

ENTERPRISE CLUSTERS IN AFRICA: ON THE WAY TO INDUSTRIALISATION?

DISCUSSION PAPER 366

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SUMMARY

Recent literature on industrial districts and enterprise clusters suggests that the grouping of enterprises into sectoral and geographic clusters gives rise to a certain collective efficiency that can enhance competitiveness and foster industrialisation. This paper reports the results of an analysis of eight African enterprise clusters: three in Kenya that were the subject of original research, and five others for which substantial secondary literature was available. The study addresses three questions: **First**, do the clusters have the characteristics associated with successful industrial districts elsewhere? **Second**, to what extent have they been able to respond to opportunities and shocks in their environment? And **third**, how closely are these clusters linked to the wider industrialisation process in their countries? The research found that only two of the eight clusters have the internal structure and wider market access that generally go with successful industrial districts, but that even these two are at very different levels of development. The rest of the clusters consist almost entirely of microenterprises selling in localised markets. Nearly all of the clusters could be said to be in some way involved with their country's industrialisation process, but the nature of that involvement varies with the level of development of the cluster. The first group consists of small-enterprise clusters that lay the groundwork for industrialisation by developing basic skills and fostering the transition from craft to factory production. The next group of clusters, which has clearer signs of collective efficiency, is characterised by greater specialisation and differentiation of firms, bilateral production linkages, and somewhat higher technologies. The final group consists of clusters with large as well as small firms that aim at wider markets and are generally able to produce competitively. The paper draws implications from the findings about the appropriate support for clusters at each stage, and makes suggestions for further research.

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1 INTRODUCTION¹

The place is alive with activity and the sound of hammers on metal. This is Kamukunji, one of Nairobi's best known *jua kali* sites.² Hundreds of artisans and their trainees are fabricating metal products – brightly painted boxes, wheelbarrows, charcoal stoves, cooking pots and utensils, and many more – for sale to wholesalers and direct to consumers. The place is hot and dusty, with few amenities. Most of the artisans still work without shelter, despite the addition over 10 years ago of a few large roofed sheds. Less than a kilometre away is Nairobi's industrial area, home to companies with names like Metal Equipment, Zenith Steel, New World Industries. Although the roads are breaking down and the power supply is erratic at best, the factories of the industrial area immediately convey the impression that industrialisation is happening in Kenya. But is industrialisation confined to the factories? Or is Kamukunji somehow part of the process?

This paper explores the link between clusters of enterprises, many of them not unlike Kamukunji and the industrialisation process in Africa. More specifically, the aim is to examine the ability of clusters to make a positive contribution to developing Africa's capacity for industrial activity. Original research has been carried out on two sets of enterprise clusters in Kenya: one of motor vehicle repair enterprises in Nairobi and Thika, and another of fish processing in the Lake Victoria region. As background for those studies, a review of secondary sources of information on clusters in Africa was conducted. The information was difficult to obtain because, like much African scholarship, it is more often contained in conference papers and consultancy reports, than in published books or articles. An initial attempt to gather materials by faxing requests to relevant departments in African universities failed miserably. What is reported, therefore, is the result of mining my own academic network. Not surprisingly, most of the studies reported are from English-speaking countries, and a disproportionate share of the references come from Kenya. The coverage of clusters is not exhaustive, nor do the studies of clusters reported use similar methodologies or pursue the same questions. My selection was based on two criteria: **first**, the existence of a single study or group of studies describing the cluster that provided information on the key variables in the analysis; and **second**, a pre-screening that attempted to identify clusters with actual or potential links to the industrialisation process. Hopefully, as this paper is shared and discussed across the continent, additional materials will surface, enabling us to correct the errors and misconceptions that may have arisen from the imbalance of case study representation.

The original research focused on two questions: **First**, do the African clusters have the characteristics associated with successful industrial districts elsewhere? And **second**, to what extent have they been able to respond to opportunities and shocks in their environment? To the extent possible from the available material, the paper has addressed the same questions in the review of the case study material. The analysis attempts to go beyond simple answers to these questions to explore a **third** question: how closely are these clusters linked to the wider industrialisation process in their countries?

The paper is organised into six parts. Following this introduction is the theoretical discussion of the relationship of enterprise clusters to industrialisation. Then Part 3 examines three clusters that, although at a very basic level of development, appear to be laying the groundwork for future industrialisation. Part 4 analyses three other clusters that show unmistakable signs of actual industrialisation, and Part 5 examines two clusters

that have some of the internal diversity and ability to reach wider product markets typical of industrial districts. The final section draws conclusions from the analysis.

2 ENTERPRISE CLUSTERS IN THE INDUSTRIALISATION PROCESS

Before attempting to establish the theoretical links between clustering and industrialisation, it is useful to delineate more precisely the meaning of an enterprise cluster.

2.1 Enterprise Clusters

The term **cluster** is used in two somewhat different ways in the industrial development literature. Porter (1990) uses the term to designate a group of firms engaged in similar or related activities within a national economy. Although Porter (1990: 761) believes that the relationships within an industry cluster benefit from firms being located near one another, he does not consider geographic proximity to be a defining characteristic of clusters.

The second use of the term is explicitly geographic. According to Schmitz (1992), a cluster is characterised by **a geographic and sectoral agglomeration of enterprises**. This approach has its roots in Marshall's (1890) analysis on the textile and metalworking districts of England, Germany, and France during the latter half of the nineteenth century. It has recently been elaborated in studies of highly successful industrial districts in various parts of the world (see, for example, Piore and Sabel 1984; Zeitlin 1989; Storper and Walker 1989; Becattini 1989; Sengenberger and Pyke 1992; Humphrey 1995).³

This study adopts the second definition, because geographic proximity appears to be particularly important in developing countries where poor infrastructure, weak information systems, and cultures that place high value on face-to-face communication are the norm.

The discussion of developing country enterprise clusters tends to focus on how closely they resemble successful industrial districts elsewhere. This is a useful and perhaps necessary exercise, but not the end-point of cluster analysis. The many clusters that fail to measure up as industrial districts are not a homogeneous group, and the differences among them may well provide important insights into their potential as means of industrialisation.

Clusters can also be understood by examining their different patterns of specialisation and cooperation. Pedersen (1997: 23–24), from a preliminary analysis of African clusters, identifies four general types: (1) the diversified industrial cluster; (2) the subcontractor cluster; (3) the market town or distribution centre; and (4) the specialised petty commodity cluster, with enterprises specialised horizontally. The breakdown has obvious roots in the African reality and, as Pedersen's (1997: 27) conclusions show, is useful in tailoring policy to a particular setting. The typology is less helpful in furthering the analysis of cluster dynamics or in identifying the contribution of clusters to the industrialisation process.

2.2 Clusters and the Industrialisation Process

Industrialisation, like the broader process of development of which it is a part, generally involves increasing complexity of production which, in turn, demands greater reliance on others for certain activities (Mead 1994).

Enterprise clustering can affect industrialisation by making it easier for this process of specialisation and differentiation to take place.

When firms undertake related activities in close geographic proximity, both the immediate environment and the firms themselves are likely to change. The environment begins to adapt to the presence of the firms by attracting customers, traders, workers with related skills, individuals and firms wanting to offer services, and still more enterprises anxious to benefit from the markets being created. Old institutions change and new ones spring up. Some developments happen spontaneously; others occur only when the firms in the cluster take collective action. For example, traders may simply appear because they heard of the existence of the cluster, but government may have to be persuaded to improve infrastructure.

As the environment changes, so do the firms. At its most basic level, clustering seems to encourage information sharing and opportunities for learning new techniques and designs. Sometimes firms then modify their own operations. One firm may specialise in some aspect of the production process while another turns from production to trade in inputs or final products. Still another firm may develop links with traders who visit the cluster.

In short, clustering appears to have the potential to enable African countries to overcome or ease some of the barriers to industrial development. By increasing market access, fostering communication and information sharing, facilitating technological upgrading, increasing efficiency, and contributing to the development of supportive institutions, clusters can build industrial capacity. In this way, clustering can provide gains not easily available to dispersed enterprises. These gains have been termed **collective efficiency**, defined as the competitive advantage derived from local external economies and joint action (Schmitz 1995).

Schmitz (1995) highlights the two dimensions of collective efficiency: the planned and the unplanned, or in Nadvi's (1996) terms, the active and the passive. External economies are rooted in the fact that the benefits of economic action tend to spill over to other actors. The external effect is an unintended by-product of some other activity (Mishan 1971). Schmitz (1997: 8) further argues that responding to opportunities and crises requires shifting gears from the passive aspects of collective efficiency (external economies) to active collective efficiency (Schmitz 1997: 8). Before discussing these in greater detail, however, it is useful first to consider some aspects of the environment in which clusters are situated.

2.3 Economic Context for Clustering

Each cluster operates in a particular economic context. This context, which is known to be critical to the performance of individual firms, should be similarly important to the growth and development of enterprise clusters. Three elements, borrowed from the industrial organisation literature (see, for example, Scherer 1980) and institutional economics (see Williamson 1985, North 1990, Langlois and Robertson 1995) seem pertinent: the nature and size of the product market, available economies of scale and scope, and the institutions governing exchange relations.

2.3.1 Nature and size of product market

A cluster might be well-endowed and operating efficiently, but without a market for its products, it will die. Markets have always been in the background of the discussions of clusters and flexible specialisation, but they have not always received the explicit analysis they need and deserve. A full treatment of the subject would require another paper, so this discussion will focus on two aspects only: the nature of the product and the sticky issue of market size.

The nature of a cluster's products obviously has an impact on the way they are marketed. Some products of small enterprise are inferior goods for which demand can be expected to fall as consumer incomes rise. Stoves and cooking utensils made of scrap metal, and rubber tyre sandals are two good examples of this type of product. Consumer, intermediate, and capital goods have different markets and require different marketing strategies. Perishability influences marketing channels. Many food products require special handling, even after processing, and must be brought to market much more quickly than, say, furniture or clothing. The relationship between the production process and the acceptability of the final product is another consideration. Some products can be made equally well by craft or factory methods, but others, especially traditional handicrafts, lose a significant portion of their market when they are machine made. The list of considerations could be extended almost indefinitely. The point to be emphasised is that the nature of a cluster's products has a direct bearing on whether a cluster is likely to industrialise and, if it can, how the industrialisation process needs to proceed.

Market size, both the number of participants and their geographic spread, is also critical to cluster development and the larger process of industrialisation of which it is a part. Schmitz (1997: 11–12) underscores this point when he states that 'clustering can give rise to successive layers of specialisation **provided** that the **overall** scale of demand grows' (emphasis in original). The simplest conceptualisation of market size is that it is defined by the size of the local population and the level of their purchasing power. By this measure, markets in Africa are small and access to foreign markets difficult. Small national populations, low incomes, poor infrastructure, and movement restrictions left over from colonial times are among the reasons for small domestic markets. Weak distribution systems help to keep markets small and segmented in many African countries (Pedersen 1997). The lack of a large well-functioning wholesale trade system, or where such systems exist, their bias towards the products of large industry forces many small producers to sell their products retail or carry them to distant markets themselves.

The problem of small domestic markets is one that has to be faced squarely by individual enterprises and enterprise clusters, but it is not insurmountable. Two broad strategies are available: firms can extend their market geographically, or they can attempt to capitalise on the smallness of the markets they face. The first option may involve expanding within the domestic market or entering foreign markets. The choice will depend on a number of factors, including the nature of the product; but generally speaking, broadening domestic market coverage is easier for most small-firm clusters than exporting.

Barriers to entry into foreign markets include problems with the products themselves (poor quality, poor packaging, etc.), and environmental factors such as poor infrastructure for exporting (especially problematic for perishable goods), lack of information flow, and red tape and corruption. Despite these difficulties, African industry can be competitive in some areas. The Regional Programme for Economic Development identified

export opportunities for garments and home products in both the US and European markets (Biggs *et al.* 1994, 1996). One of the case studies reported in this paper documents the export challenges and opportunities faced by the Kenyan fish processing industry.

Efficient small firms have another option open to them. They can attempt to capitalise on the small domestic market. Dawson (1992: 35, 37) argues that the small size of most domestic markets in Africa can actually be a boon to small enterprises. Where markets are small and relatively specialised, producers who can manufacture small batches efficiently can out-compete large firms.

2.3.2 Available economies of scale and scope

The size of output is clearly related to market size. The entrepreneur who can reach a larger market can produce more, and can often gain more than proportionately from the increased output. This is the result of what economists call 'increasing returns'. The most familiar form of increasing return arises from scale economies, but at least as important, especially in situations where the market for any given product is likely to be small, are economies of scope.

Increasing returns arise when an increase in all inputs leads to a more-than-proportional increase in output. Even when a firm is able to produce more efficiently at higher levels, scale economies may not actually be available. **Available** economies of scale are related not only to market size, but also to investment in machinery and the opportunities for division of labour in production. At the level of production and investment, it appears that scale economies could be available to African enterprise in many subsectors. African firms typically operate at suboptimal size, even compared with those in other developing countries (see Table 2.1). Although some of the differences in average plant size between industrialised and developing countries may be due to factors such as the use of different technologies, many African firms, including those in most of the clusters discussed below, appear to operate at an uneconomically small scale (Pryor 1972, Cortes *et al.* 1987: 21–27).

Table 2.1: Average plant sizes, selected industries

Industry	High-income countries		Middle and low-income countries	
	N	Average size (no. of workers)	N	Average size (no. of workers)
Fabricated metal	9	38.3	9	15.4
Apparel	9	43.0	14	13.4
Furniture	7	55.4	13	4.4

Source: Cortes *et al.* 1987: 222–23

Although the general distinction between craft and factory production is useful to bear in mind, it is also important to recognise that in practice the two can be mixed. Sverrisson (1992: 105) speaks of mechanisation being inserted bit by bit into the prevailing craft mode of production. First one process is mechanised, then another. At any given moment, the use of specialised machines is likely to be combined with the continuance of unspecialised labour. The result is a production process in which each artisan works on his own piece, using

whatever machinery is available, but without collaboration with other workers, from the beginning until the item is finished. One of the major challenges faced by entrepreneurs as their firms grow is changing from craft to factory production methods. Clusters can ease this shift in the productive process by permitting the division of labour to occur on a firm-by-firm basis, rather than within a single enterprise.

