Knowledge, Technology and Growth: The Case Study of Suame Manufacturing Enterprise Cluster in Ghana

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Suame Micro and Small Enterprise Cluster

Brief introduction

Suame Cluster, located in Kumasi, is also known as ‘Suame Magazine’ because the site once housed a military magazine. The term Suame Magazine’ was coined when the cluster was established at former armories. In northern Ghana, similar groupings have also adopted the ‘Magazine’ term while in the south they are referred to as ‘Kokompes’. Suame Magazine is nearly 1.8 km long and 0.3 km wide.

History and Turning Point

The site was created when the entrepreneurs were removed from Kumasi city centre in the 1950s and 1960s. Prior to this enterprises had started clustering at former armories in Kumasi as early as 1935. The key turning point was in the mid-1970s with the retreat of Ghana’s formal economy and tight restrictions on the importation of new vehicles and parts (Dawson, 1988). This led to a down-turn for large enterprises which were capital-intensive and relied on imports; therefore, small enterprises filled the gap as they were able to improvise spare-parts that were previously imported. However, in the 1980s under the Economic Recovery Programme (ERP), the importation of spare parts and even whole vehicles resumed but the large enterprises did not regain their previous dominance.

The land where Suame cluster is located is zoned for administrative purposes but plots within the zones are not well demarcated, mainly due to the haphazard construction of temporary workshops by ‘squatter artisans’. For the purpose of spatial planning and administration of land, the ‘magazines’ in Kumasi (for example, Asafo, Ahinsan, Krofrom, Sofoline and Suame) were categorized into 21 zones, of which Suame Magazine covers zones 1-7,11-13 and 18-19. The inconsistency in numbering was due to the rapid emergence of other ‘magazines’ in Kumasi. The increasing population of Suame Magazine emphasizes the need for government and other stakeholders, intervention in the provision of new physical infrastructure (for example: telecommunications, electricity, water, access roads and health posts) and expansion of existing ones to support spillover from small workshops. In 1984, over 40,000 people were working in

\[1 \text{This is summarized from the research carried out by Nyaki Catherine Adeya at UNU-INTECH, 2001.}\]
Suame (Powell, 1986); currently there are about 80,000 people (Obeng, 2000). Based on the surveys conducted in the 1980s by the TCC of the Kwame Nkrumah University of Science & Technology (KNUST), it was estimated that the labour force of Suame Magazine would grow at approximately 8% per annum in the 1990s. This exceeded the high average rate of 4.5% urban migration, by mostly the youth. Hypothetically, this means that many of these youth — who migrate for better learning opportunities and employment — are being absorbed into the MSEs. Fig. 1 illustrates the estimated population growth of Suame Magazine.

![Fig 1: Population Growth of Suame Magazine](image)

**Economic Context**

Suame cluster is dominated by micro and small enterprises (MSEs). On average the enterprises have 5 workers, but the relatively more sophisticated manufacturing workshops have 7-10 workers on average. The main activities can be categorized under manufacturing, vehicle repair, metalworking, and sale of engineering materials, sale of automobile spare-parts and sale of food. Communication centers are increasingly playing an important role in enhancing the activities of the clusters. Table 1 delineates the product groupings and services in Suame cluster.

<table>
<thead>
<tr>
<th>Major Sectors</th>
<th>Product Group and Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>Food processing equipment and farm implements; cook stoves;</td>
</tr>
<tr>
<td></td>
<td>utensils and foundry products.</td>
</tr>
</tbody>
</table>
Vehicle Repair & Maintenance | Engine overhauling; auto electrical works; vehicle interior upholstery; auto body straightening and spraying.
---|---
Metal working | Metal fabrication and plant construction, angle irons, channel irons, bars and so on.
Sale of engineering materials & accessories | Sheet metals, bars, iron rods, steel sections. Hand tools, fasteners, electric motors, pumps and so on.
Sale of automobile spare-parts | Second-hand engines and parts, car decorating materials and so on.
Sale of food | From dusk to dawn; all types of food and drinks.
Communication and Business Centres | Telephone and fax services, photocopying, computer typesetting, Internet and e-mail services, sale of mobile phone cards and videocassettes, barbering and sale of soft drinks.

Source: Adeya, UNU-INTECH Field survey, 2001

Outside the cluster location in Kumasi, there is intense competition in vehicle repair between small, medium and even large companies. Most enterprises seem to wait for business to come to them and very few try to create linkages and maintain them with, for example, large firms who do not have their own garage facilities (Dawson, 1988).

