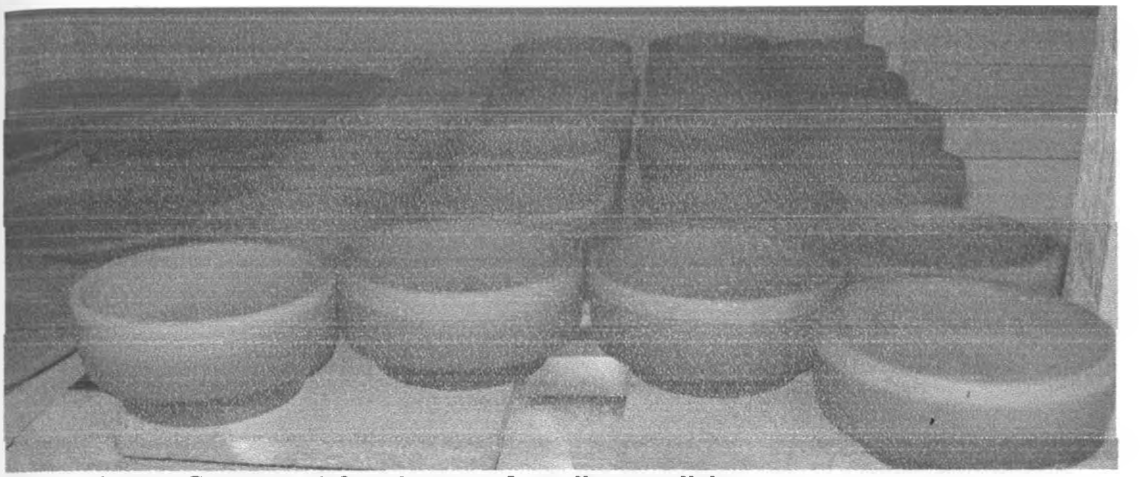


Illustration 34: Greenware left to dry away from direct sunlight

d) Firing

The firing is done in two stages. The first stage is the firing of greenware which is known as bisque firing. This is done at temperatures of about 1000°C. The second firing is done after the glaze is applied on the bisqueware. The temperature requires is higher reaching 1200°C.

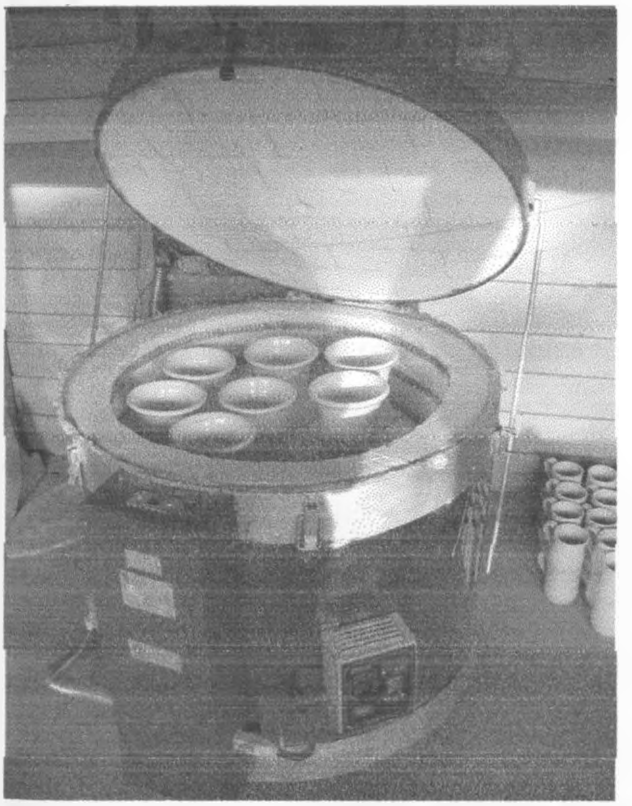


Illustration 35: Electrical kiln used for bisque firing and gloss firing

e) Glazing

The glazes used are bought from local industries or are sometimes imported if they are not available. To achieve different colours, oxides are used to stain the glazes. The designer does the glazing work which as seen below requires artistic skills. He as developed a unique style of blocking out certain areas so that they are not glazed. The glazes used are safe as they do not contain lead.

Through experimentation, the designer has developed formulas to achieve a variety of colours and shades as demonstrated in the glaze tile below.

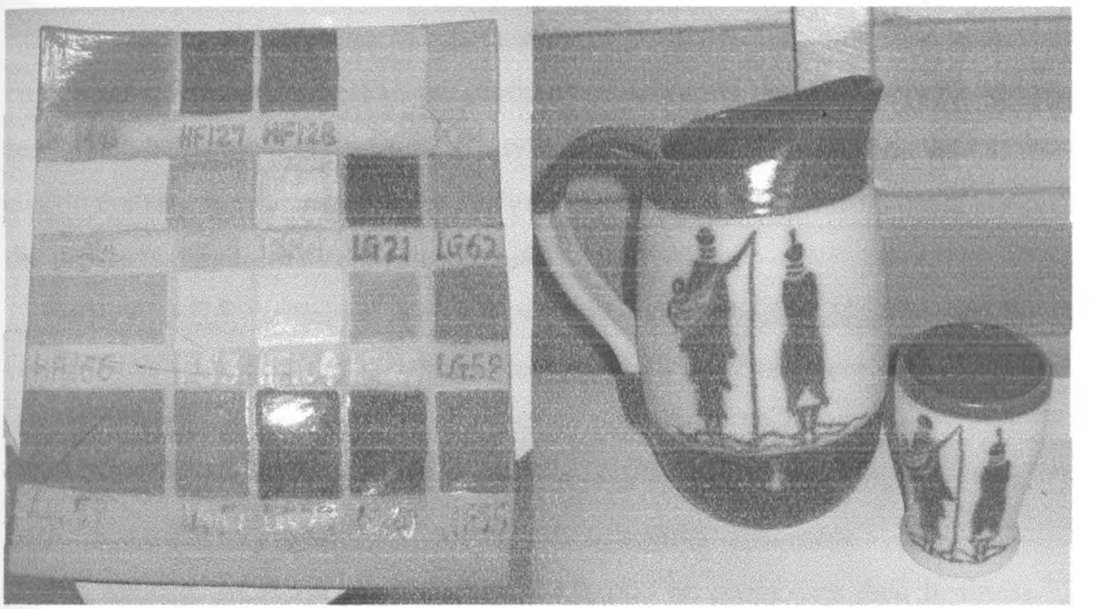


Illustration 36: Glaze tiles and glazed wares

f) Product range

The product range mainly consists of tableware.

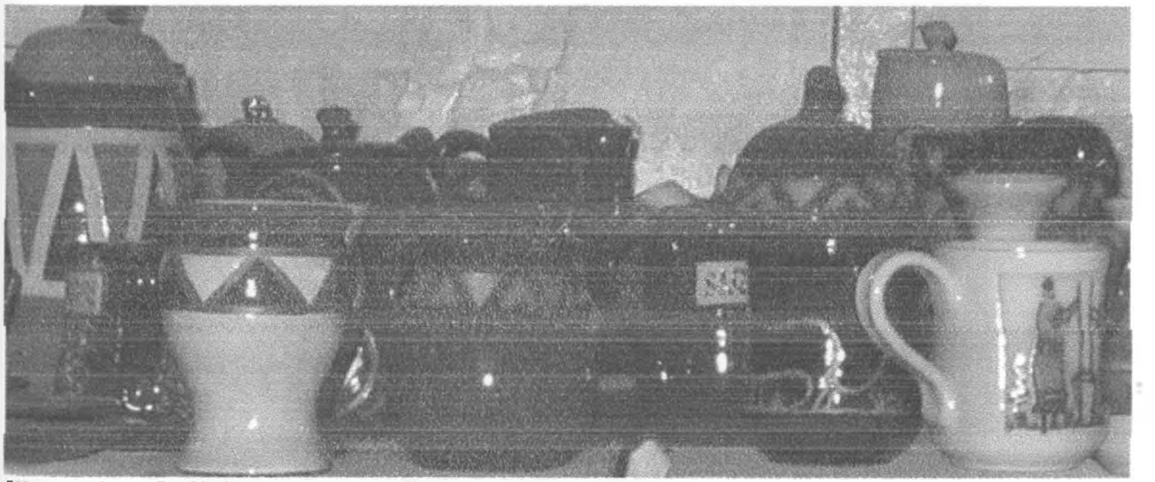


Illustration 37: Finished wares on display at the workshop

4.33 Promotion

ACA has a clear marketing strategy for their products. To start with the business has a corporate identity that runs through all their documents. The logo of the enterprise carries its name and is representative of what the enterprise deals in. There is a business card and brochure for the business. The brochure starts off with the vision and mission of the enterprise and then continues to show samples of the products available as well as the contacts and location of the enterprise. Plans are underway to set up a website for the enterprise.

The designer at ACA who also does some of the marketing, makes regular visits to customers to introduce them to the products of ACA and leaves them with samples to test which helps them in deciding to buy the products. Visits are also made to existing customers to interest them in new designs and to get feedback from them concerning the products they have already purchased.

Further, ACA participates in various exhibitions within Nairobi and in other countries as well. So far the business has mainly local customers such as hotels and organisations who are mainly interested in tableware. Their customers include big hotels such as Sarova chain of hotels and Serena chain of hotels among others. These customers often buy in bulk and continue on as regular customers.

On average ACA spend about Ksh. 44 0, 000 on promoting their business. This includes the design and printing of business cards, brochures, catalogues and other documents as well as paying for exhibition spaces. Below is a sample of a brochure.