Economies of scope are present when it is more efficient to operate two or more activities in tandem than in isolation (Coase 1937; Storper and Walker 1989: 130–31). Several types of economies of scope are available to small enterprises and, by extension, to enterprise clusters. The most common may be situations of **concurrent scale economies**, where the processes involved in producing two or more products reach their least cost output at roughly the same level. Thus the producer of cooking pots may diversify into related metal products and achieve economies of scope, even when the size of the market for any one of these products may not allow scale economies to be realised. **Coordinative scale economies** are available when integration of labour processes and regulation of material flows benefit overall production efficiency. A good example is the food processor who varies her products according to the growing seasons in order to keep her machinery operating fully throughout the year. Another, which emerges in one of the South African case studies, is the savings realised from marketing a line of products jointly. Economies of scope are also available from the **sharing of technical know-how and working skills** from one process or product to another. The furniture makers who expand into making wooden crates and construction goods are an example of this type of economy of scope.

2.3.3 Institutions governing exchange relations

That institutions are important to development in general and industrialisation in particular is now generally accepted. A full treatment of the economic and social institutions governing the exchange of goods and services would take us far beyond the boundaries of this paper. Nevertheless, it is important to draw attention to two inter-related issues that arise in several of the cases that follow.

The first is trust. Economic exchange will not normally take place without a certain measure of trust between the parties. Trust involves shared expectations of the outcome of a transaction. Humphrey and Schmitz (1996) define trust in terms of agents' belief that the other party, given the chance to act opportunistically, will not do so. Zucker (1986) distinguishes three different bases for trust: (1) process-based, where trust is tied to past or expected exchange, such as in reputation or gift-exchange; (2) characteristic-based, where trust is tied to the personal characteristics of the other party; and (3) institutionally-based, where trust is tied to institutional certification or enforcement. The first two types, according to Zucker, need to be replaced by institutionally-based trust when societies become larger, more socially heterogeneous, and more geographically dispersed.

The second issue, clearly related to the first, is contract enforcement. Much institutionally-based trust depends on the existence of a third party, prepared and able to enforce contracts and prevent opportunistic behaviour (Zucker 1986, North 1990). In Africa, however, such institutions often are either missing or seem unable to function. Survey results from Ghana suggest that enforcement of commercial contracts is problematic for two reasons (Fafchamps 1996). First, there is no mechanism by which information about

defaulters is widely shared among firms, and second, the risks and uncertainties under which firms operate cause many of them to default on contracts at least occasionally. Firms have little faith in the legal system as a means of ensuring that customers or suppliers fulfill their contracts or compensate them for breach of contract. Kimuyu (1997) found that one-third or less of Kenyan manufacturers would take a supplier or customer to court, and that the proportion of micro and small enterprises using the courts to settle disputes is even smaller. Firms tend to insist that customers pay cash, granting credit only to the most trustworthy. They protect themselves against problems with suppliers by inspecting goods before making payment, instead of taking them on faith and negotiating afterwards if quality is deficient.

2.4 External Economies

Passive collective efficiency is essentially reaping the benefits of external economies. External economies exist when social benefits are higher than private benefits. External economies are the unintended or incidental by-products of economic action. Krugman (1991), following Marshall (1890), identifies three main types of external economies in enterprise clusters: labour-market pooling, development of specialised local suppliers and services, and technological spillovers. To these must be added the most basic of agglomeration economies: market access.

Market access is the first and, as we will see, most universal external economy for clustered firms. The grouping of producers in close geographic proximity facilitates the meeting of buyers and sellers. By attracting buyers both from the immediate vicinity and more distant places, it improves access to the overall market for a firm's products or services. Thus, once a cluster is established, market access is one of the potential benefits of locating within its bounds.

Sectoral and geographical concentration of productive activities tends to create a pool of specialised skills that benefits both workers and firms. Such pools of industry-specific skills are evident in many developing country clusters (Nadvi and Schmitz 1994: 41). Whether they are also present in African clusters is a matter for investigation.

Clustering of firms also gives rise to specialised suppliers of inputs and services. The concentration of producer firms with similar supply needs attracts suppliers offering raw materials or components, new or second-hand machinery, and spare parts (Nadvi and Schmitz 1994: 13–14). Clustering seems to ease supply constraints, often found to hold back small-scale industry in Africa.

Finally, clustering facilitates the diffusion of technological know-how and ideas. It does this by permitting the rapid flow of technical information between producers operating near one another, and also by enhancing information flow between traders, producers, suppliers, and others connected to the cluster (Nadvi and Schmitz 1994: 18). Given that one of the major characteristics of developing countries is their weak technological base, technological spillovers within a cluster could well be particularly important.

There is, however, a downside of external economies. According to mainstream economics, the lack of match between social and private returns represents a market failure that affects investment. Specifically, external economies can lead to under-investment because of the lack of adequate reward for that investment. If

this is true, then these **disabling** external economies may be a factor in the failure to grow of many African clusters.

2.5 Joint Action

Schmitz (1997) contends that local external economies are necessary for the development of a strong cluster, but that they are not sufficient. What he terms 'consciously pursued joint action' must also be present for industrial clusters to flourish.

Figure 2.1: Forms of joint action in clusters

Dimension	Bilateral	Multilateral
Horizontal	Two cooperators at the same level in the production chain, e.g. sharing equipment	More than two cooperators at the same level in the production chain, e.g. a sectoral association
Vertical	Two cooperators at different levels of the production chain, e.g. a producer and user improving components	More than two cooperators at different levels of the production chain, e.g. an association or alliance composed of manufacturers and distributors of a product

Source: Adapted from Schmitz (1997)

This emphasis on the 'joint action' aspects of collective efficiency underscores the importance of inter-firm linkages and networks.⁴ One can identify four categories of joint action in clusters, based on two dimensions. The first dimension has to do with the number of cooperators; the second, with the direction of cooperation.⁵ Thus joint action may be bilateral or multilateral. In bilateral cooperation, two firms work together as, for example, when they share an expensive piece of equipment. In multilateral action, groups of firms join together, often in an association or other organisation, for some common purpose. Joint action may also be vertical or horizontal. Vertical cooperation happens when firms involved in different stages of the production–distribution chain work together. Horizontal joint action refers to collaboration between/among competitors. The four types of joint action can be viewed schematically in Figure 2.1.

Active cultivation of such firm linkages and entrepreneurial networks apparently contributes to the growth of enterprises (Barr 1995, Alila and McCormick 1997). Whether the active aspects of collective efficiency are a necessary ingredient for cluster success remains to be seen. It is also important to recognise that joint action has its costs. The opportunity costs of associational activity are probably the most obvious example. When businesses are very small, and joint action must be undertaken by the entrepreneur, he/she must carefully weigh the use of scarce time for attendance at meetings or other activities that do not bring immediate benefit. Joint action may also have political costs, especially in situations where the authorities frown upon grassroots initiatives.

2.6 Clusters and Industrialisation: An Analytical Framework

The discussion thus far suggests that clustering has the potential to facilitate the industrialisation both within the cluster and beyond it, but that such potential is not always realised. We know that many clusters get stuck at low levels of production and distribution. A clearer understanding not only of clusters that have industrialised, but also of those that remain essentially small-enterprise agglomerations should provide insights into steps that business associations, governments, and other interested parties might take to further the process of Africa's industrialisation.

Preliminary analysis suggests that African clusters fall broadly into three groups (McCormick 1998). The first group makes its contribution by building a productive environment that, in some respects at least, prepares the ground for industrialisation. The second group of clusters already has much clearer signs of emerging collective efficiency. These clusters are already industrialising, but remain limited by the weak technology of most of the firms and the frequent sidetracking of associational activity. The third group of clusters includes large as well as small and medium-size firms. They aim for wider markets, national and/or foreign, and are generally able to produce competitively. These clusters fall squarely within the industrialisation process, though serious challenges remain.

Within each group, we examine each cluster's economic context and its internal operations. The contextual variables are three: the nature and size of the product market, the actual or potential economies of scale and scope, and the institutions governing exchange. Within the cluster, the analysis considers both external economies and joint action. A brief treatment of the general history and specific turning-points of each cluster provides both additional contextual material and a sense of cluster dynamics.

Saying that existing clusters are at different levels of development does not imply a 'stages of growth' model of development (see Rostow 1960). For one thing, as will be clear from the histories of the clusters described in this paper, the origins and growth paths of clusters vary greatly. By no means do all begin at the first level, nor do they proceed through a uniform set of stages. The levels described above are rough guides to the relative development of this particular set of clusters. They are useful because they help to explain clusters' differing needs, and perhaps more importantly, they demonstrate the multiformity of the links between enterprise clusters and the industrialisation process.

3 LAYING THE GROUNDWORK FOR INDUSTRIALISATION

The successful Latin American and Asian clusters **look** very different from the African cluster studied to date. The footwear cluster in the Sinos valley of Brazil boasted more than 1,800 firms with an average employment of over 80 persons each in 1991, causing Schmitz (1993) to name it a 'supercluster'. The firms included shoe manufacturers, subcontractors producing parts of shoes, producers of inputs, export and forwarding agents, and other related activities. Exports of shoes produced in the Sinos valley were valued at nearly US\$1.2 billion in 1991. Another cluster, in Sialkot, Pakistan, produces stainless steel medical, dental and surgical instruments for markets in North America and Western Europe (Nadvi 1997). The Sialkot cluster consists of 300–350 manufacturing firms, up to 1,500 task-specific subcontracting units, and a variety of suppliers and service providers. Sialkot firms average approximately 20 workers each. The cluster supplies roughly half the global

market for disposable 'floor' instruments, and around 10–15 per cent of world production of high quality 'operation theatre' instruments.

In contrast, most African clusters are hardly more than basic sectoral agglomerations consisting of hundreds, or sometimes thousands, of tiny firms, that operate at much lower levels of technology. They have few linkages within or outside the cluster, and their capacity for joint action is weak. This section examines three small-enterprise clusters, all in Kenya, all at a low level of development. The subsequent two sections focus on more advanced clusters in several African countries. All three sections address the questions posed in the introduction: do the clusters have the characteristics associated with successful industrial districts elsewhere? To what extent have they been able to respond to opportunities and shocks in their environment? And, how closely are these clusters linked to the wider industrialisation process in their countries?

3.1 Garment Production, Nairobi

Nairobi has two large garment-making clusters, housed in city council markets on the eastern side of the city. Most of the firms in the two markets are 'mini-manufacturers', i.e. small firms with limited division of labour (McCormick *et al.* 1997). In addition to approximately 600 producers, the markets support traders in inputs and finished products, machine repairers, scissors sharpeners, transporters, and food kiosks. Although there are no formal financial institutions within the clusters, several NGOs offer credit to businesses in the markets.

3.1.1 History and turning-points of the Nairobi garment markets

Uhuru and Quarry Road markets were built in 1974 to replace older makeshift premises dating from colonial times. Quarry Road market, consisting of three concrete-block buildings, is in Gikomba, about two kilometres east of Nairobi's city centre. Uhuru market, a similar, but larger complex of five buildings, is a few kilometres to the south.

Two clear turning-points can be identified. In the late 1970s businesses turned from retailing second-hand clothes to making new clothing (McCormick *et al.* 1994). The products sold well, both in Nairobi and secondary towns. The 1984 ban on imports of second-hand clothes strengthened their position. The cluster's second turning-point came when this ban was lifted in 1991 (Ongile and McCormick 1996). At that point the combination of increased competition and already slack demand caused by a depressed economy was a real blow to small-scale production.

In 1989 Uhuru market housed 361 garment manufacturers, and Gikomba market, 235 (McCormick 1997). The premises, though clearly better than the outdoor sites of the *jua kali* metalworkers and carpenters, are unsuitable for garment manufacturing. Lighting is poor, electricity supply erratic, and business services lacking. The semi-open stalls are too cramped to allow for efficient flow of work and lack the privacy needed for new product development (McCormick *et al.* 1997).

3.1.2 Economic context for the clothing production

Kenyan garment producers face complex markets. A few large-scale producers have managed to break into the export market (McCormick 1992, Biggs *et al.* 1994, 1996). Domestic markets can be roughly divided into the markets for general men's, women's, and children's wear and specialised markets such as those for uniforms, overalls, wedding dresses, etc. Each market segment can be further divided according to product price and quality.

The domestic market for new clothes is constrained by the poverty and declining purchasing power of most Kenyans, the local nature of distribution systems, and the availability of cheap alternatives. Average real wages declined by 57% in the private sector and 49% in the public sector between 1988 and 1994 (Kenya, 1995c and 1992a). Unlike Zimbabwe and South Africa, Kenya does not have a national clothing distribution system (Pedersen 1993, October 1996). Large chains of clothing retailers do not exist, and except in Nairobi and a few large towns, even small retail shops are few. This means that producers must either sell to traders who travel to specific 'up-country' locations, or go themselves to sell their wares. Naturally, this limits the size of the market that garment manufacturers can access. The market is further limited by the availability of cheap alternatives to new clothing. For poor consumers and, increasingly for those in the middle-income range, second-hand clothes compete with new ones for the family clothing budget (Ongile and McCormick 1996).

Economies of scale and scope are theoretically available, but may be difficult for these producers to realise. The mini-manufacturers averaged only 3.5 workers per firm compared with a developing country average of 13.4 workers in apparel firms (see Table 2.1 above). Their total factor productivity (TFP) was also lower than any other group of garment producers in Nairobi. Both of these facts indicate ample room for realising scale economies. Studies elsewhere suggest that economies of scope may also be available in clothing production (October 1996, Visser 1996).

3.1.3 External economies in the garment markets

The main external economies for these firms are market access and, to a lesser degree, the availability of intermediate inputs and services. Neither labour-market pooling nor technological spillovers appear to support cluster activity.

Market access is a major benefit to location in these clusters. The garment markets have become known in Nairobi as places where inexpensive clothing can be bought at either retail or wholesale prices. Particularly important, though not fully described, is the markets' ability to attract traders who will carry clothing to the smaller towns and rural areas (McCormick 1997).

The clusters have given rise to limited trade in intermediate inputs and have also spawned some basic services.⁶ Gikomba has three fabric sellers and six shops selling buttons, thread, and other materials. Uhuru has ten fabric retailers in the open-air market outside the main market, but clothing producers claim that prices are so high that they are forced to go to wholesale and retail shops in the centre of Nairobi. There are also mobile traders who bring cloth, scissors, buttons, and other items to the markets. Each market has several machine repairers, scissors sharpeners, and food kiosks to cater for the needs of the workers. Outside of each are transporters with pickup trucks and handcarts ready to be hired to take products to market or transport inputs from town.