The adoption of relatively complex machines such as machine tools and other basic technologies has raised the capabilities of firms in engineering. The stock of machine tools in Suame Magazine expanded rapidly, between 1971-1986, with the assistance of the Suame Intermediate Technology Transfer Unit (ITTU) of the Technology Consultancy Centre (TCC) and KNUST in Kumasi (Powell, 1986). The ITTU was established by the government of Ghana to raise the technical competence of the cluster by providing technology advisory services and machinery upgrading. The result was increased competition among enterprises, for example, in the manufacture of corn milling machines, planters and ploughs. However, trade in engineering materials and spare-parts is currently more profitable than manufacture and repair work. One advantage the manufacturing MSEs have over other sectors, such as retail trading which is predominantly import dependent, is in their ability to create downstream industries through the production of machinery and equipment using locally available human and material resources.

*External Economies*
The concentration of vehicle repair enterprises in one location brings together customers and repairers and may explain the lack of aggressive marketing. Market access is a major external economy. In Suame, the labour-market pooling was a positive feature (McCormick, 1998). The author found two types of labour in Suame, workers mainly apprenticed to small enterprises (their skill levels are not discussed in length but assumption is that they are not highly skilled) and the second higher level technical skills gained in large-enterprise apprenticeships and technical training institutes. It is mostly the presence of the latter that has supposedly led to the cluster producing some items that can compete favourably with imports. Suame’s vehicle mechanics manage to achieve greater efficiency than many small-enterprise clusters faced with a similar situation because they subcontract a great deal amongst themselves in the cluster, which enables the small enterprises as a group to achieve basic scale economies.

The market for Suame cluster includes government, private firms and individuals. The products of the enterprises in Suame are also popular in other West African countries, for example, Burkina Faso, Togo, Mali and Ivory Coast. The market for vehicle repair, specifically, has been enhanced because of Suame clusters’ geographical location, on the main road between two capital cities, Accra (Ghana) and Abidjan (Ivory Coast).

**Joint Action**

In Suame, only the engineering workshops in the metal products cluster had positive bilateral linkages with site association, which represented diverse interests. The vehicle repair workshops have extensive subcontracting. There were also some vertical links with engineering workshops, mainly intermediary, between enterprises and government (McCormick, 1998). This is one area that can be facilitated and enhanced by ICTs, for example, creating a database of expertise and location of the various enterprises and those who may need to subcontract can just telephone them instead of spending time searching for potential subcontractors, which has been common in Suame. A great deal is done by reference (mostly friends and family) but this may leave out some who may potentially benefit from the contracts.

**Associations in Suame Magazine in Ghana**

There are many ‘Associations’ in Suame but their activities are derailed by both internal and external problems. Therefore, many end up establishing their own associations when
they are dissatisfied with existing ones, which has led to a proliferation of associations, rarely concerned with supply-side matters to markets and technology but more with social welfare issues. Essentially, this slows down MSE development because the purpose of associations should not be mainly for social welfare but to group enterprises with similar interests so that they can lobby for better services to MSEs, for example, ICT related infrastructure. As an association, they can influence policy development relevant to MSEs and it would also be a forum for them to get together and share information relevant to enhancing their business practices. In 1983, the Ministry of Industries created the Suame Garages Association to act as a communication channel between the government and the artisans; and to deliver assistance programmes. The Association selected enterprises to benefit from World Bank programmes and artisans for other training programmes but not without controversy, which Dawson (1988) and McCormick (1998) analyzed that may have been due to two main reasons. First, the association represented too many enterprises of varying sizes and variety of activities. Second, it was a purely a creation of government so its legitimacy was questioned by members and potential members from the cluster. The following is a description of other associations in Suame.

i) Magazine Mechanical Association (MMA): It was established in 1957 and about 98% of the entrepreneurs in Suame belong to the MMA. Initially, the main objectives were to assist bereaved members to organise funerals and settle land disputes. Currently, the MMA controls over 800 building plots in the lowland areas of Suame magazine. There are approximately 10,000 members, mainly vehicle mechanics. The daily activities of the MMA secretariat include meetings/consultations on members’ problems and tax and levy collection. The association has a permanent building in Suame Magazine.

ii) Ghana National Association of Garages (GNAG): In the 1980s, the GNAG was formed with a regional secretariat in Suame cluster. It controls approximately 1000 building plots in the upland areas of Suame Magazine. The main objectives are land administration and the general welfare of the young vehicle mechanics. The association has other secretariats in other parts of Ghana.