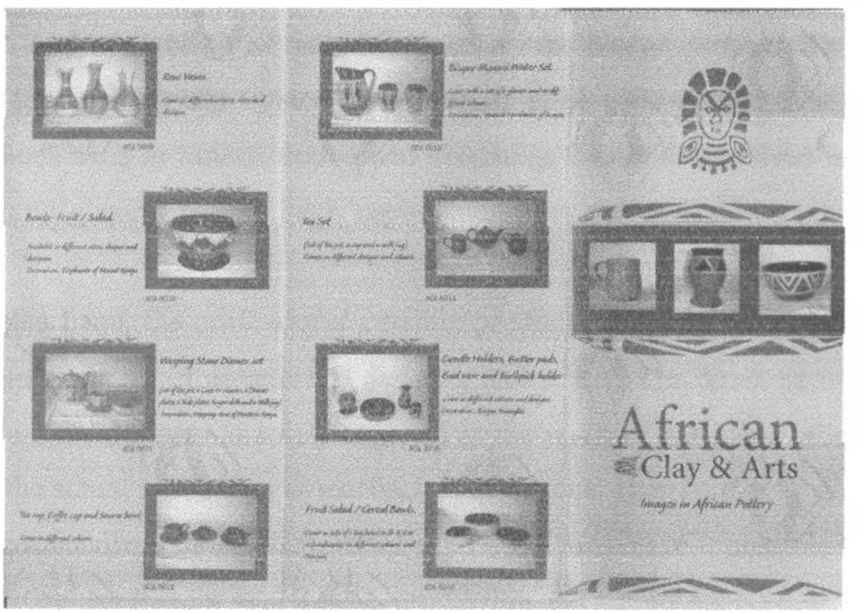


Illustration 38: A sample of an ACA brochure

4.4 Cross-Case synthesis

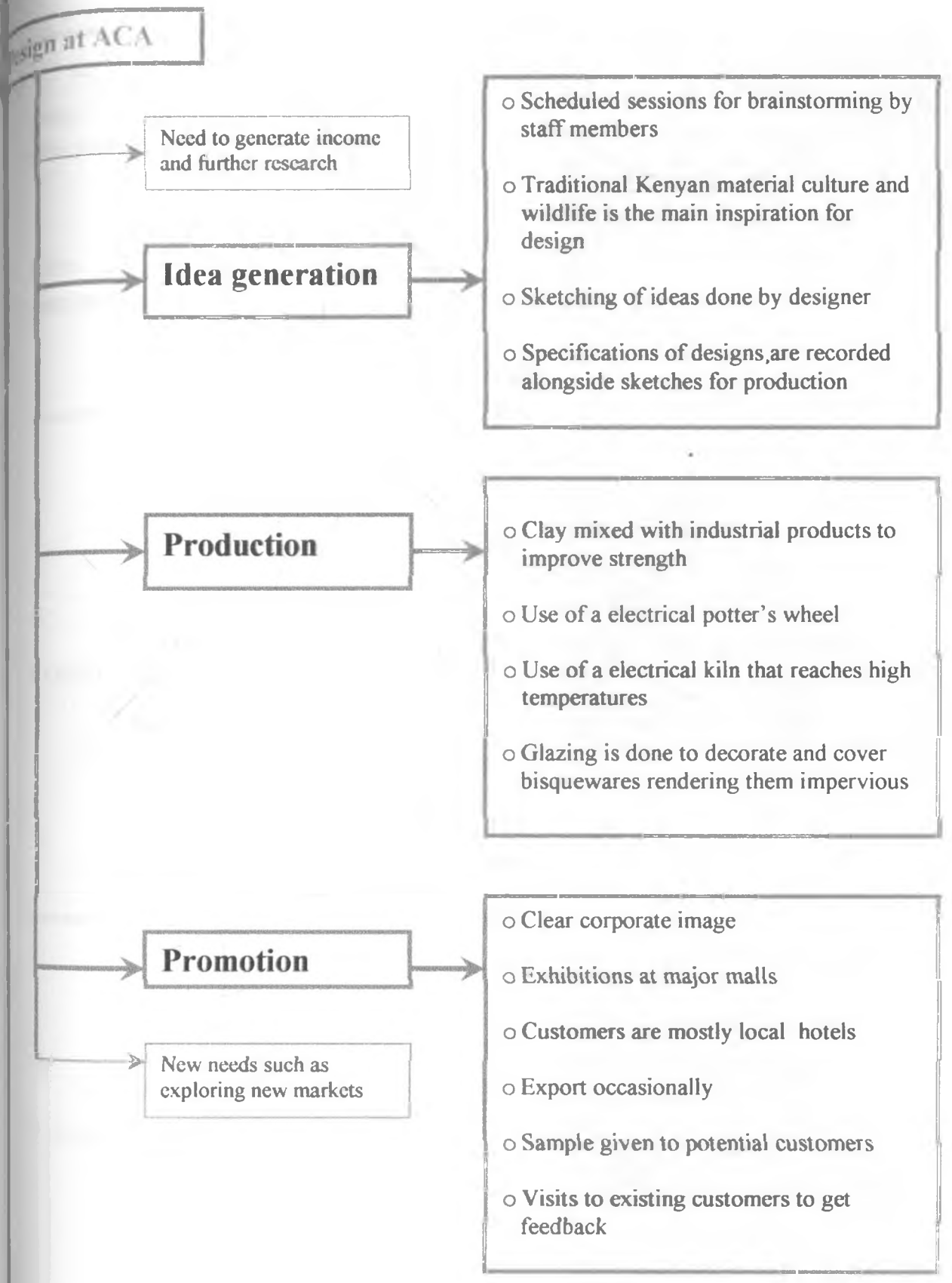
The cross-case synthesis is the comparison of data from the three case studies. Analysed data from the two case studies of the Jua kali enterprises i.e Paro and Litoyi have been compiled and generalised into information on pottery in the Jua kali sector as shown in flow chart 7. Analysed data from the Professional ceramic producer i.e ACA has been presented in flow chart 8. Table 2 further shows the comparison between the Jua kali potters and the professional ceramic producer. Bar graph 2 is a bar graph showing the different relative values of idea generation accorded to each case study. The values were arrived at by comparing the amount of time spent in the generation of ideas to the amount of time spent in production in each case study. Bar graph 2 is a bar graph showing the relative value of production compared to that of promotion in each of the case studies. The values were arrived at by obtaining the total expenditure (materials, rent, wages and salaries, promotional items and activities) of the entire year for each case then calculating the percentage spent on promotion against the total expenditure.

From the analysis of data collected from the cases it is clear that the practice of design in the Jua kali pottery sector does not follow the academic design theories as articulated in the review of literature. The design process in the Jua kali pottery sector does not follow the formal linear model as set out in the conceptual framework in flow chart 6 but rather a cyclic model as demonstrated in flow chart 7. This is attributed to the influence that factors such as need to generate income, customer needs, skills and availability of materials have on the design process. The Jua kali potters are not academically trained which seems to be a reason for their not using formal methods such as brainstorming and sketching. Lastly mechanised methods of production and glazing require high capital which is not available to the Jua kali potters.

On the other hand, the professional ceramic producer has a formal entrepreneurial formal set up made up of directors, a designer and potter. The directors manage the business while the designer is solely engaged in the work of designing products. The potter does the actual production work. Each staff member therefore has a distinct role that they are specialized in. Availability of capital has also made it possible to acquire and use electrical equipment which eases production and allows for glazing.

Flow chart 7: The design process in Jua kali case studies

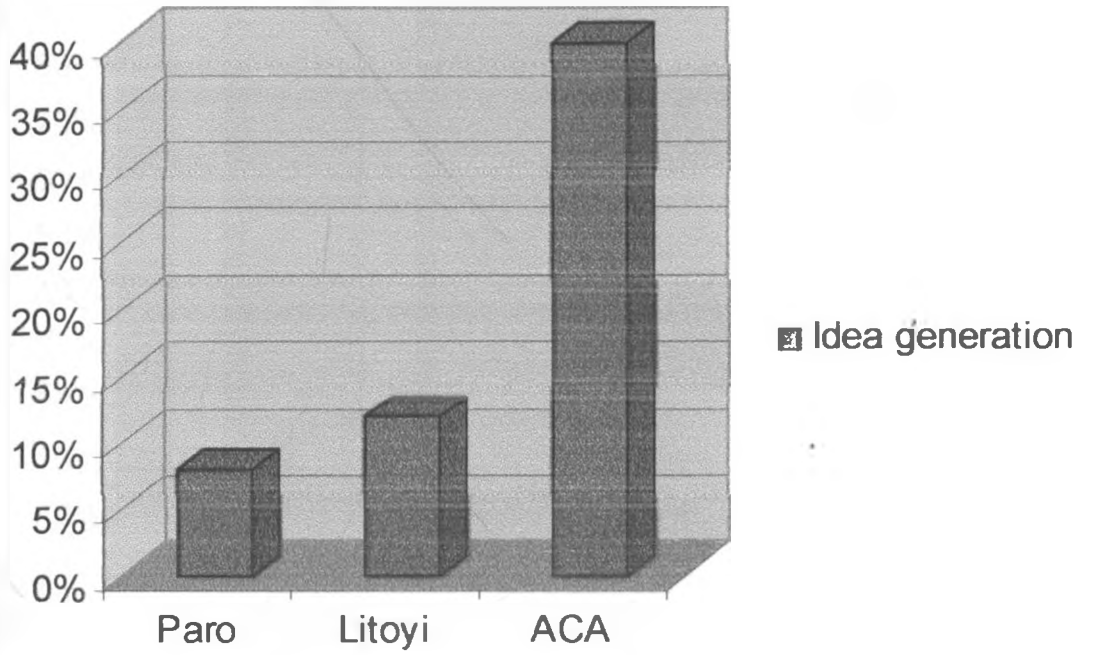
The design process as shown flow chart 7 above in the Jua kali pottery sector does not follow the formal linear model as set out in the conceptual framework in flow chart 6 and the design process of the professional ceramic producer as demonstrated in flow chart 8. This is attributed to the influence that factors such as lack of academic training, customer needs, and availability of materials have on the design process. Further in production, mechanised methods of and glazing require high capital which is not available to the Jua kali potters.