Table 3.1: Comparison of Enterprise Clusters

Cluster	Producing Firms	Average Firm Size	Products	Markets	External Economies	Joint Action
Garment markets	600	3.5	Clothing	Domestic: mainly rural and secondary towns	Improved market access Some labour market pooling Weak intermediate input effects	Weak bilateral linkages No multilateral linkages
Kamukunji	2,000	1–2	Metal products	Domestic: consumers, traders, and firms	Improved market access Disabling labour market pooling Weak intermediate input effects Little technological spillover	Few bilateral linkages Association focused mainly on supply-side constraints
Thika	337	1.6	Vehicle repair	Thika individuals, especially <i>matatu</i> and truck owners	Improved market access Positive, but weak, intermediate input effects Disabling labour market pooling Disabling technology spillovers	Extensive subcontracting Site association focused on supply-side constraints
Suame metal	3–4,000	5–6	Metal products	Domestic: consumers and firms Passive exports	Improved market access Positive labour market pooling Limited intermediate input effects Limited, but important, technological spillover	Only engineering workshops have positive bilateral linkages Site association representing diverse interests
Suame vehicle repair	4–5,000	6.5	Vehicle repair	Domestic: consumers and firms Passive exports	Improved market access Disabling labour market pooling Positive intermediate input effects Recipient of technological spillovers	Extensive subcontracting Some (important) vertical links with engineering workshops Garages Association mainly an intermediary between firms and government
Ziwani	506	1.5	Vehicle repair	Nairobi individuals, especially <i>matatu</i> and truck owners firms	Improved market access Weak intermediate input effects Weak technological spillovers	Extensive subcontracting Association dealing with both supply and market constraints
Western Cape	538	126	Clothing	Large retail chains Domestic: 'fashion' and standard; also some to export market	Market access Positive labour market pooling Significant intermediate input effects Potential for significant technological spillovers	Vertical and horizontal bilateral cooperation Horizontal multilateral cooperation (2 associations) Vertical multilateral cooperation (common trading agents)
Uhanya Beach plus industrial processors	560	Fishing: 3–15 Trading: 1–50 Industrial processors: 35–300	Fresh and processed fish	Mainly export Limited domestic	Market access	Strong vertical bilateral action No effective horizontal linkages

Economies associated with labour-market pooling and technology spillovers appear to be minimal. Labour is there, but entrepreneurs – especially those involved in slightly larger enterprises – say that the skill levels are uneven (McCormick *et al.* 1997). The technology used is very basic, so there is little improved technology to spill over!

3.1.4 Joint action among garment producers

Firm linkages within the clusters appear to be weak. Despite the large concentrations of garment businesses, effective horizontal linkages are lacking. Some vertical linkages on both the input and supply sides exist, but it is not clear whether these ties lead to beneficial joint action.

Horizontal bilateral linkages are confined mainly to borrowing and lending of basic tools, such as scissors and measuring tapes, and the contracting of services requiring specialised machines (McCormick 1997: 117). One reason for the weak linkages appears to be lack of trust. For example, entrepreneurs interviewed complained that, as soon as they develop a new design, their competitors steal it.

Horizontal multilateral linkages do not exist. Neither market has a site association, and there is no sectoral association of garment producers anywhere in Nairobi. A group of medium-sized producers said they were interested in forming an association, and researchers encouraged them by calling two meetings, but the idea was not carried forward (McCormick *et al.* 1997).

Vertical linkages with suppliers and garment traders exist, but information on the content of those linkages is scanty. Most firms buy cloth from wholesalers located in Nairobi's city centre. Some have established enough of a relationship with these wholesalers to qualify for credit (McCormick *et al.* 1997). Although location in these markets offers access to the traders who frequent the buildings to buy finished goods, it is not clear whether such traders offer the producers anything beyond a simple market transaction.

3.1.5 Nairobi garment producers: summary and conclusions

Although firms in these clusters use a simple division of labour that puts them squarely into factory production, they have real difficulties in achieving economies of scale. On the one hand, they face problems of market size caused by a weak distribution system, and on the other, they are constrained by problems of space and capital. Both make it difficult for them to reduce units costs.

Market access and limited intermediate input effects are positive externalities in the cluster, but they are not accompanied by effective joint action. They have no vehicle for negotiating with the Nairobi City Council, which owns their business premises, for improvements in basic amenities. Nor do they have obvious links to larger firms that might help in upgrading product quality or in connecting them to larger domestic or export markets.

3.2 Metalwork in Kamukunji, Nairobi

Kamukunji is a large, busy cluster of tinsmiths, where nearly two thousand artisans fashion a variety of metal products, including tin trunks, charcoal stoves, security bolts, cooking pots, griddles, bicycle carriers, and

wheelbarrows (Frijns *et al.* 1997; King 1996: 55–57; Undugu Design Unit 1995; Haan 1995; McCormick 1988). The cluster's location between the industrial area and the country bus station make it accessible to both supply and product markets.

Most firms use craft-based production methods and very simple technology (Frijns *et al.* 1997). Fewer than 10% have the electricity connections that are essential to higher technology production. The majority use hand tools or simple hand-operated machines to make products of new and/or used sheet metal. Production processes are slow and products poor in quality. Workshops with electricity undertake welding, engineering, and fabrication work, frequently making to order rather than for the market. Their products include door and window grills, metal brackets, hinges, door bolts and latches, bicycle parts and simple machines.

3.2.1 History and turning-points of the Kamukunji Jua Kali

Artisans working in Grogan, an area close to Nairobi's city centre, were displaced to make way for a housing estate in 1978.⁷ Most of the vehicle repairers moved to Ziwani (see Kinyanjui 1997) while other types of businesses relocated to Eastleigh and city council land at Kamukunji. Still others came to the Kamukunji site from nearby Burma market.⁸ The local metalworkers were joined by others who migrated to the area from other parts of the country to set up their businesses on the open land. In 1985 the council gave them 24 hours to vacate the area, but the district commissioner restrained the council and allocated the land to the artisans temporarily. Later that same year, President Moi visited the artisans and announced that sheds would be built and the land given to the artisans. The president also instructed the artisans to organise themselves into an association so that the government could better assist them.

This was a turning-point, partly because the sheds provided at least a few businesses with much needed shelter from the sun and rain, but more importantly because of the new legitimacy the presidential decree afforded the entire open-air small-manufacturing sector. Unfortunately, this support, which was to be further developed in policy documents, was not well translated into practice (Kenya 1986, 1988, 1992b, 1996; Macharia 1993; McCormick 1996; King 1996).

3.2.2 Economic context for jua kali metalwork

Kamukunji caters for a large low-income consumer market in Nairobi and up-country towns, and also supplies certain products, such as wheelbarrows and farm implements, to agriculture and industry. Although there has been no systematic investigation of the distribution system for metal products of the type produced at Kamukunji, it appears that clients are both wholesalers who will often buy similar products from several producers, and individuals (Frijns *et al.* 1997). Most Kamukunji products are of low quality with few variations. The demand for such items is slowly decreasing as consumers gain access to higher standard goods from supermarkets and retail shops (Undugu Design Unit 1995). Thus, although the potential market continues to grow with Kenya's increasing population, the size of the market currently served may be shrinking.

Kamukunji has the potential for realising scale economies. Fabricated metal workshops in middle- and low-income countries average 15.4 workers (see Table 2.1), suggesting that the one- and two-person establishments in Kamukunji are probably economically inefficient. Realising economies of scale would,

however, mean changing the organisation of production from its present craft form to one using some division of labour. This would, in turn, require standardising parts to a degree that is difficult to achieve with hand tools.

Economies of scope, especially managerial economies and concurrent scale economies, should be available to these businesses. Realising such economies of scope will also entail changing the prevailing form of production.

Contract enforcement is problematic in Kenya for reasons similar to those identified by Fafchamps (1996) for Ghana. Artisans will, therefore, generally prefer to deal with persons they already know rather than with those who might not only default, but also disappear.

3.2.3 External economies in Kamukunji

The most positive external economy for Kamukunji's producers is the cluster's effect on firms' access to product markets. The concentration of metalworkers in Kamukunji is well known in Nairobi and beyond, so it no doubt serves as a magnet for customers. The way the artisans display their wares suggests that they are conscious of the marketing role of the cluster. The association is active in promoting members' attendance at trade shows, *jua kali* exhibitions, and provincial agricultural shows (Hart 1994: 4). The association also attempts to offer assistance to members in locating new local marketing channels and is trying to establish a working relationship with the Kenya National Chamber of Commerce so that the Chamber can assist with exports to other African countries.

Both private businesses and the association have attempted, with varying degrees of success, to bring intermediate inputs to Kamukunji. Frijns *et al.* (1997: 98) report that there are three hardware shops operating in Kamukunji that provide nails, wires, metal strips, and other metal products. The association tried a system of consolidated purchasing of raw materials from the large companies (Hart 1994). They sold them to the artisans with no mark-up, thus giving their members a significant cost break. The effort broke down, however, because the middlemen who had been supplying the artisans complained to the big companies that their business was being eroded. As a result it became more difficult for the association to make direct purchases from the companies. In mid-1994, when Hart's research was being carried out, the association was looking for other alternatives for obtaining raw materials.

Technological spillovers are minimal and confined to a small group of more sophisticated producers. The oldest artisans in Kamukunji were trained by their Asian predecessors in the 1940s and 1950s.⁹ Most appear to use the same skills and techniques learned then, despite some efforts on the part of the association, the Ministry of Research, Technical Training, and Technology (MRTTT), and the Kenya Association of Manufacturers to provide seminars and exposure visits to local industry (Hart 1994). In general, Kamukunji exhibits little technological development. If anything, there seems to be a dampening effect of low-level technology that reduces firms' ability to realise economies of scale.

One exception has been the development of wheelbarrow production.¹⁰ Wheelbarrow making started at Kamukunji in 1984 when artisans copied a wheelbarrow that they purchased from a Nairobi shop, and then modified the design to make it stronger and easier to produce. At present about 12 different workshops make wheelbarrows at Kamukunji. All use the 1984 design to produce the wheelbarrow in three different sizes. They

purchase the main materials (iron sheet, pipe, flats) and weld the final product together. There is no job specialisation among the wheelbarrow makers. Each group makes the product from beginning to end. The workshops attempt to standardise parts for their own wheelbarrows, but there is no standardisation across producers. Nor, apparently, has anyone tried to improve the design that is now 14 years old.

Labour-market pooling, in a situation of very low skill requirements, should result in low labour costs. Most Kamukunji firms, however, have no employees so this potential benefit is not realised. Furthermore, the training system, when combined with very low barriers to entry in metal fabrication (see McCormick 1988: 55), appears to encourage the multiplication of tiny firms.

3.2.4 Joint action in Kamukunji

Joint action in Kamukunji emanates from three different sets of inter-firm linkages. At the broadest multilateral level is the Kamukunji Association which, in theory at least, includes all artisans working in Kamukunji. Next are informal groupings of firms making similar products. Finally there are the usual bilateral exchanges of tools and equipment, and occasional subcontracting arrangements.

Associational activity among Nairobi's metalworkers has a long history. Artisans had an organisation that was stopped by the colonial government during the 'Emergency' of the 1950s.¹¹ After that, groupings were informal until early 1986 when the first self-help groups were formed in response to the president's call. The ministry (MRTTT) encouraged the formation of such *jua kali* associations throughout the country, and of their grouping into national 'associations of associations'. This allowed the government to channel all assistance to the artisans through the National Federation of *Jua Kali* and local associations (Kamukunji 1994; Macharia 1993: 24 ff). The umbrella association took an active role in policy dialogue, the allocation of plots to *jua kali* producers, and organising the annual *jua kali* trade fair until it became embroiled in a political dispute that led to its dissolution in 1994 (Haan 1995, Kinyanjui 1998).

The present Kamukunji *Jua Kali* Association was formed in 1993. The MRTTT at that time requested the self-help group to become an association (Kamukunji 1994). By 1994, the association had approximately 850 members, considerably more than the maximum of 270 recorded by its predecessor self-help group (Hart 1994). In addition to serving as a conduit for funds, and carrying out the supply and marketing activities described above, the association aimed to improve artisans' working conditions and provide them with access to technical training (Kamukunji 1994). The association also provided services such as security – very important given lack of lockable buildings – and through its women's group recycled leftover scrap metal (King 1996; Frijns *et al.* 1997). However, it has not had notable success in upgrading Kamukunji's infrastructure or general working environment, nor does it appear to have succeeded in improving technology.

The second type of multilateral inter-firm cooperation is the informal grouping of similar businesses. One striking example, already mentioned, is the group of twelve firms engaged in manufacturing wheelbarrows. These, according to our informant, are now joining together to market their product, targeting especially supermarkets that have hardware departments. They have not yet, however, tackled the difficult issue of standardisation of parts across the group members. Furthermore, it is not clear whether this group is unique, or if similar informal groups exist in Kamukunji.

3.2.5 Summary and conclusions on Kamukunji cluster

In sum, then, Kamukunji is a large petty commodity cluster which is realising only a few of the potential benefits of clustering. The cluster is well known and therefore provides access to local and national markets. Some suppliers are located within the cluster, though it is not clear whether these have migrated in or are the result of specialisation among existing firms. There appear to be few technological spillovers. Even where they exist, as in the case of the wheelbarrow producers, problems such as standardisation have yet to be tackled.

Economies of scale are not being realised as producers continue to operate at uneconomically small sizes. Kamukunji has a large pool of labour available, but it appears that most start their own firms rather than join existing enterprises. Vertical joint action is entirely missing. Horizontal joint action is present in varying degrees. At its broadest is the Kamukunji *Jua Kali Association*. The association suffers from some of the problems of groups initiated 'from above' (Haan 1995). It seems to have been more successful in achieving the aim articulated by the Provincial Technical Training Officer (i.e., bringing the artisans together so they can be reached by government initiatives) than in meeting its own objectives. In particular, the association has been thwarted in its attempt to undertake joint buying of raw materials and has been able to do very little to uplift the overall standard of the working environment at Kamukunji. The effort of the wheelbarrow producers to market their products together is a promising example of horizontal joint action on a smaller scale.