iii) Association of Micro and Small Metal Industries (AMSMI): In the 1990s, the clients of Suame ITTU formed AMSMI to address the problems of the metal manufacturing
sub-sector. There are approximately 60 members mostly workshop owners and they meet at Suame ITTU. In 1998, the Suame ITTU recommended 6 members of AMSMI, to the GRATIS Foundation for working capital loans and machine tool hire-purchase to expand their businesses. AMSMI is working with the TCC and the GRATIS Foundation to establish a national network of the association to ensure a common voice on issues concerning small engineering manufacturing in Ghana.

iv) Magazine Spare-Parts Dealers Association: The Magazine Spare-Parts Dealers Association is composed of middle-class business people mainly involved in importation of spare parts for automobile repair. By virtue of their business, the spare-parts dealers are intensive users of communication facilities. In shops where there are no communication devices, people use the services of Communication Centres in and around the Suame magazine.

v) Engine Reborers Association: This association is for general welfare of those engaged in re-boring and re-sleeving worn-out vehicle engines. There are about 30 members located within the cluster.

vi) Magazine Caterers Association: Members are mostly women who sell food within the cluster. It is mostly a social grouping to organize marriages, funerals and other social activities.

There are other associations in the formative stage in Suame magazine and these include the Magazine Auto-mechanics Association, Foundry Association and Scrap Dealers Association. In addition, there are a number of support institutions involved in programmes to reduce poverty and to train the youth to acquire employable skills. Over the last decade there have been significant progress in training and support to MSEs but these efforts have been limited in their coverage.

**Knowledge and Technology within the Cluster**

The Suame cluster has some of the most matured micro- and small-scale enterprises in Africa (Adeya, 2001). In McCormick (1998), it was reported that Suame cluster had approximately 9000 engineering enterprises manufacturing metal products and vehicle repair (4000 on metal products and 5000 on vehicle repair). Although McCormick’s study provided valuable information on the enterprise in the cluster, it was however, very modest about the number of enterprises in the Suame cluster in the sense that, it did not
consider the trading enterprises. Our research shows that trading enterprises are major actors that play full complementary role in the sale and supply of engineering materials, tools and spare parts to the metal workers and vehicle repairers.

**Level of Education**

The majority of the respondents (92%) have had either basic education (69%) or secondary education (23%) as shown in Table 2. None of the respondents have had tertiary education and only 4% have not had formal schooling. A few of the respondents admitted that they were school dropouts. However, their history as school dropouts did not affect their success and they are among the successful entrepreneurs within the cluster.

A few (2%) of the respondents undertook professional courses or vocational training after basic schooling. Many respondents were introduced into the profession by their relatives and kin. They have known no other business since childhood, and many have aspired to own a store/enterprises within the cluster. Acquiring formal education therefore, has not been a priority in their lives (Grieco, 1996, King 1999). Some found their way into the cluster because their parents could not afford to pay for formal education and they had to learn a trade informally.

**Table 2: Educational Level of Respondents**

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Gender</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male Freq.</td>
<td>%</td>
<td>Female Freq.</td>
<td>%</td>
</tr>
<tr>
<td>None</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>None (but literate)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4 – 8 yrs</td>
<td>52</td>
<td>58</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>9 - 12 yrs</td>
<td>18</td>
<td>20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>13yrs</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>77</td>
<td>86</td>
<td>13</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: Authors’ Fieldwork, 2001.
The study by Adeya (2001) identified the kind of skills the cluster members have and how they acquired them. The objective was to find out the way enterprises acquire skills and capabilities through learning, table 3.

**Table 3: Primary Source of Skills Acquired**

<table>
<thead>
<tr>
<th>Source of Skills Acquired</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal learning institutions</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Brought up on-the-job/business</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>On-the-job training (apprenticeship)</td>
<td>61</td>
<td>74</td>
</tr>
<tr>
<td>Previous Formal employment</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Self-learning/apprenticeship</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>82</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Authors’ fieldwork, 2001.

Apart from the Suame Intermediate Technology Transfer Unit (ITTU) and the National Vocational & Technical Institute that provide institutional training, formal training is rare within the cluster. Many of the enterprise owners, especially those in vehicle servicing and trading are trained through apprenticeship and on the job training. Sometimes trainees are family members. 90 % of the respondents said they have skills necessary for work in their enterprises and the rest responded negatively. According to table 71, 74 % of the respondents acquired their skills on-the-job, 16 % received their training through formal learning, while 8 % acquired their skills through self-coaching/teaching.

69 % of the 90 respondents said that their employees are skilled and 4 % responded negatively, while 27 % have no employees It is possible that some positive respondents do not have permanent employees but their apprentices work with the master craftsman for a while to gain further experience or to accumulate enough resources to establish their own enterprises.