Flow chart 8: Design process at ACA

Case studies / Design	Jua kali potters	Professional ceramic producer (ACA)
Idea generation	o Informal brainstorming o Imitation of existing designs o Ideas from customers	o Formal brainstorming sessions o Sketching to record ideas o Inspiration from Kenyan
Production	o Paro uses industrial materials to strengthen clay while Litoyi uses sand o Use of turn tables or manual potter's wheels o Use of pit fires or manual kilns o Staining with plant extracts o Litoyi uses acrylics for further decoration	o Use of industrial products to strengthen clay o Use of electrical potter's wheels o Use of electrical kiln o Glazing products to decorate and cover bisqueware
Promotion	o Poor corporate image o Depend mainly on exhibitions to advertise o Customers are mostly individuals, foreigners and curio shops o Export occassionaly	o Clear corporate image o Designed business cards, catalogues and brochures o Market products by giving samples to pontential customers o Deal with big clients such as hotels who buy in bulk

Table 2: Comparisons between the Jua kali potters and a a professional ceramic producer

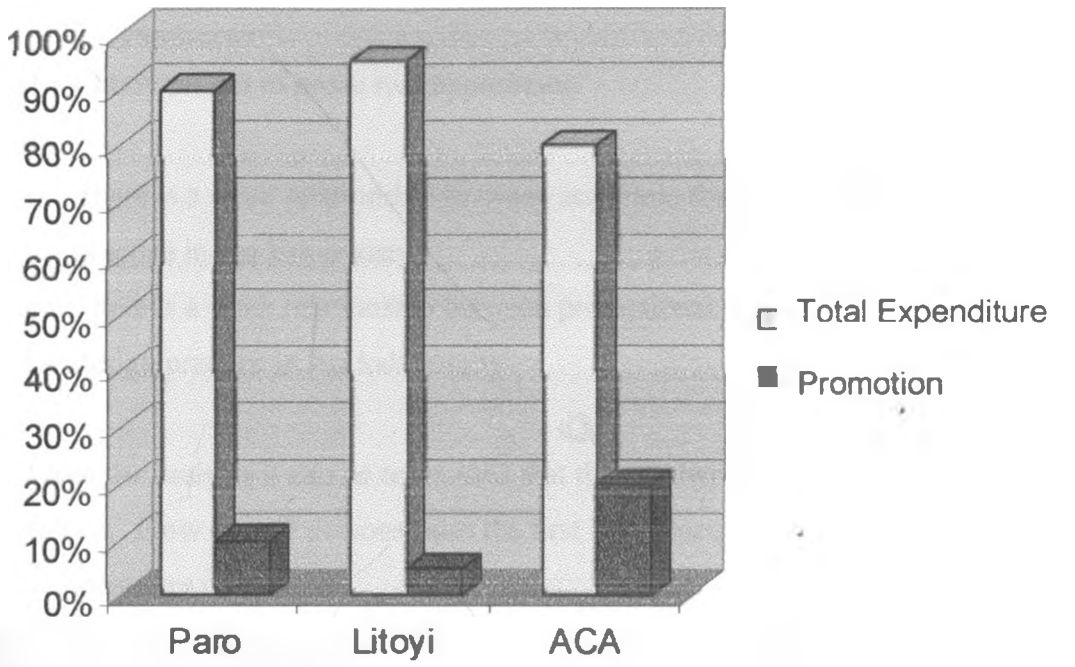


Bar graph 1: Graph showing the relative value of idea generation in the three case studies

The graph above shows the different relative values of idea generation accorded to each case study. The values were arrived at by comparing the amount of time spent in the generation of ideas to the amount of time spent in production:

$$\frac{\text{Number of days spent on idea generation}}{\text{Number of days spent on production}} \times 100$$

Paro spends one to two days on idea generation, Litoyi spends about three and ACA about 10 days. The total amount spent in all the three cases on production which excludes the days spent on preparing the clay is about 25 days.



Bar graph 2: Graph showing the relative value of promotion in the three case studies

The graph above shows the relative value of production compared to that of promotion in each of the case studies. The values were arrived at by obtaining the total expenditure (materials, rent, wages and salaries, promotional items and activities) of the entire year for each case then calculating the percentage spent on promotion

Paro- $\frac{35,000}{350,000}$ = 10% of total expenditure spent on promotion

Litoyi $\frac{30,000}{600,000}$ = 5% of total expenditure spent on promotion

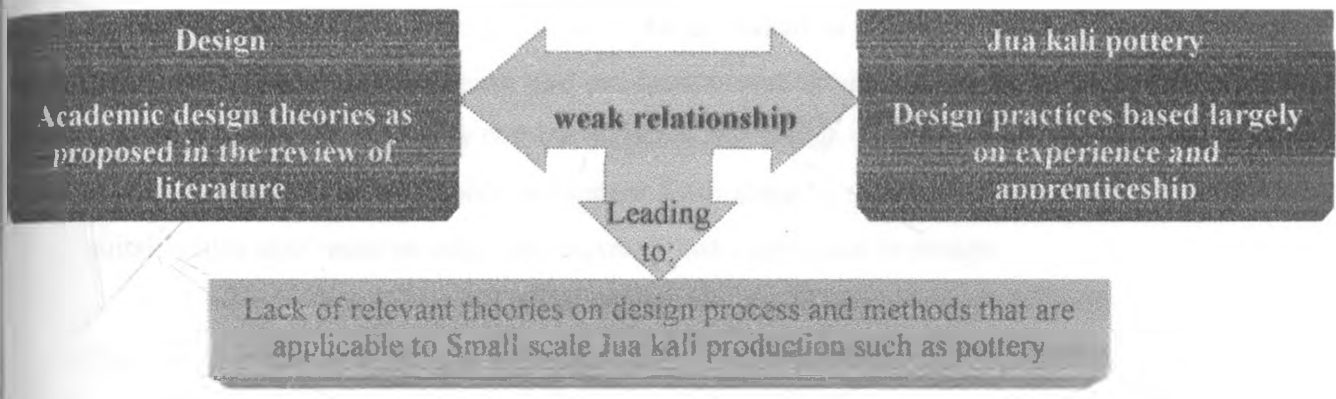
ACA- $\frac{440,000}{2,200,000}$ = 20% of total expenditure spent on promotion

4.5 Relationship between design and Jua kali

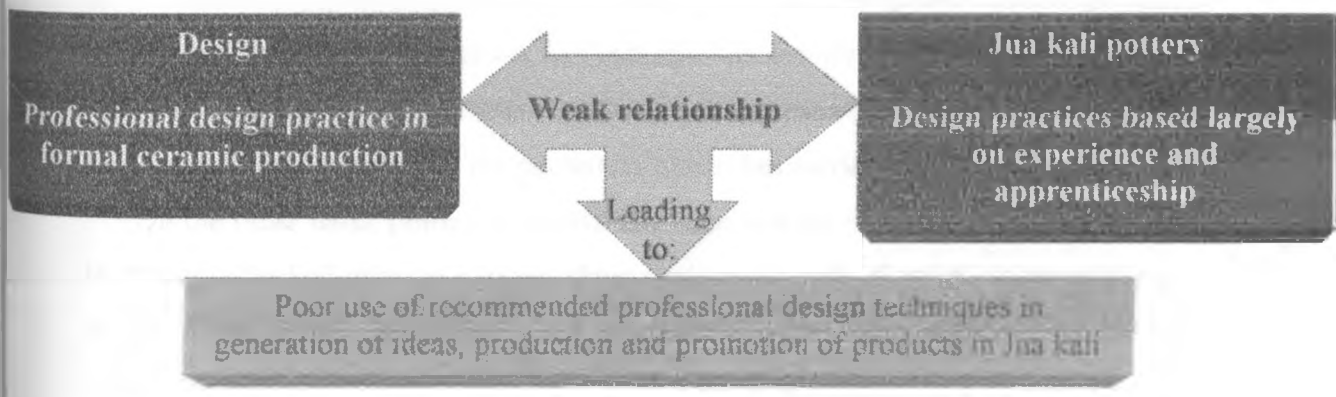
This study set out to prove two hypotheses:

- There is a weak relationship between academic theories in design and design practice in Jua kali pottery
- There is a weak relationship between professional practice in design and design practice in Jua kali pottery.

From the analysis it can be concluded that the two hypotheses have been proven as true. Flow chart 9 demonstrates the first hypothesis while flow chart 10 demonstrates the second.



Flow chart 9: Demonstration of the first hypothesis



Flow chart 10: Demonstration of the second hypothesis

Conclusion

5.1 Summary

Based on the literature reviewed, design has received great attention world wide. Its understanding has developed through the years especially from the renaissance. Notably, present day theories on design have been greatly influenced by the philosophies of the Bauhaus. In particular the tenet that form follows function has shaped the design of industrial products. Literature on design therefore invariably gives prominence to the design of products for machine production. Most of the writers reviewed refer to the realisation of these products as the design process. This process involves the generation and selection of ideas that can best serve the needs of the intended end user. This generation of ideas may require techniques such as brainstorming and the selected ideas are then presented as sketches, notes or models. This is followed by prototyping and production and finally release of product into market. The writers do concur that the stages of this design process are not as clear cut and may require back and forth movement from stage to stage. Arriving at the most suitable idea also requires intuition, exposure and experience in design.

As academic theories on industrial design are geared towards machine production, Africa that is not as industrialised as the rest of the Western world has benefited little from these theories. This seeming failure to industrialise has led to the emergence of small scale manufacture that makes use of largely unskilled labour and local materials to provide cheaper alternatives to industrial products. In Kenya, this small scale production is referred to as the Jua kali industry that mainly involves craft production. Among these, pottery has become a common phenomenon in urban areas but has thus far received little attention in the numerous researches carried out on the Jua kali.

On the other hand, pottery in Kenya has been studied in its historical context and is therefore looked upon as a diminishing traditional craft of ethnic communities. In addition, the design of products in Jua kali pottery has not been studied at all. In view of this I therefore proposed to explore the role of design in Jua kali pottery. The hypotheses that guided the research stated that: there is no relationship between academic theories in design and design practice in Jua kali pottery, and there is a weak relationship between professional practice in design and design practice in Jua kali pottery.

The conceptual framework which is based on the review of literature suggested the three key aspects of generation of ideas, production and promotion of the product are the prominent stages in the process of designing a product which in this case was Jua kali pottery. Based on this, I collected data through observation from two case studies of Jua kali pottery enterprises based in and around the Nairobi city and a third case study of a professional ceramic producer also based in Nairobi. The third case study was used for comparison purposes to demonstrate second hypothesis of the research. I spent time in the workshops of *Paro cultural project, Litoyi pottery* and *African Clay and Arts,* where I collected data through interviews, photography and sketching.

The analysis of this data showed that generally potters' at the two Jua kali enterprises were for one largely unaware of design theories reviewed in literature and did not in most cases employ the conventional methods of design. In particular, the potters did not use recommended techniques such as researching, formal brainstorming or sketching in the generation of ideas. They instead arrived at most of their designs by getting ideas from customers or by imitating designs from the market, catalogues and magazines. In production, the potters showed great innovation in the use of local materials to cheaply produce their pottery. The promotion of the products received the least attention as the potters did not make much use of conventional advertising or marketing methods to engage consumers. A cross case synthesis revealed that the professional ceramic producer which was the third case study employs methods such as brainstorming and sketching in the generation of ideas and uses a higher percentage of the total expenditure on promotion of products as compared to the Jua kali potters. The Professional ceramic producer also uses more efficient methods of production such as electricity powered machines.

In comparing the design process in the Jua kali pottery enterprises with the design process articulated in the conceptual framework, it became clear that the process in Jua kali pottery was cyclic as all the different stages were influencing each other. Other factors such as need for income and customers wants among other things also affected the design process in the cases of Jua kali pottery. On the other hand the design process used by the professional ceramic producer closely conformed to the design process yielded in the conceptual framework that was linear and more formal.