3.3 Vehicle repair in the Thika (Kenya) *Jua Kali*

The *jua kali* cluster in the Kigandaini ward of Thika, a town of approximately 72,000 people, 46 kilometres northeast of Nairobi, houses over 300 enterprises involved in a variety of activities. Research carried out in 1996–97 investigated motor vehicle repair and related manufacturing and trading activities in the cluster (McCormick *et al.* 1996; Kinyanjui 1996, 1997, 1998, McCormick 1998). About one-third (36%) of the enterprises actually repair vehicles, an additional 8% sell spare parts, and 5% are involved in the manufacture of spares. The remaining enterprises manufacture furniture, various metal products, stove and lantern wicks, mops, cushions, mattresses, or are involved in the retailing of scrap metal and food.

All types of vehicles are repaired in Thika, but *matatus* and heavy commercial vehicles appear to dominate.¹² Only half (50%) of the repair firms say they repair private saloon cars. The vehicles are most commonly between four and ten years old, though many firms said that they often repair vehicles in the 11–15 year age range. Newer vehicles are more likely to be taken to the larger garages (Kinyanjui 1998). For some, this is because they are under warranty or, in the case of accident-related repairs, they are comprehensively insured. In other cases, the owners, who are likely to be more affluent than average, may prefer (and be willing to pay a premium for) the amenities of a formal garage.

3.3.1 History and turning-points of Thika *Jua Kali*

In 1988 the Thika Municipal Council required *jua kali* operators to move out of the town's main market. The council chose Kigandaini, an area that had been set aside for a fire brigade, as the new *jua kali* site, and enterprises began to locate there soon afterwards. Just over half of the present entrepreneurs had established

themselves in the cluster by the end of 1990. The majority (59%) were new enterprises, while the rest (41%) were existing businesses moved from elsewhere in Thika town or other parts of the country.

The site, as it was received from the municipality, had no amenities. In the early 1990s, a delegation from the Belgian government visited the cluster and promised to assist with site upgrading. The association and the Ministry of Research, Technical Training and Technology entered into intensive negotiations. After many delays, construction of some 66 permanent workshops finally began in early 1997. To permit the building to take place, many businesses had to move to temporary quarters outside the main site. The building process has been on-again-off-again, apparently because of delayed payments to the contractor. As of February 1998, the workshops remain roofless. An association official estimates the amount spent to date to be in the vicinity of K.shs. 27 million, which, in his opinion, is far too much for the quality of the construction.

Since Kigandaini is a very young cluster, the notion of turning-points has limited validity. Nevertheless, the major turning-point thus far came with the liberalisation of Kenya's import markets. Market liberalisation has increased the quantity and variety of both vehicles and spare parts. As far back as the 1960s, Kenya had imported second-hand vehicles, but their importation was stopped in order to promote local assembly of new vehicles. Then, from the mid-1980s, the government once again allowed imports. The first entrants were fully reconditioned vehicles from Japan that required little maintenance, at least initially. Then, with the general liberalisation of markets, the range of imported vehicles was extended to include what have come to be known as the Dubai cars. These second-hand vehicles enter Kenya through the free port of Dubai. Since they are not reconditioned, many quickly develop problems requiring the attention of mechanics such as those in the Thika *Jua Kali*. Nearly all (97.6%) of the firms reported that the repair business had increased as a result of liberalisation.

Liberalisation has also increased the availability and reduced the prices of the spare parts that are the vehicle repairers' main raw materials. There was general agreement (100% of those responding to the questions) that spares had been both more easily available and cheap since liberalisation. On the subject of quality, however, opinions were mixed. Most (72.4%) felt that the quality of available spares had remained the same; the rest (27.6%) thought quality had deteriorated.

3.3.2 Economic context for vehicle repair in Thika

The market for vehicle repair in Kenya is highly competitive, and is shared by at least three different types of enterprises. Large, formal garages, mostly associated with the major vehicle assemblers, cater for new vehicles under warranty and serve the high end of the repair market. These garages offer diagnostic services, provide their own spare parts, sometimes offer replacement vehicles, and usually guarantee their work. Medium-scale garages, either free-standing or run in connection with a petrol station, service a wide range of private and commercial vehicles. Some are general garages, offering most services, while others specialise in particular repair types. Most stock spares, but also permit customers to purchase spares elsewhere. The final group consists of individual mechanics and the *jua kali* enterprises, both of which tend to specialise in a single aspect of repair, and to service older vehicles.

The size of the market is a function of the number of vehicles on the road and their age and/or condition. The market for vehicle repair also has some geographic boundaries, though reputation, as we will see in the case of Suame, is capable of widening a cluster's market reach. Thika town and its immediate environs probably have between 1,500 and 3,000 vehicles in all (McCormick 1998). This fairly small market is shared by all the types of vehicle repairers named above, including approximately 100 *jua kali* enterprises in the cluster. Vehicle owners, especially those travelling regularly between Thika and Nairobi, may also choose to have their vehicles serviced in Nairobi.

The potential for economies of scale and scope in vehicle repair, as in other activities, depends on the nature of the work to be done. Vehicle repair is essentially custom production, with each job having its own character and specifications. Variations in required skills and in the equipment necessary to undertake different repairs encourage specialisation, especially for smaller firms. Certain types of repair are highly capital and/or skill intensive, making it difficult to realise economies of scale, especially for a full-service shop. Inevitably in the full-service garage, some types of specialised equipment will lie idle much of the time. In Africa, where capital is very expensive, firms – especially small ones – cannot afford to invest in machinery that is not fully utilised. Only the largest garages maintain all specialisations in house. Among smaller firms, vehicle repair is characterised by specialised firms that interlink in a network of subcontracting (Kinyanjui 1996, Burrows 1992).

Thika's vehicle repair firms are so tiny that there is probably ample room for developing scale economies within the subcontracting system (see Table 3.1). The fact that some firms are running several activities in tandem suggests the availability of economies of scope. For example, it is not uncommon for an artisan to undertake wiring repairs, gas welding and electrical welding. Even though these are technically different specialisations, the need for them occurs often enough in the same vehicle to make the combination a useful one.

The subcontracting system involves complex market and social factors (Kinyanjui 1997). Economic considerations dictate that subcontracting will take place, but trust mediates the choice of subcontractors (Kinyanjui 1998). When subcontracted firms fail to live up to their agreement, the contractor can insist that the offending firm redo the work, or he can deduct something from the final payment. In extreme cases he can sever the subcontracting relationship altogether. Since all of these sanctions involve time and threaten social relations in a close working environment, entrepreneurs would naturally prefer to do business with firms whose work and honesty they trust. This position is no doubt reinforced by the fact that neither the main contractor nor the subcontractor can count on the legal system or other institutions to support their claims, even when the claims are obviously valid.

3.3.3 External economies in Thika Jua Kali

Like most small-enterprise clusters, the Thika *Jua Kali* attracts customers who know they can find many firms ready and willing to perform the service(s) they need. Market access is probably the most positive form of external economy available to firms in this cluster. Over one-third (35.6%) of the entrepreneurs listed 'availability of customers' as the main advantage of their location.

Thika is drawing an increasing number of trainees and the labour-market pooling is not always helpful. The data on new startups in the cluster support the contention that Thika's labour-market pooling is leading to the formation of many new microenterprises in direct competition with existing firms. Over one-third (39.6%) of the firms were begun in 1991 or later. This seems a very high proportion, even given the fact that the Thika cluster as a whole is relatively new.

Inputs, especially spare parts, are increasingly available within the cluster. Approximately 15 firms manufacture simple spare parts such as springs, washers and plastic bushes (Kinyanjui 1996). Others, such as the cushion makers, are ready to produce items to order. Still others trade in imported and locally made spares. These spares shops increasingly include in their stock the parts made by the cluster's manufacturers. One dealer said that, when he first came to the cluster, he bought all of his spare parts from Nairobi. Now he buys battery latches, springs, and rubber bushes from the Kigandaini manufacturers, and is optimistic that, as the quality of spares made in the cluster improves, his stock will include more local goods (Kinyanjui 1998).

The technology in the Thika cluster largely depends on the skills of those already there, most of whom were informally trained (Kinyanjui 1997). The process for skills upgrading is also largely non-formal, consisting of observation and conversations with those who have a needed skill. As Kinyanjui (1997: 41) points out, 'There is a tendency of passing on bad practices.' Thus technology spillovers do occur, but the present system does not provide a mechanism for raising the level of what is shared. Unless this can be changed, technology spillovers, like labour-market pooling, are likely to be disabling.

3.3.4 Joint action among Thika's *jua kali* vehicle repairers

Joint action in the Thika *Jua Kali* is horizontal. Both bilateral and multilateral linkages have led to effective action. Despite the presence of manufacturers in the cluster, the only vertical interactions seem to be market-based. Firms manufacturing spare parts sell them to the spares shops, which, in turn, sell them to repairers and their customers. There is no evidence that this process includes any other type of inter-firm cooperation or learning-by-interaction.

The subcontracting system is at the heart of Thika's bilateral joint action. Repairers have production linkages with each other, and they recognise that being in the cluster facilitates cooperation. A large group (42.2%) of respondents identified these linkages as the main benefit of the cluster, saying that their work 'is not done in isolation', that their work 'depends on other repairers', or that 'they cooperate with other repairers' (McCormick 1998). Since firms tend to keep their subcontracting partners for some time, these relationships could form the basis for joint action in other areas of mutual concern (Kinyanjui 1998). Whether such joint action actually occurs, however, is not clear.

Other common forms of horizontal linkages are unlikely to move the cluster forward. Equipment sharing, for example, is limited to simple borrowing of spanners and wrenches; sharing of workers is occasional. Most of the entrepreneurs in Thika have no communication with large garages (Kinyanjui 1997: 41–42; 1998).

The cluster has two associations, each with a different purpose. The Thika Mariko *Jua Kali* Association is primarily a welfare association, providing benefits to members in sickness, bereavement, or other difficulty; while the Thika Welfare *Jua Kali* Association is a *jua kali* site association. The impetus for forming the site

association seems to have been two-fold. At one level, it was simply part of the process mandated by the government for becoming recognised as *jua kali* operators. In this sense, the association is one of those initiated 'from above' (Haan 1995). The association also appears to have roots in local initiative. Some of the operators who were active in its formation recognised that the site chosen for them had been zoned for another use, and that the difficult process of relocating might have to be repeated if they failed to deal with the land issue. To its credit, the association successfully negotiated with the municipality to obtain ownership of the site, though association officials recognise that aspects of the land tenure issue remain to be resolved (Kinyanjui 1998). The Thika Welfare *Jua Kali* Association has continued to be the main source of horizontal multilateral joint action in the cluster. All of the surveyed entrepreneurs are members, and all but one (97.8%) say they attend meetings called by the association (McCormick 1998).

3.3.5 Thika Jua Kali: summary and conclusions

The cluster shows strong production linkages. Small-scale vehicle repair is generally characterised by extensive subcontracting, and Thika is no exception. In the view of the entrepreneurs themselves, location near those doing other types of repairs is a key benefit of the cluster. They recognise and value their interdependence.

The Thika *jua kali* cluster is still very young. Its main problem is that the market for vehicle repair is fairly small. This small market and the disabling effects of labour-market pooling have combined to create very small firms that are probably not able to realise economies of scale. One of the greatest needs appears to be skill development. The present non-formal learning process in use to develop skills among practising vehicle repairers could be a model for skill-upgrading training. What appears to be needed is a way to bring new content into that process.

Even though this cluster has two associations, it is vulnerable to manipulation by powerful outsiders, especially government and donors. The situation with the workshops funded by the Belgian government is a case in point. Encouraged by the promise of an improvement in their working conditions, the association welcomed the Belgian initiative. Now, over a year after construction began, many businesses are operating in worse conditions than before while they wait for the promised workshops. Association officials recognise that they are unlikely to get all that was promised, yet they feel powerless to do anything about it because they believe that the ministry entrusted with protecting their interests has derailed the project. If and when the workshops are finally finished, the association may face even bigger problems. Since the number of workshops under construction will allow only about one firm in five to benefit from the new facility, most association members are likely to be very unhappy.

4 INDUSTRIALISING CLUSTERS

The second group of clusters consists of a metalwork cluster in Kumasi, Ghana, and two vehicle repair clusters, one in Nairobi and the other in Kumasi. These clusters in many ways resemble the three already described, but the greater specialisation and differentiation of firms leads to bilateral production linkages and, ultimately, to higher efficiency. Higher level technologies in at least some of the firms set the stage for positive technological spillovers. Although associations are present in these clusters, their activities sometimes get derailed, either by

internal power struggles or by external forces. The most active associations extend their concerns beyond basic supply-side matters to markets and technology.

4.1 Metalwork in Suame, Kumasi (Ghana)

Dawson (1988, 1992) described a cluster in Suame, a northern suburb of Kumasi. The cluster, known locally as 'Suame Magazine' because its original site once housed a military magazine, is involved in two activities: metalwork and vehicle repair. The working population of the magazine was estimated to be 40,000 in the mid 1980s, of which 8,000 were shop-owning proprietors. These numbers do not include the spare-parts dealers and metal traders.

Traditionally, the 'Magazine' craftsmen were involved in vehicle repair, with a small number of blacksmiths also producing basic agricultural tools, charcoal stoves, and other simple metal goods. Out of this base of blacksmithing has evolved a group of firms involved in various types of metal-work manufacturing. All of the metal-working firms spend at least some of their time doing repair and maintenance work, but all are also manufacturers. Dawson (1988) categorised them into three groups: blacksmiths who used clay and brick forges and hand tools, a middle group who had achieved a modest level of technological enhancement, mostly with the use of locally made machines, and a group using machine tools, including at least one lathe, that Dawson calls 'engineering' workshops.

4.1.1 History and turning-points of Suame metalwork cluster

The site owes its existence to the forced removal of businesses from the centre of Kumasi in the 1950s and 1960s. The first turning-point came with the retreat of Ghana's formal economy from the mid-1970s onwards when 'even the least ambitious blacksmith added new products to his range or, at the very least, increased the volume of his production' (Dawson 1988: 27). Entrepreneurs saw vehicles lacking parts that could no longer be imported, and attempted to fabricate suitable spares. Others saw the need for food processing or agricultural equipment, and copied existing imported models.

The market liberalisation of the mid-1980s was not uniform in its effects on the firms in the cluster. Declining markets and increased competition brought about the extremely low barriers to entry, drove many blacksmiths out of business, and reduced incomes for many others. Middle-level firms, especially those whose products were significantly inferior to their imported counterparts, were also affected. For both of these groups, therefore, the mid-1980s represented a sharply negative turning-point in their operations. The engineering firms, on the other hand, fared much better. Their higher level technology enabled them to capture markets from both large domestic industry and from imports.