The Ghanaian government recognizes the need to upgrade the knowledge and skills of the artisans in Suame. While there is evident knowledge base of basic skills, research identified that to function effectively in a competitive environment, the knowledge of
basic engineering drawing (manual and computer-aided), and use of modern tools and equipment will be required.

The Suame Intermediate Technology Transfer Unit (ITTU) and the National Vocational Training Institute (NVTI) are the two institutions established within the cluster to enhance the use of basic skills and new technologies and to support the certification of apprentice training. In the past, the World Bank organized short-term hands-on training for auto-mechanics and auto-electricians of Suame through the Kumasi Technical Institute (KTI); but this programme stalled due to lack of sustained funding. Most programmes tend to focus assistance in areas of finance, manpower training, technology transfer and improving business practices.

Policy Incentives

In an effort to develop the small-scale enterprises, the Government of Ghana (GoG) established some institutions to ensure the growth and expansion of the MSEs. These institutions have collaborated with the MSEs of Suame, and continue to do so in the areas of technology development and transfer, vocational and apprentice training, business management and entrepreneurship training, working capital and hire-purchase loans, women’s enterprise development, business assistance fund, marketing and business promotions programme. Some of the notable institutions are:

- the Suame Intermediate Technology Transfer Unit (ITTU),
- the National Vocational Training Institute (NVTI),
- the Ghana Regional Appropriate Technology Industrial Service (GRATIS Foundation),
- National Board for Small-Scale Industries (NBSSI),
- Technology Consultancy Centre (TCC),
- Association of Small-Scale Industries (ASSI),
- Association of Ghana Industries (AGI),
- Council for Scientific and Industrial Research (CSIR),
- Private Enterprise Foundation (PEF),
- Intermediate Technology Ghana (ITG).
The Council for Scientific and Industrial Research (CSIR) is responsible for the co-
ordination of most research institutes. It has a number of R&D departments assessing
the development of new technologies and machines for agriculture and water resources.
Apart from the CSIR, some academic departments of the KNUST in Kumasi have
conducted studies in agro-technology development. However, there are barriers to
translating these inventions to process and product innovations. There are considerable
obstacles to the effective dissemination of research findings to the MSEs for practical
implementation. There are two main difficulties. First, the cost of scaling up of
prototypes (inventions often come first as prototypes) is often considerable and neither
the research organizations nor the small firms have the resources to do this. Second, to
mass produce machines require a good industrial base which is often not available in the
country. Most manufacturing organizations have little connection to local research and
this disconnect tend to be a disincentive to local autonomous innovation. While a
number of older enterprises have built up skills in the cluster, they lack resources to enter
into mass production of locally developed artifacts. This is part of the mandate of ITG
but the reality is often different because of resource constraints.

Evidently, there are a number of initiatives in Ghana to support technology development
and transfer to the MSEs including encouraging enterprises new ICTs. Three oft cited
examples are the TCC, ITTU and GRATIS Foundation. The Technology Consultancy
Centre (TCC) of KNUST in Kumasi was established to act as an interface between
researchers at KNUST and the business community. On the other hand, the
Intermediate Technology Transfer Unit (ITTU) was established in Suame magazine to
develop the capacity of enterprises to design, manufacture and service equipment for
agricultural and engineering development. The proliferation of small foundry businesses
in other parts of Ghana can generally be credited to the Suame ITTU. The GRATIS
Foundation co-ordinates a network of ITTUs. The Foundation has supported some
artisans from Suame to acquire machine tools and equipment for specialized engineering
operations. Another set of policy incentives relate to making ICTs accessible to small
firms.

Policy also set considerable store on public provision of facilities. The provision of
information and communication services by the private sector enterprises is conspicuous
in the many Business and Communication Centres, the name commonly used in Ghana for
such communal access. Generally, these centres offer the following services at a fee: telephone calls, facsimile, word and data processing services. Business and Communication Centres can found in both residential areas and in industrial clusters like Suame Magazine. Ghana Telecom has installed 3 public telephone booths within the cluster and 4 telephone booths along the main road that fronts Suame; these are very few in comparison to the population of Suame cluster.