The Jua kali potters were very receptive to the possibility of using conventional design methods as demonstrated by their enthusiasm to participate in the research. Trained in design, I therefore concluded the field work by demonstrating sketching as a technique to generate and present ideas. I also designed samples of catalogues that the potters could use to advertise their products. These formed part of the recommendations of the study. The study also recommended a participatory approach in the establishment of an interactive environment for design academics, professionals and the Jua kali artisans. Such an environment can for one be achieved through fora organised by institutions where designers can interact with jua kali artisans.

5.2 Recommendations

1. Collaboration between the design profession and academia with the Jua kali sector

A participatory approach towards establishing a healthy relationship between design and the Jua kali is proposed as the most effective solution. This approach would entail active involvement of design academics and professionals in conjunction with Jua kali artisans to develop a body of practical theories and methods applicable to small scale production. The onus is on institutions of higher learning to create the appropriate platform for interaction between the design professionals and academia on the one hand and Jua kali artisans on the other. The results of such interaction could yield the success achieved by the Deustche Werkbund society in formed Europe in the early 20th Century as discussed in the review of literature. The Deustche Werkbund was a society of designers, manufacturers and craftsmen who worked together to bring about change in design and architecture. The society championed the cause of functionalism in design, a principle that has largely shaped the design in the 20th Century. The tenets of the Deustche Werkbund have arguably been outgrown by Post-modern design in today's Western world. However the idea behind the formation of such a society may still be valid and applicable to the African situation.

The personal interaction with the potters in the case studies resulted in a thorough understanding of the strengths and weaknesses of the methods that the potters employ in their work. This sort of understanding is useful for the development of design solutions for the potters. A workable solution can therefore only be arrived at through participation and in deep consultation with the potters. Review of literature revealed that the Government and the civil society have not been successful in their attempts to boost the Jua kali sector. This is attributed to development and use of policies that are impractical and unsustainable. It is high time that individual designers developed tailor made design tools for the Jua kali enterprises. Such tools should be practical and affordable for the artisans while remaining lucrative for the designers. Such a move by designers can prove to be competitive and beneficial to both parties as opposed to the exploitation of the artisans by middlemen and curio shop owners.

Examples of the tools that designers can develop for the Jua kali are like training sessions in techniques of idea generation and effective production processes. Designers can also develop promotional packages that include creative advertising

and packaging of products to attract more customers. In particular the artisans need to be exposed to the Internet which presents vast opportunities for learning and expanding their customer base internationally. This sort of training can best be carried out by organisations and institutions that can easily subsidize the cost of such endeavours.

Flow chart 11 illustrates the benefits that would arise from a better relationship between design and Jua kali pottery as represented in white print in the middle. The figure is in the form of a pot and the sizes of the enclosures do not illustrate any quantitative or qualitative values.

Flow chart 11: Proposed relationship between design and Jua kali

2. Use of sketching as a technique of generating ideas by the Jua kali potters

During the fieldwork in the two Jua kali case studies, I conducted a brief exercise to demonstrate sketching as a tool for generating ideas. The potters do not adopt this technique probably because they have never been exposed to it. The response of the potters in both cases to this technique was positive though it would require further research to test its success. The following figures show samples of the sketches I did during the exercise.

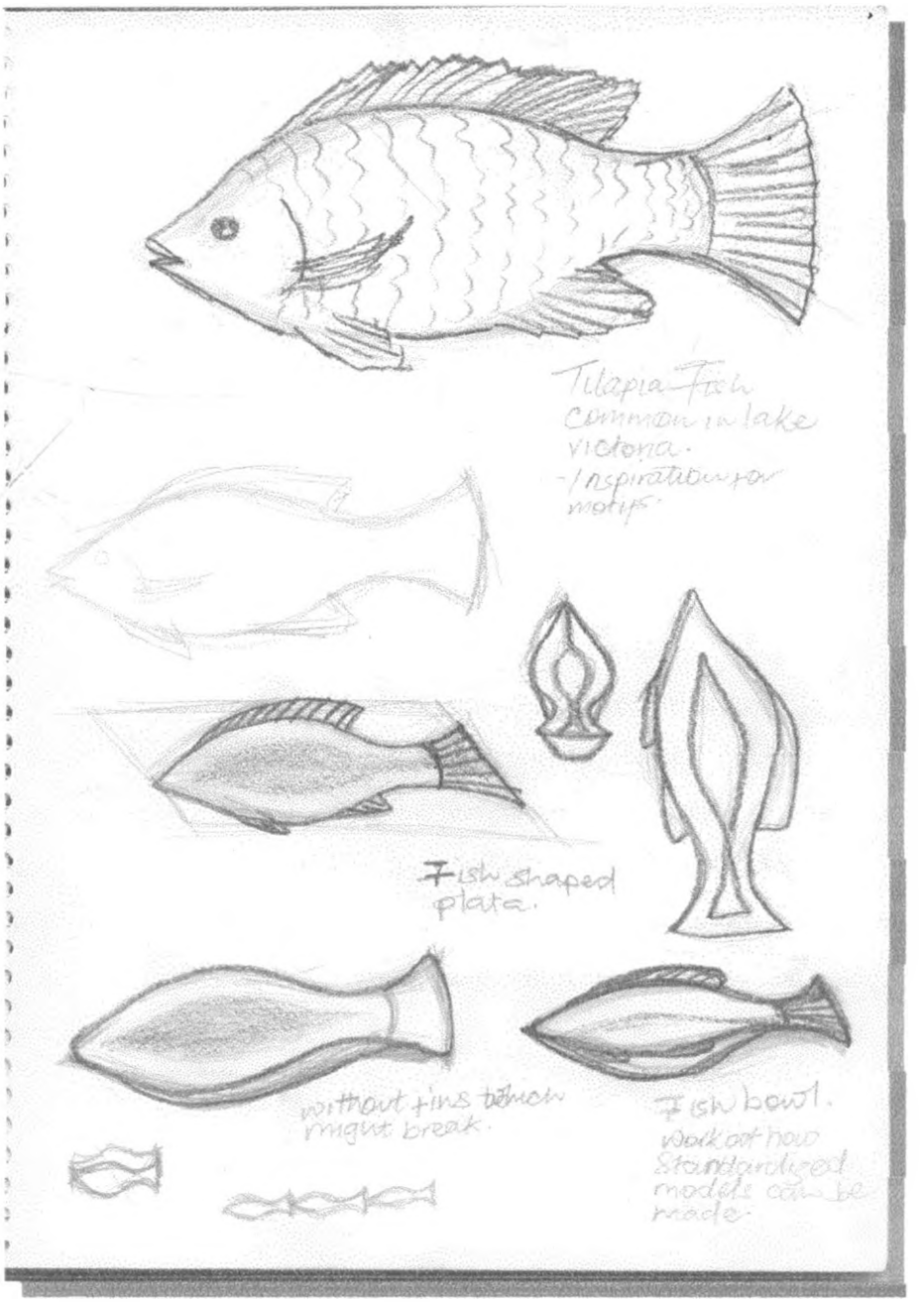


Illustration 39: Sketch demonstration at Litoyi

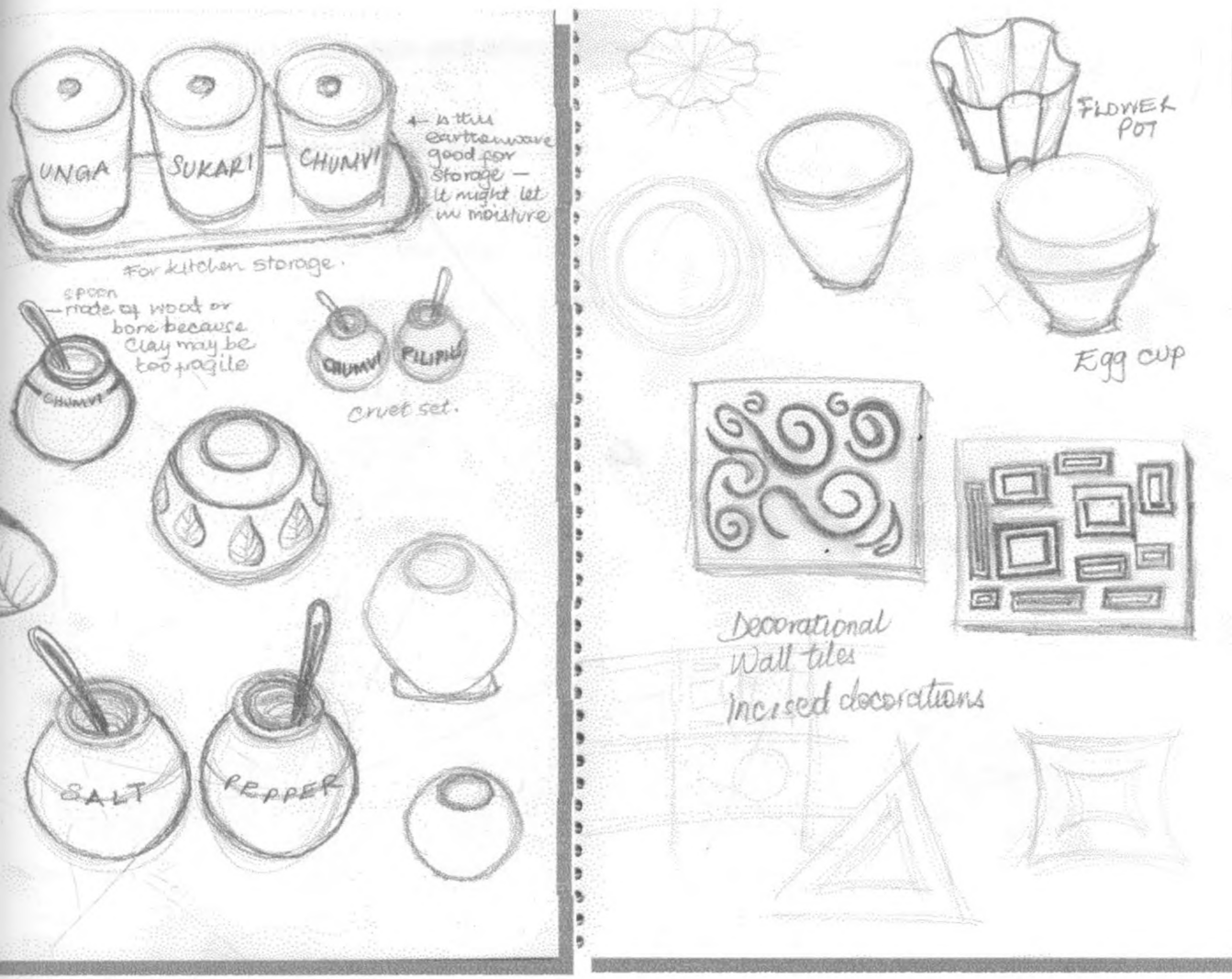


Illustration 40: Sketch demonstration at Paro

These ideas presented in the form of sketches were derived from the existing product range at the two workshops. Illustration 39 was a demonstration of sketching for Litoyi Pottery where there is great use of animal imagery. In this case the tilapia fish that is common in Western Kenya where the potters hail from is here used as an inspiration for a design. Illustration 40 was a sketch demonstrated at Paro cultural project. Here the ideas were for specialised designs for products that come in sets such as cruets or decorational tiles.