4.1.2 Economic context for Suame metalwork

Markets for the Suame cluster's products vary considerably. The bolts and nuts, brackets, springs, and agricultural implements produced by the blacksmiths have wider markets than the more specialised output of the engineering workshops. By the mid-1980s, both groups of products were competing with the flood of

imports brought by liberalisation. Contrary to the expectations of many, goods produced in Suame fared well in competition with similar items from Eastern Europe and India.

Suame metalwork firms have probably not captured all available scale economies. The average size for developing country firms is 15.4 workers (see Table 2.1 above). In Suame, the first two groups of producers average approximately 5 workers, while even the more sophisticated engineering workshops have only 7 workers each.¹³ This suggests that the cluster's firms might benefit by expanding or by creating inter-firm division of labour through specialisation.

The fact that all of Kumasi's metal-working enterprises spend at least some of their time doing repair and maintenance work suggests the existence of internal economies of scope. Such work complements firms' manufacturing activities by enabling them to utilise resources, especially labour, that might otherwise be idle.

Problems associated with contract enforcement lead firms to prefer either cash payments or dealing with known persons (Fafchamps 1996). Suame's smallest firms take deposits from clients, on accepting their orders, to cover the costs of materials. The greater a firm's output and the larger its client-base, the less likely it becomes that it will be able to rely on such pre-financing arrangements (Dawson 1988: 33).

4.1.3 External economies in the Suame metalwork cluster

As with the other small-enterprise clusters, market access is one of the major benefits of clustering. Dawson (1988: 32) observes that marketing is the metalworkers' greatest weakness. The firms make few efforts to advertise themselves and depend on informal contacts to spread their reputation. Obviously in such a situation, location in a place where they are likely to be seen and perhaps pick up some passing trade is especially beneficial.

Suame producers, like those in Kamukunji, have benefited from the availability of inputs. The cluster has 'a large number' of traders of new and scrap metals (Dawson 1988: 11). Although some firms use domestically produced steel rods and a limited amount of new steel imported by individual traders, the bulk of the materials used in the cluster are scrap (Dawson 1988: 31). As large firms began to be rehabilitated in the mid-1980s, supplies of scrap increased, then decreased as the pace with which old worn-out equipment was replaced slowed.

The size of Suame firms, which average 5–6 workers, suggests that labour-market pooling might be a more positive feature of the cluster than is the case in Kamukunji. Suame attracted two types of labour. The first consisted of workers who were apprenticed to small firms, many of them in Suame itself. Most (80%) of the workers in blacksmithing and middle-level metalworking firms, and about half (52%) of those in engineering firms fell into this category. The second type of labour available in Suame had higher level technical skills gained in large-firm apprenticeships and technical training institutes. Although these constituted a minority of workers, even in engineering firms, their presence has allowed the cluster to produce some items that compete favourably with imports.

There is little evidence that technological spillovers were significant, despite the fact that a small group of firms – the engineering group – was upgrading and benefitting from the Technology Consultancy Centre (TCC). The TCC helped engineering firms by importing machine tools and assisting in product development. Although

the blacksmiths and artisanal metalworkers occasionally made use of products made by local machine shops, they themselves continued to use old technology and were largely unaffected by the technological upgrading going on around them (Dawson 1992:38).

4.1.4 Joint action among Suame metalworkers

Suame's metalwork firms seem not to have strong linkages with each other, perhaps as a result of the wide variation within the group. Whatever the cause, there appear to be few horizontal or vertical linkages. There is no sectoral association of metalworkers. Rather the metalworkers are included under the umbrella of the Suame Garages Association described below. The problem with this, as with site associations in general, is that it is difficult for an association to represent well the interests of firms as diverse as upholsterers and engineering workshops (Dawson 1988: 46; Haan 1995). The metalworkers are similarly lacking in bilateral cooperation. A few of the more successful small enterprises established contacts with larger firms through their participation in the 1983 Industry and Technology Fair. In general, however, such joint action is rare.

4.1.5 Suame metalwork cluster: summary and conclusions

The Suame metalworking cluster is large and diverse. A minority of firms is technologically sophisticated enough to be labelled 'engineering.' All of these use machine tools and most are equipped with at least one lathe. The rest of the cluster operates at a fairly low technological level.

The analysis of potential external economies reveals a mixture of positive and negative effects. Being in the cluster facilitates market access and acquisition of intermediate inputs for the firms. Labour-market pooling, however, has resulted in atomisation of low-level firms, rather than the development of specialised ones. The Technology Consultancy Centre, which might have been a source of general technological spillovers, apparently had an impact only on the small group of engineering firms.

Linkages among Suame's metalworking firms and/or between these firms and others outside the cluster are weak. There is no association of metalworkers within the cluster, and little evidence of bilateral cooperation. The two firms with significant contacts outside the cluster were exceptional.

4.2 Vehicle Repair in Suame, Kumasi (Ghana)

Dawson (1988) also described vehicle repair activities in Suame. Kumasi is a major centre for vehicle repair, attracting vehicles, not only from other parts of Ghana, but also from Niger, Togo, and Côte d'Ivoire. Suame started as a vehicle repair centre and has gained a reputation for cheap, flexible service. At the time of Dawson's research in early 1988, 52% of the firms in the cluster were involved in some type of vehicle work.

4.2.1 History and turning-points for vehicle repair in Suame

Kumasi has a long history in vehicle repair. In the 1950s and 1960s, five domestic and multinational concerns located large garages in the town. Until the early 1970s these garages dominated the local market for private

vehicle repair. Magazine fitters, who were generally at a low level of technical skills, undertook only minor repairs and conversions of lorries into passenger-carrying vehicles.

The first turning-point for Suame came with the 1972–73 budget, which imposed tight restrictions on the importation of new vehicles and parts (Dawson 1988: 21). The large garages, which were capital intensive and dependent on imported inputs, suffered, and small firms in places like Suame were able to fill the gap. Furthermore, economic mismanagement encouraged an active black market in vehicle spares, which broke the monopoly of the large garages and opened up opportunities to small firms.

From the mid-1970s, the range of clients and the type of service demanded from small firms began to widen. Large and small, public and private organisations sent their vehicles for repair to Kumasi, because it was the only place where vehicle spares were consistently available. Vehicles were even brought in from neighbouring countries. Imported spares were obtainable on the black market and when they were not, artisans improvised. Furthermore, Suame repairs were also cheap because firms evaded minimum-wage laws and income taxes. Since many of the artisans were present or former employees of large firms, the work was generally of a reasonable quality.

The boom continued, with minor interruptions, until the mid-1980s when the Economic Recovery Programme (ERP) took hold. Reforms in the import and currency markets encouraged the importation of spare parts, vehicle components, and entire vehicles. Although the majority of the spares went to the large commercial and corporate garages, these garages did not regain their former supremacy. The corporate garages were busier than they used to be because the corporations they served had more vehicles on the road, but this increase in activity seems not to have affected adversely the small firms in Suame. What did suppress demand for repairs was rising parts prices combined with a fall in the purchasing power of many vehicle owners. From the mid to the late 1980s nearly 70% of the sampled firms experienced a fall in demand and many went out of business (Dawson 1988: 24).

4.2.3 Economic context for vehicle repair in Suame

The market for vehicle repair in Kumasi consists of the government, private firms and organisations, and individuals. Most (96%), however, described their customer base as consisting largely of individuals. During the 1970s when Suame established its reputation, the number of vehicles was shrinking, but their poor condition, the access of Suame to spares, and the availability of cheap fuel led to high demand for its services. After the introduction of the ERP, Ghana's vehicle fleet grew, vehicles were in better condition (though hardly new), imported spares competed directly with Suame-made spares, and some of the larger garages started operating again.

The market for vehicle repair is highly competitive. Estimates are not completely reliable, but probably at least three thousand of Suame's reported five thousand workshops are involved in some aspect of vehicle repair. Add to this the few large garages that had resumed operations by the mid-1980s and small and medium workshops in other parts of Kumasi, and the result is intense competition. Most firms seemed to just wait for business to come to them, but Dawson (1988: 25) describes two entrepreneurs who maintained linkages over a number of years with larger firms and state-owned enterprises which did not have their own garage facilities.

These were the only two firms reporting an increase in business in the 1985–1988 period. Apparently the links gave them a competitive advantage in Suame's otherwise ruthless competition.

The vehicle repairers in Suame followed a pattern of specialisation similar to those in Thika. The largest group of firms were the mechanics (39.5% of the enterprises); straighteners and welders were next (25.4%), followed by upholsterers (8.4%), electricians (8.1%), sprayers (7.8%), and others (8.9%). Joint production through subcontracting should allow the cluster to reap the benefits of scale economies, even as the size of individual firms remains small.

Firms' exchange relations with suppliers and customers changed from the 1970s to the 1980s as a result of changes in Ghana's economic environment. During the 1970s, much of Suame operated on the fringes of legality. The firms, of necessity, used black market spares and, like many small businesses in developing countries, they failed to comply with labour laws and other regulations. When the new government that came to power in 1979 promised to attack corruption and the black market, many entrepreneurs began turning down work coming from government ministries and state-owned enterprises. By the mid-1980s, market liberalisation had reduced the need for black market spares, so on at least that front, the vehicle repair firms were able to operate more freely.

Dawson (1988: 23) claims that small enterprise in Ghana had 'traditionally' been heavily dependent on credit, with materials and parts often purchased and jobs done on a 'pay later' basis. This also began to change with the economic reforms introduced in the 1980s. As the government tightened the money supply, offering credit became more expensive and was consequently less common.

4.2.4 External economies in Suame Magazine

Market access is, once again, a major external economy. The concentration of vehicle repair firms brings customers. This apparently offsets the lack of advertising or other forms of marketing (Dawson 1988: 17).

Like Thika, Suame appears vulnerable to disabling labour-market pooling. Many young people train as apprentices, but instead of joining an existing business and thus enabling it to realise economies of scale, they most often set up their own business in direct competition with their former master. Nevertheless Suame's vehicle repairers manage to achieve greater efficiency than many small-enterprise clusters because the overall volume of business seems greater and the subcontracting system enables the small enterprises as a group to achieve basic scale economies.

The supply of intermediate inputs changed drastically with liberalisation. Before liberalisation, firms used either scrap metal from old vehicles, which was readily available from vehicles abandoned as beyond repair in Suame, or black market spare parts. Since liberalisation, these have been replaced by three new lines of supply: 'imitation parts' from Nigeria; relatively low price, low quality parts from Eastern Europe, India, and China; and, increasingly, parts made in the machine shops in Suame itself. These last include locally manufactured bolts and nuts, brass bushes, exhaust pipes, axle-shafts, and various body brackets (Dawson 1988: 23). These machine shops also recondition and/or manufacture parts on a one-off basis. The intermediate input effects are closely linked to market access in this case. When spares were difficult to get, customers knew that they would somehow be available in Suame, and this reputation for availability of needed parts attracted customers.

The small engineering workshops in the metalwork sector have contributed substantially to the technological capability of small vehicle repairers (Riedel and Schmitz 1989: 147; Dawson 1992: 37–38). The ability of these small machine shops to make both machines used in the repair process and vehicle spare parts has enabled the repairers using those goods to occupy niches that would otherwise be beyond their reach. Not all garages have, or even need, higher technology. Dawson (1992: 38) reports that, although the engineering workshops are important, they are few, and most garages continued to use the same hand tools as before. What is important is that the technology is present somewhere within the Magazine so that it can be tapped when needed.

4.2.5 Joint action among Suame vehicle repairers

The Suame vehicle repair cluster is characterised by extensive horizontal subcontracting linkages as well as by vertical linkages with the engineering firms producing spare parts. Subcontracting has linked small firms within Suame, and resulted in joint production. Although the Suame Magazine was begun by former employees of large firms, there is little contact between these large firms and Suame's small garages.

Strong vertical bilateral linkages between garages and metal workshops, mostly the engineering firms, lead to another form of joint production. A mechanic in need of a part goes to an engineering workshop carrying the old part. The workshop may either rework the existing part or make a new one using the old as a model. The mechanic then fits the part and continues with the rest of the repair job.

The Ministry of Industries created the Suame Garages Association in 1983 to act as a two-way communication channel between government and artisans, as well as a delivery vehicle for programmes of assistance (Dawson 1988: 46). At the time of the research the association was helping to select enterprises which were to benefit from a World Bank transport sector credit line. It was also involved in nominating candidates for courses at the National Vocational Training Institute and Management Development and Productivity Institute. In both instances, the association was having difficulties; this may be, as Dawson suggests, because it represents too wide a diversity of trades and activities with firms of too many sizes and types. It may also be that the association, as a creation of Government, lacks legitimacy and the support of its members.

4.2.6 Suame vehicle repair cluster: summary and conclusions

Despite a growing market and fairly impressive technological capability in some of its engineering workshops, most firms experienced a fall in demand and many went out of business. Dawson (1988: 24) rightly observes that Suame may be a victim of its own success. Its reputation as a thriving centre for small-scale enterprise attracts trainees and potential entrepreneurs in large numbers, with the result that most end up in enterprises too small to be efficient.

Linkages between metalwork manufacturers and vehicle repair firms within Suame have probably helped the cluster to do as well as it has, but they have not been strong enough to enable it to weather the cut-throat competition that has developed. The skills developed in the engineering workshops when spares were difficult to obtain continue to serve the cluster well, because the existence of the local workshops enable vehicle repairers to take on jobs that would otherwise have to be done in one of the large garages. There is some

indication (only 2 firms!) that linkages between small and large firms are important (see Alila and McCormick 1997). The lesson here may, however, not lie in the linkage. Rather, the important point may be that these two firms developed active marketing strategies that enabled them to avoid the intense competition that was enmeshing most of their counterparts. The Suame Garages Association, on the other hand, has not been an effective vehicle for joint action. Government and donors have planned assistance packages without adequate consultation, and the small vehicle repairers seem unable to organise for their effective use.

4.3 Vehicle Repair in Ziwani (Kenya)

Ziwani is a cluster in the Eastlands of Nairobi. At the time of the research in 1996–97, the cluster had 506 enterprises crowded into a 1.2-acre site. All were small, and all were engaged in vehicle repair or spare parts manufacture (McCormick *et al.* 1996).