**Key Success Factors**

The cluster has a long history of craftsmanship that has endured coupled with sustained interest of, and attempt at public intervention support. As early as the 1920s, the emergent artisans and craftsmen of Kumasi, the capital of Ashanti Region have accumulated excellent skills and knowledge in blacksmithing, goldsmithing and the making of brass artifacts that were the prevalent engineering trade in Kumasi at the time. Most developed as family businesses, then vehicle repair gradually became lucrative and those with similar skills grouped together and gradually formed homogenous small clusters. The Kumasi City Council (KCC) gradually relocated artisans from different places to the present location at Suame. In 1935, the dispersed artisans set up workshops in former armories, including Suame and hence, the term “Suame Magazine” was coined. In the northern part of Ghana, similar informal engineering clusters have also adopted the term ”Magazine”, while in the south they are referred to as “Kokompes”\(^2\). The Suame Magazine is one of the biggest clusters in Africa.

The role of formal and informal associations has been important to the sustainability of the cluster. According to the survey by DHPR (1971), as far back as the 1970s approximately 98% of the proprietors of the Suame firms belonged to the Magazine Mechanical Association (MMA), which was established in 1957. Being the only umbrella association at that time, its main focus was on social functions - marriage, funerals and outdoorings and the settling of land disputes. The era of rapid expansion of the cluster in the 1980s, characterized by local economic distortions and global technological changes in the automobile industry introduced a whole new crop of young labour force into the cluster.

\(^2\) Kokompe is a name of a suburb in Accra popular known for similar activities of MSE as Suame.
By the early 1980s, a major national initiative was launched by the government to repair all state-owned broken down vehicles particularly the ones being used for transporting commodities such as cocoa and other food crops from the hinterlands into urban areas. The artisans of Suame and other similar clusters were contracted to carry out these repairs using broken down (beyond salvage) vehicles to repair others. This particular state policy led to the formation of the Ghana National Association of Garages (GNAG) with its permanent national secretariat in the Suame cluster.

After a successful completion of the exercise, GNAG was institutionalized and had its headquarters in Kumasi and later in Accra and other regional capitals to pursue its needs as a unified association of artisans. As the name “Garages” imply, over the years the aspirations and needs of motor vehicle repairers and administration of lands have dominated the activities of both GNAG and MMA in almost all the clusters. Little was done for those enterprises that upgraded their activities to manufacturing or those who started manufacturing enterprises in the clusters. To rethink and refocus the direction of metalwork manufacturers in the cluster, in late 1990, the clients of the Suame ITTU came together to form the Association of Micro and Small Metal industries (AMSMI) with the aim of addressing constraints and challenges being faced by the metalwork manufacturers. Currently, the challenges posed by globalization, local economic hardship and a growing political awareness have diminished the effectiveness of GNAG and MMA. It appears that majority of the enterprises favour regrouping into trades - foundry men, sprayers, auto-electricians, engine reboilers etc. - to promote their enterprises- a departure from the previous cluster pre-occupations.

**Lessons learned and policy implications**

Using the data collected under the INTECH study, qualitative and quantitative analyses show that certain factors are important as driving forces behind the cluster performance in the face of increased competition in the domestic as well as global markets. The firms-specific factors are: managing director’s (MDs) knowledge and educational background increased sales turnover, higher profit margins, and inclinations of MDs in upgrading workers’ skill. The cluster-specific factors are represented by the availability of skill upgrading facilities within the cluster, existence of technological supporting institutions with in the cluster, and provision of formal training institutions.
The findings of the study suggest that a number of policy measures need to be taken by governments in developing countries to improve the competitiveness of micro and SMEs clusters. The research suggests that state policy encourage greater participation of the private sector in setting up training and information service centers within clusters. These institutions could provide need-based skills training. It is also recommended that MDs of SMEs be encouraged to provide support for process and product upgrading and more crucially to raise the skills levels of their workforce. Organizing orientation programs to raise awareness of MDs related to new machines and new technologies could be one way of doing this. There is need to subsidize the cost of new technology equipment so that new technologies become economically viable for small firms. An increasingly important organizational form is the use of business and technology development service providers. These organizations could assist enterprises in adopting new technologies and in generating innovations. For instance, provision of basic services such as email and the Internet could make the difference between the survival and exit of small firms. These institutions could also provide information for small firms, a commodity that is often in short supply. Such collective cluster initiatives are expected to result in better cluster performance.

One of the key recommendations that this study made was the reorganization of the associations that operate in the cluster, particularly the umbrella ones to give them more responsibilities. There is also the need for the local government to resolve the issue of land tenure to enable permanent structures to be developed in the cluster. Adequate provision of physical infrastructure is also important for the development of the MSEs. With a well-organized umbrella association, some of these issues could be taken up by the associations on behalf of their members.


DAILY GRAPHIC (2002)’ We shall improve the well-being of the people’. Issue No. 148514, Accra –Ghana.