3. Use of product catalogues and other promotional tools by the Jua kali potters

The analysis showed that the potters do not have well designed catalogues for their products. A better presentation of the product range is necessary for prospective customers who need to know what choices are available to them. The following demonstrations are samples of catalogue designs for the two enterprises.

Illustration 41: Catalogue design sample for Paro

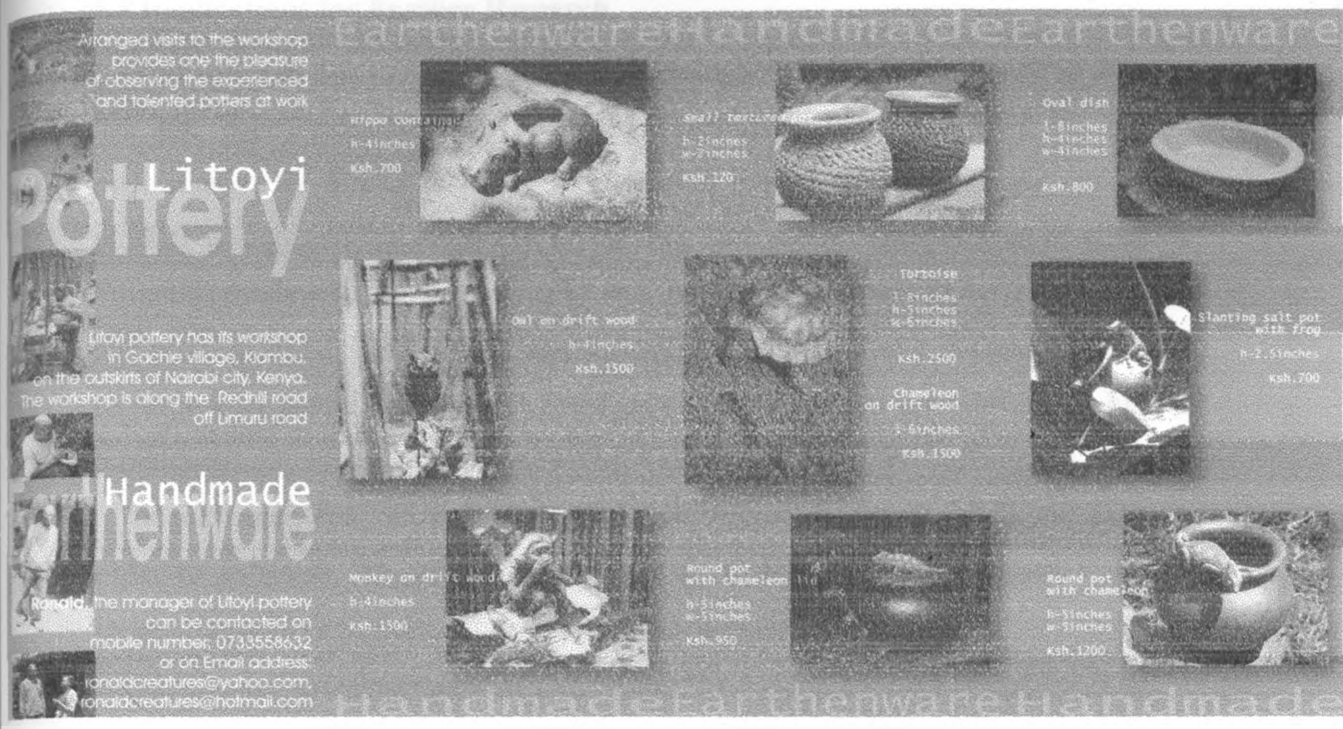


Illustration 42: Catalogue design sample for Litoyi

The catalogue designs show clearly the product range available at the enterprises. Images, measurements and the price of the products are clearly stated. Samples of the catalogues in actual size are available in the appendices. The potters were highly appreciative of the designs. The cost of producing the catalogues may however prove prohibitive as printing costs are relatively high. In this case there is need for further research into the design of attractive and affordable promotional tools as earlier discussed.

Lastly, the design of attractive and appropriate packaging of the pottery products can be used to make the products more attractive while at the same time ensuring their safe storage and transportation. The packaging can have information about the product and the producer. It has become increasingly common in the packaging of craft items to also include stories about the place or people who produce the craft item. Following this trend, the pottery from Litoyi for example can have interesting narrations of how pottery traditions from Ilesi are translated into the urban culture of Jua kali pottery in Nairobi.

5.3 Implications for Further Research

This research was in no way exhaustive. Being an exploratory study of an area that has not been ventured into by many researchers, it has opened up various opportunities for further research. In general, it has become evident that the area of product design and development in the Jua kali sector requires greater attention. From this thesis it has been established that there is a disconnection between academic and professional design theories and Jua kali production. There is therefore need for research into product design and development methods that are relevant to Jua kali production.

In particular, Jua kali pottery needs to be studied in greater detail and extent in order to establish the general nature and development of this industry. Further research into Jua kali pottery may include the following areas:

- A comparative study between traditional pottery and Jua kali pottery within the context of product design and development.
- Development of a relevant design process for Jua kali pottery.
- An experimental study into the relevance of the proposed techniques of idea generation such as sketching in Jua kali pottery.
- An experimental study into appropriateness of types of clay and raw materials used by potters in Kenya.
- A study of the finishing and firing methods such as the use of plant extracts as stains for finished wares.

Appendix I

Discussion with Michael Muchilwa
Monitoring coordinator of International Fair Trade Association (IFAT)
24th March 2006

Ir had previously met the Michael during a session organised by KICK Trading. Several designers were invited to the session with the aim of introducing them to a volunteer programme for product design and development for artisans working in Kisumu. During the interview the researcher sought information concerning the contemporary craft industry and the factors that affect it, the place of pottery in the crafts and the role of design in craft. The interview was unstructured and was recorded and written down later.

Interview Protocol:

- What is the state of the craft industry in Kenya and in Africa in general?
- What place does pottery have in the craft industry?
- Who are the major players in the development of the craft industry in general and pottery in particular?

I introduced myself and my area of interest: My name, academic level and area of research. The thesis is focusing on the pottery industry as a craft within the MSE sector. So far pottery has been studied by anthropologists, archaeologists and historians who look on pottery as a diminishing traditional craft within the cultural context. The industry has therefore received inadequate attention in the contemporary context. With that, the research will also look into the role of design in pottery. Design so far has been categorised as a component of technological development. Business development service providers give importance to design but only as an aspect of advancing technology. The research however hypothesizes that design plays a much greater role and should be given a much wider context. Most of the literature available on MSEs does not touch much on pottery. In 1999, Angela Langenkamp published a book on contemporary pottery and her research was very comprehensive with a sociocultural and economic focus on the potters craft in Kenya in the present day.

With a general idea of what my interests are Muchilwa proceeded to introduce himself. He graduated with a degree in economics from the University of Nairobi and from then on he has worked in various capacities. He has been involved in Small enterprise development for the past 15 years. It has been a sector of interest because of the potential it has. Particularly, he has worked as a consultant with Kisumu Innovation Centre (KICK) involved in supporting artisans through product design development and providing access to markets. The craft work they promoted was non-traditional in the sense that they introduced materials such as wire, hyacinth to make paper, furniture, toys etc. Due to reduced donor funding and poor management the organisation is currently performing dismally. Currently, Michael is the monitoring coordinator of International Fair Trade Association (IFAT) in Kenya. This has enabled him to travel to different countries in Asia, Latin America and Africa. He has

met a vast number of producers and seen a variety of handicrafts and production methods as well.

With regard to pottery, Muchilwa said that though pottery has been seen as a craft product, most of the interventions have been donor oriented done with Community Based Organisations (CBOs). For example the Germans have bought or built some kilns, done some training then left. Most of these donors pay little attention to product design development the result has been that there are large kilns scattered around Western Kenya but are not being utilised. Generally the interventions by Donors, Government and NGOs have been unsustainable because CBOs are weak in capacity especially management and product design and development. Having a charity oriented approach, the interventions usually involve high inputs in terms of overheads and technology applied that soon become unsustainable when support is withdrawn. In general, pottery from Asia and Latin America is considered of better design and quality than African pottery. From Kenya, pottery does not form any significant volume of craft exports due to its bulky nature and the perception that it's traditionally a woman's craft. Craft exports from Kenya are now dominated by soapstone carvings. Wood carvings are on the decline due to the restrictions imposed on cutting down of trees. Jewellery is doing well though it is hard to quantify its significance as it's bought by individuals and taken away in suitcases.

From his experience with crafts, Michael noted that it is commonly believed that Kenyan crafts are poorly designed. The design of products has remained relatively the same for decades. Having worked with both artisans and designers, it is evident that creativity is wanting. Particularly, designers trained at the university are unimaginative. They are unable to generate ideas and it takes time and effort to inculcate innovativeness in them. They are unexposed to international trends and most of their designs are imitative. He proposes that the craft industry can only improve if there are cultural and attitudinal change among designers and producers and the Kenyan society in general. A culture of innovation and design and an appreciation of the same will go a long way in improving the sale of crafts.

Though Michael is trained in economics and sociology, he is keenly interested in design. He has hands-on experience with working with papyrus, water hyacinth, soap and metal. While making paper from hyacinth, he developed a simple technology that helped produce much higher volumes of paper at a shorter time. He has also built a machine that process soap using local materials. Currently he is engaged in designing a new range of products with the artisans formerly affiliated to KICK. Seemingly a new organisation registered as KICK Trading is operating parallel to the original KICK organisation. Michael was not very clear on that. KICK Trading is geared towards gradually taking over the original KICK.