Working spaces within the cluster are allocated on the basis of 11 named specialisations. According to Kinyanjui (1997), general mechanics represent the largest proportion of Ziwani repairers (22.4% of the total), followed closely by panel beaters (20.2%), spray painters (18.2%), vehicle-wiring specialists (18.2%), and gas and electrical welders (8.1%). Four other specialisations account for only 12.9% of the enterprises.¹⁴

All types of vehicles are repaired in Ziwani. All firms report repairing heavy lorries, 97% repair *matatus*, and 94.9% repair private saloon cars. The vehicles are mostly over six years old, and many firms said that they often repair vehicles in the 16–20 year age range. In Nairobi as in Thika, newer vehicles are more likely to be repaired in the large formal garages.

4.3.1 History and turning-points

Ziwani shares part of its history with Kamukunji. The cluster was founded by entrepreneurs relocated from other parts of Nairobi in 1972 (Kinyanjui 1996:14–15). Another influx of artisans from the Grogan site arrived in 1978, and there was a spurt of firm formation in 1989–90. These combined with a rather steady pattern of new business startups to bring the total to its present 500+ enterprises.

The cluster has experienced two major turning-points. The first coincided with the 1985 legitimisation of the *jua kali*. The president's action and the resulting changes in attitudes brought about growth and improved infrastructure in the Ziwani cluster. Ziwani was also one of the early beneficiaries of the Kenya Government's *Jua Kali* Shed Programme described earlier. The second turning-point came with market liberalisation and the accompanying massive importing of second-hand vehicles and spare parts.

4.3.2 Economic context for Ziwani vehicle repair

As in Thika, the market for vehicle repair is shared by the large formal garages, medium-scale garages, and small shops, including the *jua kali* enterprises. Also similar to Thika is the concentration on the repair of older vehicles. Heavy commercial vehicles and *matatus* predominate, but nearly all Ziwani firms also repair private saloon cars.

The overall market for vehicle repair is much larger in Nairobi than in Thika. Nairobi's population, estimated at 1.8 million in 1996, extrapolates to a vehicle population of at least 28,000. The fact that Nairobi is the industrial and commercial capital of Kenya as well as its political capital suggests that the vehicle population may actually be much higher. Furthermore, the main trunk road system, centered in Nairobi, is estimated to carry up to 90% of the country's heavy truck traffic (World Bank 1995). Of course, the population of mechanics is also considerably larger than Thika's, and without a full census it is difficult to estimate the degree of market saturation.

Most Ziواني vehicle repairers (78.1%) specialise in only one of the 11 repair types. The rest undertake between two and four different repair activities. As in Thika, some of the combinations appear to fit together and are often stages of a single repair job. This happens, for example, when a firm specialising in panel beating also does spray painting, or a wiring specialist also does welding. Such combinations may result in economies of scope, especially in cases where there is not enough demand to permit a firm to expand with a single specialisation.

Ziواني firms, with a mean of only 1.5 workers, are more like the firms in Thika than those in Suame, Kumasi, which average 6.5 workers (Kinyanjui 1996). This suggests that there may be unrealised economies of scale in Ziواني.

Contract enforcement is important in Ziواني, because of the extensive use of subcontracting. When the subcontractor defaults or fails to perform to the required standard, the main contractor may handle the problem himself or the contract parties can request the Ziواني *Jua Kali* Association to arbitrate. The association's willingness to enter into the role of arbiter of disputes between member firms is an important step towards institution building. By providing sanctions for firms that attempt to act opportunistically, the Ziواني association is reducing the risks of doing business with its members and strengthening the overall business environment. Trust remains a key factor in the selection of subcontract firms, but the development of a mediation process allows firms to move (using Zucker's [1986] categories) from process- and/or characteristic-based trust towards institutionally-based trust.

4.3.3 External economies

As with most small-enterprise clusters, the geographical concentration in Ziواني brings major benefits in the form of market access. Kinyanjui (1997) reports that nearly half (46.1%) of customers simply arrive at the repairer's place of work. The rest are brought by other customers (40.4%) or by friends (13.5%). When asked the advantages of being in the cluster, all of the businesses named 'availability of customers' either first or second.

Three-quarters (75.5%) of the entrepreneurs in Ziواني had no occupation before starting their present business and a sizeable majority (69.9%) of the artisans were trained in Ziواني itself (Kinyanjui 1997, 1998). These facts suggest that, like Suame and Thika, Ziواني could suffer from disabling labour-market pooling. Closer investigation, however, shows that relatively few firms are the recent startups one would expect to find if young people were going into business in Ziواني immediately after training. The firms that were founded in 1991 or later (14% of the total) are hardly enough to cause a major competitive threat to existing entrepreneurs.

Ziwani includes 30 manufacturing firms producing vehicle parts, machines, and household goods (McCormick *et al.* 1996). The vehicle parts manufactured include silencers, rubber bushes, chassis, and car seat cushions. The two spares shops run by the association stock these local manufactures as well as imported and/or domestic spares. Despite the presence of shops in the cluster, three-quarters (75.8%) of the repairers buy spares on Kirinyaga Road, an area known for its high concentration of autospare shops, and half (50.5%) purchase some spares in the industrial area. All in all, autospare are readily available to Ziwani firms.

In general, Ziwani's potential for technological spillovers is very similar to that of Thika. Vehicle repairers readily share ideas and information about repair procedures, but what they share is limited by their lack of current technical knowledge. The choice of Ziwani by the United Nations Industrial Development Organisation (UNIDO) for its training facility offers the promise at least of technological upgrading. UNIDO has sponsored the building of a training facility for skill development and also provided equipment for use in Ziwani. The building was originally projected to have been completed by mid-1997, but is unlikely to be ready before mid-1998.

4.3.4 Joint action

As with vehicle repair elsewhere, the subcontracting system in Ziwani gives rise to horizontal linkages among small firms with different specialisations. Almost all (99%) of the firms subcontracted work out, and an equally high proportion reported receiving subcontracts (Kinyanjui 1998). Subcontracting relationships are long-lasting. Over one-quarter of the enterprises (26.8%) said that they never change subcontractors, while more than half (59.8%) said that they change only infrequently.

Other bilateral linkages are weak or non-existent. Approximately one-quarter (24.7%) of the Ziwani firms reported exchanging equipment with other enterprises (McCormick *et al.* 1996). There may be somewhat less bilateral sharing than in other clusters because the Ziwani Association has purchased some items that it makes available to members. Like their counterparts in Thika, Ziwani entrepreneurs have few links with vehicle assemblers or large-scale garages (Kinyanjui 1998).

Ziwani entrepreneurs have strong multilateral linkages through the Ziwani *Jua Kali* Association. All (100%) enterprises in Ziwani are members. The association is involved in the general management and administration of the cluster (Kinyanjui 1996: 15–16). As already described, the association acts as a mediator in disputes between member enterprises. It is also attempting to improve the image of the cluster by strengthening general discipline within and around the site and by taking measures to control theft and the sale of stolen vehicle parts. This is being done, according to association officials, in order to make the cluster more attractive to potential customers.

The Ziwani *Jua Kali* Association has spearheaded several other specific joint actions. To ensure security of tenure for the enterprises, it purchased the Ziwani site from the Nairobi City Council. The association has also purchased industrial gas cylinders which it makes available to members, thus reducing their capital costs. In 1997, it enabled members to obtain Kenya's new identification cards with minimum effort, by arranging for registration to be carried out at the Ziwani site.

The Ziwani association is, however, not without its problems. In 1996 the secretary absconded with a large sum of money, leaving the members demoralised. The present leadership appears to be honest, but it has not been successful in all its undertakings. Despite improvements in organisation, Ziwani still has a clear *jua kali* image that frightens away many potential customers. The association is also engaged in a dispute over the land that is taking a considerable amount of the officials' time. In an important effort at future planning, it applied for a bank loan to enable it to purchase diagnostic equipment for repairing the Dubai cars. When the application was refused on the grounds that the association had no legal standing to borrow, the officials turned to the government for help. Here also they were rebuffed. It seems that MRTTTT sees these businesses as *jua kali* that should not aspire to major upgrading. The association now intends to ask a donor for funds so that it can buy the equipment without involving either banks or government.

4.3.5 Ziwani motor mechanics: summary and conclusions

Currently the main external economy available to the Ziwani vehicle repair cluster is market access. The atmosphere is ripe for positive technological spillovers, but neither the promised training programme nor the high-tech equipment needed for diagnosing and repairing new vehicles appear to be forthcoming.

The strength of the cluster is in its linkages. Like its counterparts in Thika and Suame, the cluster is characterised by strong production linkages. Nearly all of the firms give and receive subcontracts. Much subcontracting is a sharing of work based on firm specialisations, but a small proportion represents sharing of jobs within a given specialisation, usually because an entrepreneur has more work than he can handle. As a result, Ziwani's artisans seem to be able to work efficiently enough to compete in Nairobi's vehicle-repair market. Nevertheless, the fact remains that these enterprises are tiny, even compared with other African vehicle repairers. The issue of mergers or other types of combinations to achieve greater scale economies did not come up in this research.

The Ziwani *Jua Kali* Association has followed through on the difficult process of purchasing the Ziwani site, and is now seeking funds to enable the cluster to invest in new technology. It is this last effort that may prove most telling. If they can obtain the equipment and related training to enable them to enter successfully into the market for repair of the current generation of vehicles, the *jua kali* will have reached a new level of acceptability and integration into the process of Kenyan industrialisation.

The cluster repairs all types of vehicles. This means that its market is potentially as wide as Nairobi. In fact, most vehicles presently repaired in Ziwani are old even by Kenyan standards. Association officials believe that, to attract the owners of newer vehicles, the cluster will require both technological upgrading and an improved image. Recognition of the need to attract customers is one thing that sets the Ziwani association apart from most small-enterprise associations. It is a positive development that deserves support.

5 DIVERSIFIED INDUSTRIAL CLUSTERS

Clusters that either include medium or large firms, or have clear links to such firms or to other larger organisations appear to be rare in Africa. The secondary literature yielded only two clear examples of such diversified industrial clusters. Both are in South Africa, and both produce garments. One, the Western Cape

clothing cluster, was well described and is included here. The second garment cluster is based in Durban. Since the available study analyses only a portion of it – a concentration of subcontractors in Port Shepstone (Harrison 1997) – an assessment of the cluster as a whole was not possible. The third example, Kenya's Lake Victoria fish processing industry, comes from our own research.

5.1 The Clothing Industry in the Western Cape (South Africa)

South Africa's Western Cape accounts for 45% of local clothing production and half of the country's total clothing exports. It also dominates the production of higher-quality, 'fashion' clothing (Wilkins and Kane 1997). October (1996: 17) argues that the proximity of retailers and manufacturing in the Western Cape is the cluster's most important feature. He believes that the presence of the large retailers and the manufacturers' almost total reliance on these distribution channels has affected the size and structure of the firms in the industry, the state of the region's design capacity, its quality standards, and the development of highly dependent subcontracting and marketing relationships.

5.1.1 History and turning-points of the Western Cape clothing cluster

Until the 1920s, clothing in South Africa was either imported or tailored (October 1996). The beginnings of the cluster seem to be associated with the development of the textile industry in the Western Cape. Whatever the original impetus was, the cluster has grown from 30 factories employing 3,500 workers in 1935, to over 500 factories with 47,000 workers in 1994 (see Table 5.1).

Table 5.1: Western Cape Clothing Factories

Year	Factories	Employees
1935	30	3,500
1940	40	4,772
1950	104	13,204
1960	166	19,787
1970	253	37,743
1980	332	53,421
1990	433	54,267
1994	538	46,868

Source: October 1996: 6

The data in Table 5.1 suggest two turning-points in the history of the Western Cape clothing cluster. The first was in the 1940s when the number of factories and workers nearly tripled. According to October (1996), import difficulties during World War II account for this major expansion in the domestic clothing industry. The cluster continued to grow steadily for the next three decades. Employment nearly doubled during the 1960s, and increased by 42% in the 1970s. By the 1980s, however, growth slowed. The 1990s have witnessed a drop in total employment despite increases both in the number of firms and in exports.

October (1996: 6–7) explains the latest turning-point in terms of the opening up of the South African economy. The decline in production and employment, he believes, was mainly due to an increase in imports of new and second-hand clothing. After a small improvement between 1993 and 1994, employment declined again in 1995–96 due to further tariff reductions and illegal imports. Exports also increased, but still account for only 10% of local production.

5.1.2 Economic context for clothing production in the Western Cape

Clothing is a buyer-driven industry. The organisation of the industry, types of interfirm cooperation, and profit levels are primarily determined in the case of South Africa, by the major retailers, design houses, and foreign buyers (October 1996: 16). South African markets are much more developed than those in other African countries. This is not surprising, since both per capita incomes and populations are higher. South Africa's 1995 per capita income of US\$3,160 was over six times the average for Sub-Saharan Africa, and its population of 41.5 million is the fourth largest on the African continent (World Bank 1997). South Africa's superior infrastructure and well-developed retail sector also mean that clothing producers can more easily reach a national market.

The size of the firms in this cluster suggests that obvious economies of scale have already been realised (see Table 5.1). The cluster contains a mix of firms of different sizes and levels of integration (Wilkins and Kane 1997). The largest share of production and employment is concentrated in a few large firms. The 20 largest firms have more than 300 workers; 66 firms have 100 to 300 employees each. At the low end of the cluster structure are 138 firms with between 5 and 100 workers and 146 firms with fewer than 5 employees. Almost half of these small firms are subcontractors. There has been a significant increase in the number of home-based 'Cut, Make, and Trim' firms (CMTs) in the past five years. October (1996: 25) mentions the existence of 'mini clusters' of up to 100 small firms within the region. Such mini-clusters seem to consist of firms with similar specialisations and/or characteristics.

On the surface, South Africa appears to have better developed institutions than most Sub-Saharan African countries. We would, therefore, expect trust to be higher and the institutions governing exchange to be more facilitative. The unevenness of South African development, however, makes it difficult to judge the extent to which specific business owners can rely on the institutions to support their entrepreneurial activity.

Specific arrangements in force in the CMT trade favour the agents and larger producers. The general practice is for marketing agents to give and receive production orders. Broken agreements between marketing agents and CMTs usually centre on late deliveries and/or poor product quality. In such cases, the CMT firm is liable for a daily penalty for lateness and must bear the cost of rejected goods.

5.1.3 External economies in the Western Cape clothing cluster

External economies in the Western Cape cluster appear fairly strong. Eighty percent of firms identified the close proximity to retailers, availability of skilled labour, and access to specialised services as advantages to locating in the Western Cape (October 1996: 21). Although some firms are technologically advanced and even welcome others to see their factories, technological spillovers did not rate highly as an advantage of the cluster.