Though current statistics show that crafts from Africa are loosing out to Asian crafts Michael is convinced that African crafts can compete internally. Africa has raw materials that are unique to it. For instance is the availability of soap stone in Kenya which happens to be the best in the world. He hopes to bring together a group of designers who will volunteer to work together and generate new designs for KICK. The discussions can be done over the internet and periodic meeting whenever possible can be arranged. This group of designers can develop into a club that offers its design services to other organisation at a fee. With time, this sought of set up and others similar to it can turn out to be a driving force towards enhancing product design and development in Kenya and in Africa.

The discussion went on to the role of the government. Michael is certain that the most the Government should do is to allow the craft industry and the Jua kali sector in

general to flourish by not interfering in the activities of the entrepreneurs. Like the horticultural sector that has grown markedly, Jua kali can only be driven by the entrepreneurs themselves in an enabling environment.

Interview on 2nd May 2006

Having narrowed down the area of research, the researcher arranged to have a more focused discussion with Michael. The discussion was in the form of an unstructured interview and the information sought was on whether and how artisans engage in the generation of ideas for their products. Currently, Michael is involved in the management of KICK Trading, a business that seeks to promote the products of artisans in Kisumu. KICK Trading is geared towards taking over the running of KICK, an NGO that is now nearly defunct.

Interview Protocol:

- Are Jua kali artisans creative and innovative in their work?
- What are the other challenges that Jua kali artisans face in their work?
- What has KICK done in as far as helping artisans as far as innovation is concern?

By this time I had created a good rapport between me and the interviewee. We went straight to discussing my area of focus. I posed a question about the notion of idea generation and how the artisans deal with it. With this I briefly described idea generation according to design theory as the process of engaging in an active search for ideas for products by employing techniques to do this. Michael was well versed with the notion of idea generation. He has in the past organised brainstorming session which is one of the common ways of generating ideas.

Michael was categorical that the artisans do not generate new ideas and resort to imitating existing products at times with slight modifications. According to him creativity was not in the culture of Jua kali. Most of the artisans he has worked with are motivated towards changing the way they work. They continue using the same modes of production which may be inefficient. Even when he, Michael has developed new ways of production such as in paper production, the artisans he worked with reverted to the old mode of production that they were used to. When KICK was actively involved in product design and development, different designers involved in the programme developed new ideas for products that the artisans could produce. When KICK stopped doing this the artisans continued producing the same products since then. This led to a flooding of the market with the ideas from KICK and to date certain types of products are identified with KICK.

Michael attributes this general lack of creativity to a number of factors. One major one being that the Kenyan society is not culturally open to change and therefore the artisans have little urge to change their products or production methods. The artisans also have special challenges such as poor educational background. Most of the artisans are people unable to secure white collar jobs which are generally considered more prestigious. They therefore approach their work with discouragement. They also lack the entrepreneurial skills especially management skills to run their businesses. They are unwilling to take risks and are comfortable with imitating what is already in the market. At times customers have ideas for products and in this way the artisans may produce a new product.

Michael pointed out that this situation cannot be remedied immediately as it will take time to inculcate an attitude of creativity in the artisans. It might take societal change to bring about substantial change in the Jua kali industry. Michael however has seen some artisans who have managed to overcome this pervasive lethargy and gone on to become successful producers and designers of crafts.

Interview with
Dismas Otieno and Charles Ojwang:
Potters and co-owners of Paro Cultural Project
30th March 2006

Having previously approached the potters and receiving a positive response, I went to the site where the business is located in Shauri moyo area of Nairobi city. Using the protocol for the interview I posed questions on how the business was started and how it is run. This led to discussions on the production methods employed and the target market. The discussion was mainly in Swahili as the potters were most comfortable with this.

Interview Protocol:

- What sort of business is Paro Cultural Project and what are its activities?
- What is the schedule of work at the workshop?
- How do the potters research and source for ideas?
- What is the process of production from acquisition of raw materials to sale of products?
- What is the target market?
- What challenges do the potters face and what is their vision for the enterprise?

The enterprise is situated in Shauri Moyo area and is on a land adjacent to the YMCA. The land is owned by a church organisation that has subdivided and rented out land space to Jua kali entrepreneurs. The entrepreneurs have to construct their own sheds. They have access to electricity and water but they pay for it individually. Paro cultural project workshop like the other sheds is a semi-permanent structure constructed of wood and iron sheets. The business is registered with the ministry of culture as an artists association and they hold certificate of recognition. They also pay a fee to the city council under the trade licence act.

The interview went on to the type of clay that the potters use. They use clay bought from Nyeri district in Central province. The clay is bought from land owner. One lorry carries about eight tonnes that costs about Ksh.10, 000. This is more economical than using a pick-up truck that costs about Ksh. 4000 and carries only about half a tonne. The eight tonnes is used for about one year. They then prepare the clay by mixing it with fireclay, feldspar and kaolin bought from the mining industry in Athi river. This is then added to water, mixed thoroughly and sieved. The sieved slurry mixture is allowed to rest in a trough on the ground for it to dry. During the dry season the clay takes about a week to dry to a workable consistency but in the rainy season the clay takes about 2 weeks to dry.

The potters at the time of the interview were decorating the biscuit fired vessels. They dipped the pots in liquid extracted from the bark of an Acacia tree known as 'oruech' in Luo. Both potters are Luos. The pots are then heated over a charcoal burner known as *jiko* in Kiswahili. After heating, the pots acquired a dark brown finish. To get an almost black finish the vessels are dipped into the liquid and heated several times. At times, they pour the liquid on the fired vessel while they are still in the kiln. After decorating in this way, the vessels are safe to use as the plant extract is not poisonous and does not wash off.

The potters make the pots by using kick wheels that they had made. The vessels when leather dry is fired in a charcoal kiln that the potters designed and had made. The kiln is in the open behind the shed that the potters use to work in and store finished products. They claim that the kiln can fire to about 1000 Celsius. The vessels are fire for about 10 hours and then allowed to cool in the kiln for about 10 more hours. They claim that their vessels are stronger than the pots produced in the rural areas that are fired for about 3 to 4 hours in open fire kilns.

They sell their products locally and have a wide range of customers. These are mostly Kenyans of Asian and European decent, indigenous Kenyans to smaller extent and some foreigners. Their customers use the products mostly for cooking and serving food. The feedback they get from their customers is that the products are safe to use in ovens and cookers. The potters place a premium on customer satisfaction. In terms of promoting their products they only have a business card and a list showing the products and their prices. The cost of producing a brochure or catalogue has proved prohibitive. They go to exhibitions every year in places like Sarit Centre where they pay about KSh. 10 000 to 20 000 for a stand for 5 days. It is during such exhibitions that they meet their customers.

Dismas and Charles have elaborate plans to expand their enterprise but do not have the necessary capital to start them off. They have designed an electrical kiln which they say will enable them to fire stoneware and cost about Kshs. 200, 000 to construct. This will also increase their capacity for production and their customer base. Many of their customers have expressed interest in stoneware. This will markedly move away from the earthenware that is characteristic of the Jua kali.

Interview with
Dismas Otieno and Charles Ojwang:
Potters and co-owners of Paro Cultural Project
5th April 2006

Interview Protocol:

- What is your academic and professional background especially in pottery?
- What is your view concerning the development of pottery in Kenya with special reference to the Jua kali?

Dismas has always had an interest in pottery. He read books on pottery and tried his hand at it from a young age. After completing his Secondary school he visited Oriang' pottery workshop in Nyanza Province in 1988 for one month. He later applied for a course at Eastleigh Community centre (ECC) and studied pottery for three months. He mastered the skill and was then employed as a potter. He worked under the manager for 12 years and was then promoted to a managerial post when the then manager left. He worked in this position for eight years. In this position he was in charge of the work taking place at the workshop. The potters were therefore directly answerable to him. After eight years in this position he started experiencing a strained relationship with the top management. Unable to resolve their differences Dismas decided to quit his job. He came together with Charles Ojwang' and started Paro cultural project in 2004.

Charles reached form two and was unable to continue with secondary education due to lack of fees. He then came to Nairobi and was employed as a casual at ECC for six months. He proceeded to worked at the YMCA Shauri Moyo for a while. He then moved to an NGO known as *Save the Children centre* and worked as a volunteer for two months. The NGO soon started a vocational training centre for the street children. He was employed as a trainer in pottery for four years. The training centre was closed due to lack of funds and at this time Charles joined with Dismas to start Paro Cultural Project.

Charles and Dismas concur that pottery in Jua kali has emerged largely from traditional pottery. During his work as a trainer in pottery at *Save the children*, Charles got to visit various workshops within and around Nairobi. He also visited Oriang womens pottery. In his view, the jua kali potters based within and around Nairobi have learnt their trade through apprenticeship and their methods remain similar to those used by in the rural areas such as Oriang'. He points out that at *Jitegemea pottery, Kazuri, Spinners' web* are some of the workshops that have adopted more industrialised methods of production. Dismas adds that the afore mentioned workshops are not exactly jua kali as they are much more established and are probably registered as cottage industries of medium to large scale. Lastly, the potters made reference to fully industrialised production of ceramic products that is done in large scale and that requires the use of imported materials. Industries of this sort such as Doshi ceramics industry in Nairobi are mass producers of ceramic tiles, sinks and kitchenware. Such industries are far removed from the Jua kali enterprises. as they use highly mechanised methods requiring expertise in machine control

Appendix 3

Interview with
Ronald Ngala Shisundi:
Potter and Manager of Litoyi pottery
14th May 2006

Having been introduced to Ronald by his father Charles Musa, I arranged to meet the potter. Ronald expressed great interest in the research and later agreed to have an interview in which I sought to know about Litoyi pottery and about Ronald and his experience as a potter.

Interview Protocol:

- What sort of business is Litoyi pottery and what are its activities?
- What is the schedule of work at the workshop?
- How do the potters research and source for ideas?
- What is the process of production from acquisition of raw materials to sale of products?
- What is the target market?
- What challenges do the potters face and what is their vision for the enterprise?
- What is your professional and academic background especially in pottery?
- What is your view concerning the development of pottery in Kenya especially in the Jua kali?

The name of the business Litoyi means clay in Abaluyia language. It started in 2004. Ronald started working with clay at the age of eight at Ilesi where his father Charles Musa was also a potter. At this time he would make beads and small sculptures. He learned a lot about pottery from his Grandfather who was also a potter. His Grandfather would make European type crockery that was markedly different from traditional pottery. Ronald finished Primary school in 1992 and was unable to continue with Secondary school education. He came to work in Nairobi in 1993 to work for Fabian his cousin who was a potter at Kingeero. Ronald started his own workshop in Kangemi in 1995. He decided to use clay from Kakamega, his home area because it was stronger than clay from Muranga Central province. He orders the clay by calling his relatives at Ilesi who buy the clay with the money he sends and send the clay to Nairobi by bus. During the rainy season the clay takes long to dry and may therefore take a while to send. Ronald has to send cash money to Ilesi before the clay arrives. With all these hustles clay from Ilesi is still cheaper than clay from Muranga or Nyeri in Central province that are much closer to Nairobi. Ronald is contemplating going back home to Ilesi to produce from there and send the finished wares to his customers. This will be much cheaper than producing in Nairobi where the cost of living especially renting workshop space is high.

While working in Kangemi, he was producing planters and flower pots and was selling to middlemen who would resell them at roadsides in areas such as Westlands in Nairobi city. Due to delaying of payments by the middlemen, he decided to supply in shops or directly to customers. His first customer was the owner of Banana box who would buy from him every week. The owner would give him ideas for new products. He later expanded to supply shops at village market and customers in Runda area of Nairobi. He now exports to customers in France and USA like the organisation 10 thousand villages of the USA. In 2004 he moved to Gachie in Kiambu district on

the outskirts of Nairobi city. He now has plans to expand his enterprise into a training centre for street children who want to learn pottery. Currently he has employed nine people with four of them being casuals. He takes his products to exhibitions where he gets to meet customers. Currently there is no catalogue or brochure for products. He has also run out of business cards.

Ronald is vastly experienced in pottery and traces back the development of jua kali pottery in Nairobi back to his own village. Though most of the potters who initially set up in Nairobi were from Western Kenya specifically from his village, Ronald says that entrepreneurs from Central Kenya, mainly the Kikuyu have also joined the trade in increasingly larger numbers. The Kikuyu entrepreneurs do not come from a background where pottery is done so they have to learn on the job. Ronald further points out that due to excellent entrepreneurial skills, the Kikuyu potters manage to expand their businesses and maintain a larger customer base compare to their Abaluyha counterparts.

Interview with designer at ACA
16th February 2007

The interviewee wrote down the questions and answered them in hand written format as presented below. He did this so as to save on time as a face to face interview would require more time.

Interview Protocol:

- What sort of business is ACA and what are its activities?
- What is the schedule of work at the workshop?
- How are ideas sourced and what methods are used?
- What is the process of production from acquisition of raw materials to sale of products?
- What is the target market?
- What challenges does ACA face and what is the vision for the enterprise?

DESIGN

Our aim has always been to keep African and more specifically Kenyan. This has made our items unique and appreciated by many. Our design process revolves around what happens in our daily lifes.

The main inspiration is from what is around our Kenyan homes and our way of life. Example the artifacts like Maasai Shield, spear drums, traditional stool etc.

Also from our way of life like Pokomo ladies from Coast province of Kenya Pounding cereals in a mortor or Luhya ladies going to fetch water from the river with pots of their heads.

Kenya has very beautyful scenaries and feature that can also form very good designs example the Crying stone of western Kenya, Mount Kenya etc.

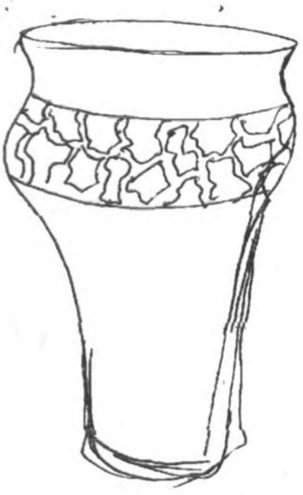
Different Vegetation and wildlife also form a very good source of inspiration in our design development.

Its through the above that we come up with our designs.

Example 1
Looking at a giraffe taking water

- We widen our design by Making families example we can have the same design of a giraffe taking water put on a tea set and flower vases to be used in the same house or room. This will create a common element enabling the items to match each other.

on a Mug.



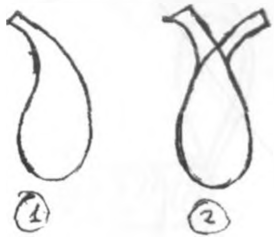
Flower Vase.

Idea generation

40%
12%
8%

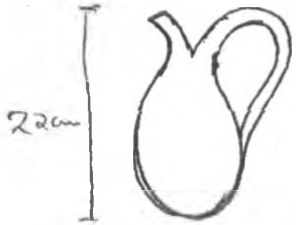
Example 2

Deriving design from gourds



(1) (2)

(3.) Dropping the second gourd to form a handle for a jug.

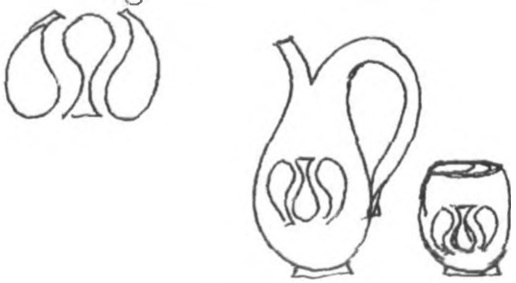


(4) Water/Milk jug derived from a gourd

(5) To get a glass to go with it you think of something that will match the shape of the jug. Example taking part of the gourd (the lower part to form a glass)

(6) For the decoration you can use the same gourd shape to create a pattern or have a different decoration all together.

Example (i)



Example II

- Have the same pattern repeating.

Example III

Have a different decoration on the same set example Maasai herdsmen.

N/...

- Tuakali people work mostly by looking at already done work. The main method being duplication. They do not have original ideas, or they do not improve on the designs they are working on.
- Tuakali people do not consider elements and principles of design when doing their work. The main aim for them is for the item to serve a particular purpose. Example when making a jug it can be too heavy. They do not consider that some weight (i.e water) will be added to it so the jug has to be light.

- Clay cost - 1 tonne Ksh 10,000 (clay + Transport)
  In a year we use 2 tonnes.
- Kaolin 1kg = Ksh. 28.
  In a year we use 600kg
- Feldspar 1kg - Ksh. 32.
  In a year we use 750kg
- Silica 1kg Ksh. 31
  In a year we use 750kg
- Grog 1kg = Ksh. 30
  In a year we use 160kg
- Fire clay 1kg = Ksh. 30.
  In a year we use 160kg

110000 = 5%

= 100%

22
110 000000 ÷ 22
10

2200000 × 5 / 100

11000

Building Techniques and Processes

- Hand Building Techniques
  - Pinch
  - Coil
  - Slab
  - Thumb
  - Bashing
  - Throwing on wheel.

N/B/ At ACA we Mainly throw on the wheel because it is faster, accurate i.e you can make uniform items

Decoration Techniques

- Relief - Raised
  - Intaglio (Sunken)
- Slip trailing
- Engraving
- Incising
- Inlaying

FIRING

Application of heat on greenware to make them hard and durable.

Done in furnace called Kilns

Types

- Traditional
- Gas
- Electric Kilns.

N/B. At ACA we use an electric kiln.

We do two types of firing. The first firing is called bisque / bizquit firing.

After the thrown items have dried for about a week and changed colour to green. we fire them to a temperature of 900°C. (Bizque firing)

- After the bizque firing we apply glaze items we do a second and final firing called Glaze firing. we fire it up to 1100°C.

GLAZING

Glaze - Vitreous substance applied on clay articles to make them - Durable, non-porous & Attractive.

We do glaze application by.

i) Dipping
ii) Brushing
iii) Pouring
iv) Spraying - using a compressor

PROMOTION

We mainly promote our items by.
i) Business Cards
ii) Brochures
iii) Attending fairs and exhibitions. e.g at Sarit Centre, SOKO SOKO at Holiday Inn and Christmas Craft fair at Ngong Race Course.

Expenditure on Promotion in a Year

Business Cards	Ksh.	9,000
Brochures	Ksh.	50,000 (Plate + Printing)
Sarit Exhibition	Ksh.	18,000
SOKO SOKO "	Ksh.	9,000
Christmas Fair	Ksh.	24,000.
	Ksh.	110,000

N/B/- The fairs we attend are annual events and we always put them on our calendar

- Promotion takes about 5% of our production cost.
- We have found the exhibitions to be very effective because that is where we get most of our customers since we do not have an outlet of our own.

KINDS OF CUSTOMERS

- We use our glazing room as a showroom where customers can come and choose from a wide range of varieties that we have.
- Some come with their own designs which we do or improve on them.
- Mostly we prefer working on orders to avoid locking our capital

- Our customers include individual people and organizations especially the Hotel industries. Most hotels have become our constant customer and its their orders that keep us occupied most of the time. example.

① Holiday Inn in Westlands - Nairobi
② Sarova Hotels – Lion Hill lodge
– Mara Lodge
③ Serena Hotels – Amboseli lodge
– Kilaguni
– Mountain lodge
– Mombasa Beach Hotel
– Mara lodge
④ Olturkai lodge in Amboseli

- We do a wide range of items i.e Salad bowls, plates, Cups, buffet bowls, Candle Holders, Wine buckets, butter dishes etc.

Langenkamp, A. (1999) Pages 274 to 277
Description of Jua kali pottery in Nairobi

Ethnicity and socio-cultural linkages play a determining role in the evolution and line-up of the contemporary urban pottery scene. While Luyia potters generally prefer to team up with other Luyias, they often complain about unfair and dissatisfying employment and payment conditions if working for a Kikuyu406. Likewise, potters of Kikuyu origin are found to prefer to work for or together with members of their own ethnic and cultural background. By taking a closer look at the personal history and professional career of the various potters and pottery enterprises, we find two evolution lines, one based on Luyia origin and the other on Kikuyu origin. The Luyia lineage can be traced back to the early 20th Century when some passionate Isukha potters with an entrepreneurial mind, such as S.V. Musa, first came into contact with European crockery and started to copy the same with the view to sell them to the ›*Whites*‹. The story of S.V. Musa and his oldest son, Charles M., who led the potter's craft at Ilesi to greater economic heights, has already been revealed. Having experienced the dual importance of extended exposure and of being well connected to the market and new and/or ongoing development movements such as the jiko programmes, which started off during the 1980s, Charles M. first trained his oldest son, John M., before he sent him to Nairobi to work for KENGO. As KENGO had to close its jiko production unit in 1995, John M. decided to stay at Nairobi and start his own workshop, the Oriental Pottery, just as his cousin Fabian L. did some years earlier.