Access to the market may be the major benefit of locating in the Western Cape clothing cluster. Since only a small proportion of firms export, access to the retail chains that dominate the domestic market is a decided benefit for any firm. The headquarters of all but one of these major chains are located in the cluster, as are the major mass suppliers to the lower and mid-upper ends of the market. The Western Cape cluster is the main supplier to these chains.

The cluster contains nearly 47,000 employees of garment firms, and an additional 23,000 workers in related industries (October 1996: 7). This certainly seems to be a significant pool of labour available to the garment industry. It is not, however, clear from the description of the cluster what skills these workers have and whether skill levels have been increasing.

Although the cluster includes textile firms, and a large number of specialist firms linked to the clothing industry, such as fabric printers, suppliers of trims, and vendors of new and second-hand machinery, clothing producers obtained less than one-quarter (22.4%) of their intermediate inputs from within the region (October 1996).

The introduction of the latest technology in the industry has been limited to large- and medium-sized firms who have mainly adopted computerised pattern designing, marking, and grading (October 1996). Most small firms, on the other hand, have no specialised machinery. The closure rate for small firms is also very high, limiting the possibility of technological spillovers from the larger enterprises.

A characteristic of the Western Cape Clothing Cluster, which sets it apart from many of the enterprise clusters discussed in this paper, is the ease with which information is disseminated. October (1996: 14) reports that 'all firms interviewed had visited other factories to look at new technology or different forms of work organisation such as just-in-time.' One of the large, technologically advanced firms, has an open door policy and welcomes a large number of firms to its factories.

5.1.4 Joint action in the Western Cape clothing cluster

The Western Cape cluster has extensive horizontal and vertical linkages that have resulted in various forms of joint action. Horizontal cooperation between firms at similar stages of the production process is common (October 1996: 13–15). Firms cooperate to handle large orders, present joint clothing ranges, share information, use marketing agents jointly, and lend machinery. Cooperation on producing for the export market is growing. The cluster is also characterised by specialisation and subcontracting. Design houses, firms specialising in cutting services, and a large number of pleating firms have emerged in the last decade or so. Subcontracting in the cluster falls into one of two categories: operations which require highly specialised equipment and skilled labour, and operations which are simple and labour-intensive.

Horizontal multilateral cooperation is institutionalised in various associations and organisations. There are two employer organisations: the Cape Clothing Manufacturers Association (CCMA) and the Garment Manufacturers Association (October 1996: 15). The CCMA represents mainly the larger and more established manufacturers. In 1994, it had a membership of 108 firms, or 35% of all firms registered with the Industrial Council. The Garment Manufacturers Association (GMA) represents just over 40 small firms. Another association, the Mitchells Plain Garment Manufacturers Association, has recently emerged. The associations are

active in industrial relations, but they are also attempting to undertake new roles, including the screening of foreign exports of fabrics and other inputs, small firm development, and the dissemination of information. The GMA is frequently used as a source of information by manufacturers needing specialised CMTs. The relationships formed within the association have also led to sharing of orders, passing on of work, and sharing of information (October 1996: 16).

The Western Cape cluster has significant vertical linkages. One of the changes in the cluster noted by October (1996) was the growing cooperation between retailers and manufacturers on clothing design and fabric selection. Such bilateral cooperation is accompanied by vertical joint action among groups of firms. Groups of companies who are not direct competitors use the same agent to market their products. These are used mainly by the medium-sized companies to obtain orders from retailers located outside of Cape Town. A potentially more important type of agent has arisen in the export market. A number of companies in Cape Town who export to Germany are using the same agents. According to one of the companies interviewed, these agents play an important role in transferring information and design techniques, and ensuring quality standards (October 1996: 15).

5.1.5 The Western Cape clothing cluster: summary and conclusions

Understanding the distribution channels and the role of traders is particularly important for analysing the Western Cape clothing cluster. Retailers are crucial to the domestic market and a new type of marketing agent could become key to gaining the cluster a place in the world market.

The cluster has, over its fairly long history, developed significant external economies. Location within this cluster brings clear benefits of market access, availability of intermediate inputs, labour-market pooling, and, to a lesser extent, technological spillovers. Technological spillovers have the potential to be significant, especially since large firms seem very willing to share information with one another. Benefits from all of these external economies mainly accrue to the large and medium-scale producers.

Cooperation between large and medium-scale producers is beneficial to all, but small firms in the cluster appear to be relegated to low-profit activities that give them little opportunity to develop. Small-firm joint action, on the other hand, is weak. The main association of smaller firms – the Garment Manufacturers Association – has only 40 members. A second one is forming, but it is localised in the Mitchell's Plain Hive, so it may not have cluster-wide impact.

Few firms are exporting. Small firms seem least likely to enter export markets on their own and may not benefit much from doing CMT work for larger exporters. An important development in the cluster is the emergence of a new type of agent who serves the exporting firms by transferring information, disseminating design techniques and ensuring quality.

5.2 Fishing and Fish Processing at Lake Victoria

Kenya's Lake Victoria fish cluster encompasses industrial fish processors and their supply beaches. Most of the industrial processors are located in Kisumu, a town on the shores of the lake. All produce frozen and/or chilled fish fillets mainly for the export market. The fish is supplied by traders operating in and through some 65

fishing beaches on the Kenyan side of the lake (Ogotu 1988). For purposes of understanding their structure and dynamics, one was selected for intensive investigation (McCormick *et al.* 1995, 1996; Mitullah 1996, 1997, 1998). Although that cluster – Uhanya Beach – may or may not be representative of the population, much can be learned by examining its activities through the lens of collective efficiency.

5.2.1 History and turning-points of the Lake Victoria fishing cluster

Lake Victoria has had a long history of artisanal fishing. The Luo people, who live around the lake, enjoyed fish as a part of their normal diet. The lake had a variety of species and artisans caught, processed, and to a limited degree, traded many of them. Activity in places like Uhanya Beach grew slowly through the 1970s, with most of the impetus coming from increased trade for a widening local market.

The early 1980s brought a major change in Lake Victoria fisheries. Three factors converged to bring about what has been called the Nile Perch boom (Mitullah 1998). The first factor was a virtually untapped supply of large fish, the Nile Perch, which British scientists had introduced into Lake Victoria in 1954 (Geheb 1997: 68–69). The second factor was the demand for quality fish by consumers in industrialised countries, which continued to grow as fish supplies in northern waters dwindled (Jansen 1996). The third factor, which has largely been overlooked in existing studies of this industry, was the presence in Kenya's Asian community of both capital and entrepreneurial skills (Himbara 1994). The result was the establishment in Kenya of a major fish-processing industry that by 1995 was exporting over 12,000 tonnes of Nile Perch valued at US\$ 29 million, most of it destined for markets in Europe, Japan, Israel, and North America (Kenya 1995b).¹⁵

Fish supplies began to fall in the early 1990s as a result of poor fisheries management. Four main factors appear to explain the falling catch: overfishing, the practice of catching juvenile perch, trawling, and the spread of the water hyacinth weed (Mitullah 1998). The first three factors are interrelated and mutually reinforcing. As overfishing reduces the supply of large fish, some fishermen – especially those with traditional non-motorised boats – begin to use smaller nets that bring smaller fish. As more and more small fish fail to mature, the problem grows. Other fishermen with more resources have responded to the diminishing catch by trawling, a practice which, if carried out during the breeding season, can destroy nursery grounds. The spread of the water hyacinth has effectively closed many fishing beaches and reduced fishing opportunities for artisanal fishermen.¹⁶

Despite shrinking supplies, the industry at all levels continued to be profitable until, in early 1997, two people in Spain died of salmonella poisoning after eating Nile Perch imported from Uganda. Spain immediately imposed a ban on imports of East African Nile Perch. Other European countries followed suit, and then the European Union (EU) acted on behalf of all its members to ban Nile Perch imports. The effect on Kenya's fish industry was immediate and devastating. Factories that had been supplying the European market had to cut production drastically pending a visit by EU inspectors. Prices at the beaches dropped from K.shs 50 per kilo to 25 per kilo almost overnight. When the inspectors came to Kenya, they found that the handling of fish was unsatisfactory both at the beaches and in the factories. At Uhanya Beach, the main problem was the way fish was moved from the boats to the factories' refrigerated trucks. Fish was often dragged along the ground and then thrown on the dirty cement floor of the cooperative's weighing shed or *banda*. From there, agents of the

large-scale processors selected the best of the catch and placed them on ice in insulated trucks to be transported to the factories. Some factories were also cited for poor sanitation, and the inspectors outlined new procedures that had to be followed by processors exporting to the EU.

The response to the shock was mixed. Some processors used to operating in less fussy markets made few changes as a result of the EU inspection visit. Those processors who depended on the European market cooperated both with the inspectors and the Kenyan health authorities to improve conditions within their factories. Several made major investments to ensure that they could comply with EU standards, and at least one sought and obtained ISO 9000 certification. The change in Uhanya Beach was dramatic. A visit to the beach in June 1997 revealed a new *banda* located only a few metres from the water's edge. Fish were being transported suspended from poles to ensure that they did not touch the ground. Upon reaching the *banda*, they were washed in chlorinated water and placed on a clean surface for selection. The fish selected by the factory agent received a second dipping into salted, chlorinated water before being placed in the truck. The whole process, including the investment in *banda* and water treatment facilities, was the result of a collaboration between Uhanya's largest trader and one of the large-scale fish processors.

5.2.2 Economic context for fishing and fish processing

Most Kenyan Nile perch is destined for the lucrative export market. Europe, as already indicated, is the most discriminating market. Its quality standards are very high, and because Europe is now essentially one market, a problem perceived in one country quickly spreads to all of the others. Kenyan fish is also exported to Japan, Israel, and North America. Most of the processors claimed not to know the final destination of their fish. Their customers are importers who resell the fish to others. Only one company mentioned specific uses, such as fast food chains in Japan and supermarkets in North America.

The export market is large. No fish processor reported lack of demand. On the contrary, most could sell much more, if they had larger supplies of raw fish. The domestic market is both smaller and more diverse. Fresh and frozen Nile Perch are sold to hotels, institutions and retailers, mainly in Nairobi and the larger towns. Artisanally processed fish, which is very popular in the western part of Kenya, finds its way to markets throughout the country. Finally, there are markets for various fish by-products. The so-called 'fish frames', the skeletons remaining after factories complete the filleting process, are demanded both by those processing for low-income consumers and as an input into the fish meal animal feed manufactured by several large factories in Kenya. The fish bladders are a food delicacy in China, and an ingredient in isinglass, a substance used, among other things, for making glue and clarifying wine.

It is difficult to assess the availability of economies of scale. Most fish processors were operating under capacity, many at only one-third or one-half of potential output. This suggests that economies of scale should be realisable, although the fact that the larger factories tended to operate more than one production line indicates that physical scale economies may be quickly reached. Export processing may, however, give rise to certain managerial economies resulting from the need for marketing, financial, and bureaucratic expertise.¹⁷

No obvious economies of scope emerged from our interviews of the large-scale processors. On the other hand, most processors seemed uninterested in the possibility of diversifying into products that might offer such

economies. Only one large firm indicated that it was considering processing other types of fish, or developing new Nile Perch products.

The institutions governing exchange relations generally benefit the large-scale processors and their agents at the expense of the fishermen. Transactions between traders and/or agents and the individual fishermen are normally in cash. There are, however, some exceptions. Mitullah (1998) reports that Uhanya's largest trader has formal arrangements with three factories that guarantee him future payment should he supply fish worth more than the cash the driver is carrying.

According to one factory owner, most processors enter into a verbal or written agreement with their agents that specify a fixed price, but allow for certain variations. One informant described the power of the truck drivers who often double as agents:

Imagine a driver who has six tonnes of fish in a seven-tonne truck. When a fisherman comes late, the driver says that he can only buy at 20 shillings per kilo. The driver has been authorised to pay 35 shillings per kilo, so the difference is his.

Agents do not always honour their agreements. One beach ran into serious difficulties when an agent defaulted on his contract with a factory and absconded with his cash advance.

5.2.3 External economies in the Lake Victoria fishing cluster

Market access is an important consideration for fishermen and traders operating within Uhanya beach. Fishermen who land their fish at Uhanya have ready access to the daily line of trucks taking fish to the factories and, if some or all of their catch on a particular day is not up to factory standards, there are plenty of traders and local processors who will buy the 'rejects'. This no doubt explains why 86.7% of the fishermen interviewed said that, if they were forced to relocate they would move to a similar cluster.

Small-scale traders also find Uhanya a convenient location. The road is better than the roads to many beaches, and the area is served by *matatus* (public mini-buses) and buses that enable small-scale traders to move quickly to other locations. Most small traders (65.8%) felt that they would not obtain the same results in a different location. Most of these pointed to market factors as the reason why they prefer Uhanya: Uhanya is an active beach and their customers are there. The largest traders, on the other hand, were less wedded to Uhanya. Although they recognised that Uhanya has 'easy transport and a good landing bay', they felt that they could be as successful elsewhere as long as there was a good transport system.

Labour-market pooling does not seem to be a major source of external economies in the cluster. Both fishing and fish processing can, according to the respondents, be learned in less than two months by even the slowest learner. Workers in factories seem to require only minimal skills.

Although some inputs are available within Uhanya, fishermen and artisanal processors have to travel as far as Kisumu, some 65 km. distant, for others. The major inputs into factory production are electricity, water, chemicals for water treatment and fish sterilisation, fish and packaging materials. Both electricity and water are problematic throughout Kenya, forcing business owners to invest in backup facilities, but other inputs seem to be easily available.

Technological upgrading has taken place in a number of factories and at selected beaches as a result of the EU's inspection visit. The upgrading of the factories seemed to happen on a factory-by-factory basis, depending on whether the particular producer intended to export to the EU. The relative isolation of the factories from each other works against any real spillovers. Beach upgrading, similar to what happened at Uhanya Beach, has taken place at least one other beach. Within Uhanya Beach, however, we saw no evidence that the improved fish handling techniques developed for the new *banda* had been adopted by others in the cluster.

5.2.4 Joint action among fishermen, traders and fish processors

Joint action in this cluster needs to be considered in three parts: first, for actors in Uhanya Beach; second, for the industrial processors; and finally, for the two together.

In Uhanya, little effective horizontal joint action exists at any level. Although at first sight, horizontal cooperation appears to be strong, with 90 per cent of the fishermen belonging to the Yimbo Fishermen's Cooperative Society (YFCS), nearly all members reported that the Cooperative had no role in the two potentially most important forms of cooperation: price setting and quality control (Mitullah 1998: 44). Furthermore, despite awareness that access to cold storage would give fishermen an advantage in bargaining with processors over fish prices, no action has been taken. Apart from a few ice boxes on individual fishing vessels, cold storage facilities are entirely lacking. Strategically, this is a serious collective failure, because it means that fishermen will continue to be price-takers at the mercy of traders and processors. Fishermen, aware that the cooperative was not benefiting them, registered a parallel association in 1993, but when YFCS officials used their political power to force fishermen to pay commissions to the cooperative, the new association fell dormant. Most fishermen (93.3%) are also members of the Uhanya Beach Organisation. This association, however, primarily addressed welfare rather than business concerns. More than half (56.7%) of the fishermen subcontracted out some service activities such as net repair, boat repair, and transport (Mitullah 1998: 41). This probably increased efficiency marginally, but did not seem to be a major feature of their operations.

Perhaps even more surprising than the lack of joint action in Uhanya is the almost total absence of cooperation among the industrial processors. Their small numbers, geographic proximity, and for the majority, ethnic affinity, would seem the ideal backdrop for co-operation. Yet they have no sectoral organisation, and our interviews revealed a great deal of mistrust among them. None of them believed that an association or other form of cooperation would be beneficial. One even said that he often saw one of his competitors near his plant with binoculars! Despite this general lack of cooperation, business owners did respond when called by government health officials to meetings prior to the EU inspection.

Unlike most of the clusters considered thus far, the most significant joint action in Lake Victoria's fish cluster has been vertical. Trading linkages have spawned vertical bilateral joint action. Mitullah (1998) describes a very strong vertical linkage between Uhanya Beach and the industrial processors that has resulted in the beach upgrading. A large trader, responsible for more than half of the fish trade in Uhanya, has formal arrangements with three industrial fish processors. This is unusual and, apparently, each factory considers this person to be 'its' agent at Uhanya. It was this trader, working with one of his partners, who was responsible for the upgrading that enabled Uhanya to continue supplying fish to the European market.

Many of the large-scale processors also have strong vertical linkages to particular importers in Europe, but these linkages apparently did not result in assistance or investments to enable the factories to meet EU standards. Rather, each factory that chose to upgrade its facilities did so on its own with internal or borrowed capital.

5.2.5 Lake Victoria fishing: summary and conclusions

Effective vertical bilateral joint action has, for the moment at least, worked in the Lake Victoria fishing cluster. Uhanya Beach has been upgraded to the point where it can continue to provide fish acceptable to large-scale processors exporting to the European market. Undoubtedly large profits are accruing to the partners in this action: Uhanya's largest trader and the factory he worked with. This trader's other partners seem to be unknowing free riders, also profiting from the investment. It is also true that the action, by restoring fish prices to their pre-shock levels, has preserved incomes for over 500 tiny enterprises within Uhanya Beach.

The cluster has been less successful in dealing with the continuing problem of dwindling fish supplies. Many of the industrial processors seem to be trying to make up for the shortfall by getting fish from other parts of the lake. No one really seems interested in addressing the root of the problem which is, according to environmentalists and other key informants, overfishing and, especially, the practice of taking undersized fish. Only one factory considered getting Nile Perch from sources outside of Lake Victoria. Such a move would, if feasible, benefit the firm in question but the increased supply would probably mean lower prices for the lake's fishermen. Similarly, only one large-scale firm expressed any interest in diversifying its products to include either other types of fish or higher-level processing. It would seem that either strategy would remove some of the pressure for continually increasing Nile Perch supplies from the Lake fisheries, while at the same time allowing large-scale factories to maintain or increase profits. Here again, such strategies would mainly benefit the factories and would run the risk of reducing the prices paid to fishermen.

Fishermen and small-scale traders and processors are especially vulnerable because they have no effective mechanism for collective action. It would appear that the development of the cluster has been accompanied by growing income inequality. Large-scale processors and traders have prospered while artisanal fishermen and processors, and small-scale traders have benefited only marginally (Mitullah 1998: 33). Existing cooperatives have been ineffective in dealing with critical upgrading issues. New mechanisms for horizontal joint action are evidently needed. Fishermen need the freedom to form associations that they believe will work for their interests, and to drop out of those that provide no benefits. Traders have this freedom and most have chosen not to belong to any existing business association. Perhaps an investigation into the reasons for this would shed further light on the rather complicated issue of horizontal linkages among small firms.

6 CONCLUSIONS

This paper began with a question: Is the metalwork cluster in Kamukunji, Nairobi, part of Africa's industrialisation process? Analysis of the internal workings and external environment of clusters in Africa

suggests that the answer must be 'yes', but that this is not the end of the story. Enterprise clusters in Africa are at very different levels of development, and their ability to contribute to industrialisation varies accordingly.

Clusters can and do further the industrialisation process, but they do so in different ways. Those in the first group make their contribution mainly by building a productive environment that, in some respects at least, prepares the ground for the emergence of collective efficiency. Clustering clearly facilitates market access and allows some firms to produce their goods in quantity. Some may then make the transition to factory production, while others combine craft methods with increasing mechanisation. The fact that the firms are clustered also encourages associational activity to begin. It is no coincidence that associations in such clusters usually focus on efforts to improve working conditions within the cluster or gain access to needed supplies. Infrastructure, especially water, electricity, and access roads are the most basic needs of industrial production. Without them, these clusters are unlikely to move ahead.

The second group of clusters has much clearer signs of emerging collective efficiency. These clusters are already industrialising, but remain limited by the weak technology of most of the firms and the frequent sidetracking of associational activity. Firm sizes in these clusters are similar to the first group, but the greater specialisation and differentiation of firms leads to bilateral production linkages and, ultimately, to higher efficiency. Higher-level technologies in at least some of the firms sets the stage for positive technological spillovers. In cases where basic infrastructural and input needs have been met, associations can begin to deal with issues of markets and technology.

The Western Cape clothing cluster and the Lake Victoria fish cluster include large- as well as small- and medium-size firms. They aim for wider markets, both national and foreign, and are generally able to produce competitively. Here, however, the resemblance between them ends. The Western Cape cluster is situated squarely within the industrialisation process. Market access, labour-market pooling, intermediate input effects, and technological spillovers are all present and positive. The cluster is characterised by extensive and varied linkages – bilateral and multilateral, vertical and horizontal – that result in joint action in production and on key issues affecting the cluster. The greatest need in this cluster and others like it is for continuing market analysis, focused particularly on the export market, and for upgrading the small-firm segment of the cluster to encourage more equal sharing of benefits. The existing associations can probably handle the first task, but the small firms may need the assistance of government or NGOs in their efforts to strengthen their position.

The Lake Victoria cluster, on the other hand, is fragile. It has weathered an important storm in the EU quality shock, but its weak mechanisms for joint action raise questions about its ability to step up output and quality. The unequal power relations between the fishermen on the one hand, and the large traders and processors on the other, mean that even when the cluster prospers, benefits are not well shared. Furthermore, the challenge of dwindling fish supplies has not been adequately dealt with. All of these problems suggest that those concerned need to work together. This will probably require new forms of public–private partnership.

The analysis raises other issues that cut across the three groupings of clusters. The first of these has to do with the interplay of market access and firm growth. Across the clusters analysed there is evidence that clustering reduces the growth constraints frequently identified in the literature on small enterprise. The most notable example is access to markets. All clusters have been able to attract customers, from traders to final consumers, as a result of the concentration of producers. The problem is that the size of the markets they are

connected to in most cases remains small. This may partly explain why specialisation and skill development have failed to develop very far in most of the small-enterprise clusters as well as why the middle-sized firms, generally found in clusters elsewhere, are missing.

Another issue that cuts across the cluster groupings concerns the relationship of institutions to cluster development. Institutional issues take at least two different forms. The first is the failure in many instances of institutionalised cooperation, especially associational activity, to improve cluster operations. One would expect that associations and cooperatives, as vehicles for bringing together persons with similar interests, would be strong forces for positive joint action. Yet our findings indicate that this is frequently not the case. Some, like the Uhanya cooperative, are viewed as milking the membership. Others seem to get sidetracked or bogged down in a single difficult problem. The reasons advanced to explain particular cases often do not apply more generally. For example, both the Ziwani *Jua Kali* Association and the Suame Garages Association were creations of government rather than of the membership. Yet one appears to be at least attempting to address the cluster's strategic needs, while the other is languishing as a government 'errand boy'. Research focused on these institutions and their multiple linkages and interests is probably needed to assess their potential role as engines of cluster development. The second institutional issue concerns the effect of weak institutions on exchange relations and, ultimately, on the cluster's performance and growth. In several clusters, for example, we observed that producers' lack of ability to enforce commercial contracts narrows the market and/or limits operations to cash transactions. Such a situation constrains business activity and makes a firm vulnerable to theft, sometimes on a large scale. Much more research, especially comparative research, on the development of economic institutions needs to be undertaken. Such research should consider social and political, as well as economic factors affecting the genesis and growth of institutions.

Repair activities figure prominently in several clusters; some engage in both repairs and manufacturing. The relationship of repairs to manufacturing is an important one, not only because it offers some firms the opportunity to realise economies of scope, but also because industrial history in many countries and sectors shows manufacturing growing out of repairing. This is beginning to happen in some of the clusters studied. Whether significant small-scale manufacturing can develop from these activities will depend, among other things, on the size of the market these manufacturers can access and their ability to compete, in terms of quality and price, with newly available imports.

Many of the small-enterprise clusters derive in one way or another from the implementation of government spatial policies barring certain activities from residential areas and central business districts. The relocation of businesses has created new clusters. Kamukunji, Thika, Ziwani, and Suame are all the result of such 'forced agglomeration'. It is interesting to note, however, that many of the enterprises that were forced into these clusters were already clustered elsewhere. The new cluster then consisted of one or more groups of enterprises from other locations that were later joined by others, who moved in individually or started their businesses in the new cluster. In such circumstances, forming a group identity can be a slow and painful process, as producers may tend to hold on to old allegiances. In the Thika cluster, for example, the Mariko *Jua Kali* Association is a carryover from the former market site. Although it is a welfare, rather than a business association, many of its members apparently felt that one association was enough and did not bother to join the site association until very recently. This may partly explain the lack of effective joint action in the Thika cluster.

The analysis suggests that there is plenty of scope for positive intervention at both policy and programme levels in enterprise clusters. If, as appears to be the case, clusters further the industrialisation process, then countries with industrialisation on their development agenda would do well to enact policies favourable to cluster formation. Such policies might include incentives for producing firms of varying sizes to locate within clusters, priority to clusters in infrastructure decisions, and encouragement of associational activity. At the level of programmes, both government and non-governmental organisations can assist the development of collective efficiency: providing business ideas and training to encourage the emergence of specialist producers, traders and service enterprises, or strengthening cooperation between enterprises. The measures to be considered include: subsidising visits to trade fairs or joint stands at such fairs, support for standardisation, support for arbitration services, or fostering cooperation between enterprises through external assistance.

This paper has attempted to draw together information from a relatively small group of studies. Most of these have their origins in small-enterprise research, and all come from a few countries in English-speaking Africa. Inclusion of other clusters in other countries might modify these results. Studies that compare clustered with isolated firms in the same industry might shed new light on the effects of clustering. Further exploration of aspects not well covered in the studies reviewed here, such as the institutional framework, and social and political variables, will also help to deepen our understanding of the functioning of clusters. These considerations notwithstanding, it appears that enterprise clusters can be one way towards industrialisation for African countries. Supporting enterprise clusters may not result in industrialisation tomorrow. But informed support, which recognises that clusters have different needs at different stages of development, will probably help it to happen sooner rather than later. This is an important finding for associations, governments, donors, and those businesses that make clusters their home.

NOTES

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2. *Jua kali*, the Swahili words for 'hot sun', was originally used to refer to artisanal manufacturing and repair businesses that operate without shelter, but has gradually broadened to cover many types of small enterprises.
3. This notion of cluster, while it shares its geographic dimension with the growth centres described in the regional planning literature, is different in at least two important respects. The cluster is a work place, consisting of various types of business enterprises. Even if people reside within its boundaries, the analytical unit remains an enterprise grouping. The growth centre, on the other hand, is an urban space that includes residential units, schools, places of worship, health facilities, etc. as well as businesses. The second difference is the sectoral concentration of the enterprise cluster, which need not be present in the growth centre.
4. The literature on networks and linkages in business is large and growing. Useful summaries are contained in Mead (1994) and McCormick and Atieno (1997).
5. The terms **cooperation** and **joint action** are used interchangeably in this paper to mean 'working together for the same end', i.e. the active aspect of collective efficiency. **Linkages**, on the other hand, are ties between or among firms that may or may not result in joint action.
6. Information in this paragraph was collected by the author in November 1997 with assistance from Betty Munyendo.
7. Based on an interview with the secretary of the Kamukunji *Jua Kali* Association, November 1997.
8. Field notes of personal interview with founder of Kamukunji *Jua Kali* Blacksmith and Tinsmith Society, 19 June 1986.
9. Field notes of personal interview with founder of Kamukunji *Jua Kali* Blacksmith and Tinsmith Society, 19 June 1986. See also King (1996).
10. This section is based on an interview in November 1997 with an artisan who was among the first to make wheelbarrows in Kamukunji in 1984.
11. From field notes of interview with Kamukunji *Jua Kali* Blacksmith and Tinsmith Society, 19 June 1986.
12. *Matatus* are small public transport vehicles. In Thika and other up-country areas, most are 11–14 passenger vans or converted pick-up trucks. On many Nairobi routes, larger mini-buses with up to 30 seats are used.
13. These averages were calculated from grouped data in Dawson (1988: 15).
14. Cushion-makers are one of the eleven repair specialisations, but their data are included with manufacturing.

15. Values stated in Kenya shillings have been converted to US dollars at a rate of K.shs.51.4 to one dollar. This is the mean of monthly rates for 1995 as reported in **The Monthly Economic Review** for September 1996 (Central Bank of Kenya 1996).
16. By providing breeding space for other species of fish that are part of the perch's diet, limited amounts of water hyacinth could actually lead to an increase in Nile Perch in the lake. Nevertheless, the present uncontrolled spread of the weed threatens fishermen's livelihoods.
17. See Penrose (1959: 92ff) for a discussion of managerial economies of size and growth.

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