While John M. has established his workshop at Kangemi all other workshops run by Luyia potters, namely the NJKPE, the Wanyonji Pottery, the Ziku Pottery and the Junior Jua Kali Pottery are located in close reach of one another. However, is was generally observed that Isukha potters socialised, assisted and co-operating closely with one another when the need arose.

To cut a long story short, I would like to illustrate the workshops in brief:

Oriental Pottery

– As mentioned before John M., the oldest son of Charles M. of Ilesi founded the Oriental Pottery, in 1995. John M. employed 4 potters, all of whom are close relatives from Ilesi.

Wanyonji Pottery

– The pottery is named after its founder and current owner, Wanyonji, a Bukusu potter of western Kenya. In February 1997 Wanyonji employed two other Luyia potters, who are either of Maragoli or Bukusu but not of Isukha origin, and one casual, who prepares the clay, dries the pots, applies the red ochre slip and polishes the pots before firing.

Ziku Pottery

– The Ziku Pottery is owned and run by Silvester E., an Isukha potter and former employee of Fabian L.

– After having worked at the NJKPE for some time, Silvester E., a skilled potter and Fabian's right hand man, Bonifaz, a ›learned‹ Luyia from Kakamega who took care of the management of the NJKPE in Fabian's absence, teamed up and started a small workshop of their own at the Muthure Shopping Centre in 1995.

– However, Silvester E. and Bonifaz soon separated again over disagreements on the running and financial management of the workshop.

– While Silvester E. called on his brother, Patrick E., and a cousin named John, who were both working for Fabian L. at the NJKPE, to come and work with him at the Muthure Shopping Centre, Bonifaz started the Junior Jua Kali Pottery in the close vicinity of the above mentioned shopping centre.

Junior Jua Kali Pottery

– Bonifaz, who had worked for Fabian L. after completing secondary school, enrolled at the Kenyatta University for further studies in 1996, shortly after he and Silvester E. separated.

– While Bonifaz attended to his university studies he had rented some workshop facilities at Muthure and employed a cousin, a brother to John working at Ziku Pottery, another young Isukha man, an uncle and the uncle's son, who is approximately 12 years of age and had to leave school to support his father who could not raise the money required to meet the expenses of his primary school education.

– As his employees hardly spoke any English the management of orders and the marketing of the pots depended on Bonifaz.

While the above mentioned pottery enterprises are run and managed by Luyia the following, namely the Kingeero Pottery, the Pennga Pottery, the Kariuki Pottery, the Karanja Pottery, Terra Ltd., Miaki Jikos and the pottery of Ibrahim K.M. are run and managed by Kikuyus.

Kingeero Pottery

– The Kingeero Pottery is owned and managed by Njenga, a Kikuyu and former gardener of Kinyanjui.

– Njenga, initially trained by Fabian L. while working at Miaki Jikos during the 1980s, started a joint venture business with Fabian L. in the early 1990s. After they terminated their business partnership in 1995, Njenga remained with only three employees, while the majority of the Isukha potters preferred to stay with their relative, Fabian L., and work for him at the NJKPE.

– By 1996, the number of Njenga's employees had declined further and work at the Kingeero Pottery was very low while the NJKPE, which is located adjacent to it, was flourishing and attracting large orders for export and for hotels and restaurants.

Miaki Jikos

– Miaki Jikos was founded by Dr. M. Kinyanjui in the early 1980s and started off as a production unit of KCJs. With Kinyanjui being technical advisor to the Kenya Renewable Energy Development Programme, Miaki Jikos came to play a key role in the development and improvement of energy saving *jikos* designed and produced in Kenya. Not being a potter himself, he employed Fabian L. to manage and oversee the workshop activities and production of clay liners at Miaki Jikos at Nairobi.

– When the market showed signs of saturation leading to a dramatic decline in wholesale prices for clay liners and KCJs in general, Kinyanjui decided to concentrate on his advisory role and encouraged Fabian L. to engage in the production of planters etc. alongside the *jikos*. In order to do so Fabian L. called on fellow potters from Ilesi to join him at Miaki Jikos. Due to an extended stay in Tanzania, Kinyanjui decided to scale down and even close his pottery workshop for some time in 1989.

– However, in 1997 he reactivated his pottery enterprise and worked on the design of some appropriate versions of fuel-efficient wood-stoves.

Terra Ltd.

– The story of Terra Ltd. has been already been exposed in Chapter 9.2

– It is, nevertheless, incorporated in this listing as it has been a stepping stone for a

number of Luyia and Kikuyu potters who worked for Terra Ltd. and/or received their initial pottery training at Terra Ltd.
– Terra Ltd. split from Jerri International in the early 1990s and established its workshop facilities on the Ngong Road in Nairobi.
– While Helen K., a Kikuyu herself, employed some trained Kikuyus to set-up the ceramic component of Terra Ltd. and manage the overall running of the workshop, she drew on the technical expertise and experience of Luyia potters to create large sized hand moulded pots and planters for sale at Nairobi.
– While looking for new design inputs she teamed up with Paula and Judy C., two interior designers of European origin, during the early 1990s.
– As this business co-operation was not to the satisfaction of all parties, Paula and Judy C. left Terra Ltd. in the company of two skilled and devoted potters from western Kenya, an Isukha of Ilesi called Ernest and a Maragoli of Mbale called Joseph. While the latter initially moved their production to the under-utilised workshop premises of M. Kinyanjui, they later moved operations to Paula's home. Following a further disagreement between Paula and Judy C. in 1996 they moved their production once again, this time to the residence of Judy C. in Nairobi. Being without a kiln Paula and Judy C. entered into an agreement with Clayworks Ltd. to fire their products.

The pottery workshop of Ibrahim K.M.

– Ibrahim K.M. maintains a full-time employment with Terra Ltd. where he supervises all activities in the pottery workshop.
– It is only during his own spare time, in the evenings and during weekends, that he produces simple planters himself and trains young men who have expressed interest in the craft. Unlike the other pottery enterprises mentioned before, with the exception of Terra Ltd., Ibrahim K.M. does not produce any large sized hand moulded planters but concentrates on wheel thrown items instead.

Kariuki Pottery and Karanja Pottery

– Kariuki and Karanja are Kikuyus who learned and developed their pottery skills while working at Terra Ltd. before they started their own pottery enterprises.
– Although I was not able to visit their workshops I was told that neither Kariuki nor Karanja were employing any Isukha potters from western Kenya.
– Fabian L., who knew about their work but did not maintain any regular contact with them, said that they only produce V-shaped planters as they did not know any better, because of their poor pottery background and lack of experience and expertise in engaging in more difficult vessel forms or sophisticated designs.

Pennga Jua Kali Pottery

– P. Pennga, a Kikuyu, was introduced to clay and pottery production during the 1980s while working as a watchman for Kinyanjui. As Pennga expressed his interest, the latter willingly agreed to teach him how to make KJCs in Pennga's spare time.
– When Kinyanjui closed down Miaki Jikos during the late 1980s, Pennga changed employer and started to work for Richard K., a Kikuyu businessman who had established Jerry International during the late 1970s. Having been introduced to potmaking
by Fabian L. at Miaki Jikos Pennga decided to work for Terra Ltd. after it split from Jerry International in 1990.
– After having worked at Terra Ltd. for some time, Pennga started his own pottery enterprise along the Kikuyu Road near to Muthure Shopping Centre in the outskirts of Nairobi.

– In 1996 he was running the second largest Jua Kali pottery enterprise in Nairobi and employed nine people, five Isukha and four Kikuyu.
– Except for Rachel, a Kikuyu saleswoman and marketing assistant who had been working for Kinyanjui before, all of his employees were male.

All workshops mentioned in Figure 6, following herafters, use simple wood fired kilns. With the exception of the kiln at Terra Ltd., all kilns are built out of old broken pots and jiko liner joined together with a clay-sand-murram mixture. As with the NJKPE, all of the workshops experienced serious problems with the cracking of their pots as they operate under very simple and often inadequate conditions: under iron-sheet roof shelters and/or houses which turn out to be very hot during the day and cold at night. As a result the drying of large sized pots becomes rather cumbersome. Due to the heat during the day the pots dry unevenly and can be completely dry at the top while their bottom might still be wet or even unfinished which causes extensive tension in the material as it shrinks up to 15 % in size during the drying process.

The potters originating from Ilesi co-operate closely even on a long distance, interregional basis, which gives them the potential to draw on a large work force and meet big orders in a short period of time. Meanwhile most of their Kikuyu peers operate on rather isolated and individual business terms. However, they join forces with other Kikuyu businessmen as in the case of Kariuki, who has teamed up with a number of Kikuyus running road side flower and tree nurseries in Greater Nairobi and purchase all their planters and garden accessories from him.

Apart from those potters and pottery enterprises mentioned above there are a number of Kenyan businessmen and potters alike who have established so-called Jua Kali Enterprises away from Nairobi. From amongst them I would like to draw attention to the late Simon M. at Muranga, Festus K. and Morris L. at Meru. Simon M., a Kikuyu businessman who was married to a potter, engaged himself in the production of KCJs and Maendeleo Jikos following a nation-wide campaign launched by KREDP and the Special Energy Programme during the 1980s. Once working in clay he ventured into the production of items such as water-coolers, toilet-bowls, pressure cookers and other items of the ›modern‹ household environment. Meanwhile his wife continued to produce traditional Kikuyu cooking-pots for local consumption and sales at Muranga.

Festus K., a Meru and a retired schoolteacher, who was fascinated by an exhibition of energy saving cook stoves at the Nairobi Show, in 1983, sought information and technical assistance on the same. As he himself was growing old he decided to send his oldest son to attend a training in jiko production at Nairobi. On his return he trained his younger brother and together they established a jiko production workshop at Meru Town during the late 1980s.

After a successful period boosted through the heavily subsidised dissemination of the *jikos* by the SEP, sales went down and caused the family enterprise to collapse after the SEP programme was phased out407. As the
family business at Meru was experiencing serious constraints one of Festus's sons signed a contract with the Bellerive Foundation in Nairobi, where he received additional training in the production of institutional wood-stoves during the early 1990s. Equipped with additional expertise and a skilled work force of Isukha potters, the latter returned to Meru in 1993 with a view to establishing a production unit of his own. However, the institutional stoves did not yield the expected response causing the enterprise to crash soon after it was put into operation. One of the former employees, Morris L., an Isukha potter who already had a history of working as a potter at Ilesi, at Kitale and with Fabian L. and Kinyanjui in Nairobi, decided to establish himself at Meru where pots seemed to be in short supply.

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