

CHAPTER 3: SPATIAL DEVELOPMENT INITIATIVES, INDUSTRIAL DEVELOPMENT ZONES AND INDUSTRIAL CLUSTERS

3.1 INTRODUCTION

This chapter serves to conduct and analysis of spatial development initiatives (SDIs) as a vehicle for the implementation of an LED strategy. The Gauteng government's Blue IQ initiative will be discussed within the context of a possible means of LED strategy delivery. Industrial development zones (IDZs) will be analysed in terms of their ability to act as an SDI and the value of industrial clusters as a means of furthering economic development within a region will be discussed. Value chain analysis will be analysed in terms of its effectiveness towards upgrading industrial clusters.

3.2 SPATIAL DEVELOPMENT INITIATIVES

Several pieces of legislation have provided local authorities with a mandate to integrate LED into their daily activities. However, there is still a decided lack of a national spatial plan for the development of urban areas, leaving most local and provincial authorities to determine their own development goals. A possible solution to this is the development of an SDI programme that would essentially dictate the pattern of infrastructural investment with a view to assist local authorities in meeting their LED objectives (World Bank, 2001).

With economic growth and decreased unemployment being some of the most critical challenges facing the South African economy, the development of lasting and profitable relationships between the public and private sectors are essential. According to Lemon (1998:2), these partnerships would ensure that employment is stimulated through increased endogenous investment in the locality concerned. The national government has identified that in order for this investment to occur, the inefficiencies and constraints hampering this investment must be removed. The ideal vehicle for removing these constraints is the development of an SDI programme that would enable various local

authorities to achieve the LED objectives established through their respective LED strategies.

Jourdan (1998:717) states that the SDI programme was conceived by the South African government as an attempt to remove any possible barriers to investment through the improvement of government functions in various localities across the country. The regions targeted would be those that held the largest potential for growth. The South African government has promoted the SDI programme as a means of achieving higher rates of economic growth and reducing unemployment. The DTI (1999a) states that the ultimate objective of the SDI programme is to promote investment in South Africa's internationally competitive industries, which would then act as a catalyst for economic growth, increased welfare and job creation.

Jourdan *et al.* (1996:58) states that SDIs are characterised by short-term intervention into a locality that has high growth potential. The intervention is needed to increase endogenous private investment, stimulate growth in essential local industries and provide support for the establishment, growth of SMMEs to enhance the overall welfare of the community at large.

Platzky (1998:14) indicates that the intention of the SDI programme is to pinpoint those regions which have the greatest potential for growth with a view to provide a catalyst for change that is needed by surrounding regions. In this respect, bottlenecks to investment, such as inadequate infrastructure, are removed, and strategic opportunities for private sector investment are identified (Hirsch & Hanival, 1998:29). Jourdan *et al.* (1996:54) explains that the term SDI essentially characterises a various strategic government initiatives that are aimed at unlocking the inherent and often underutilised economic potential of certain localities within the country.

According to Joffe *et al.* (1995:52) the SDI programme is premised on several key points:

- Due to a range of historical and political factors, several regions of the country has severely unrealised economic potential:

- Through targeted interventions, the national government can assist in unlocking this potential and facilitate new investment in these areas; and
- These interventions could lead to job creation and wealth generation in the areas concerned.

To achieve the goals of an LED strategy and to augment the economic potential of a locality, Jourdan (1998:718) has identified the following steps that the SDI programme should follow:

- Any roadblock to investment should be removed. These constraints to investment are often infrastructural in nature (such as a lack of well-maintained road and rail network and efficient ports). The SDI project would ensure that the infrastructure necessary for the achievement of the goals of the LED strategy is identified and prioritised; and
- Opportunities for investment should be identified. These investments are critical to the strengthening of the economy at a sectoral or industrial level. These anchor projects often result in a large injection of investment into the key sectors of a local economy and serve as magnets to additional downstream or related investments, thereby expanding the size and scope of the sector even further

Lewis and Bloch (1998:728), the DTI (1999a) and Howorth and O'Keeffe (1999:12) concur that SDIs are aimed at creating growth and sustainable economic and regional development in areas of underutilised or inherent economic potential by:

- Facilitating endogenous private investment through public sector interventions, which includes financial support for infrastructural projects and institutionalising these projects through the formation of PPPs;
- The establishment of industrial estates or agglomeration economies (such as IDZs) to provide locations for ancillary industrial investment; and
- The facilitation of such inward investment through teams of officials attached and answerable to central government, and which are charged with identifying investment opportunities in the SDIs and linking these to potential investors.

SDIs are distinguished from other national industrial policy programmes by the spatial dimension embodied in their objectives. SDIs are not the only aspects of national industrial policy to include this dimension. Indeed, it is the redistributive character represented in regionally targeted industrialisation programmes that accounts for the high degree of popularity associated with the SDI programme (Markusen, 1994:63).

According to Morgan (1995:29) there are few industrial policy programmes capable of direct association with a redistributive agenda. Support for training and participative forms of work organisation is one; support for SMMEs is another; and programmes directed at encouraging investment in less-favoured regions are a third. SDIs fall, in large part, into the third category. They appear to enhance, through the determined intervention of government, the economic prospects of targeted regions, including disadvantaged and marginalised regions.

The SDI programme connects with a strong current in industrial policy that increasingly views municipal units as key sites for developmental intervention, and the provision of reliable economic infrastructure, a core feature of SDIs, as one of a small number of legitimate public sector functions. From this perspective then, the SDI programme and, to a lesser extent, the other regionally defined national measures can be viewed as part of the parcel of measures designed to enhance industrial performance. Although SDIs emanate from central government, their intended effect is to strengthen local authorities and regions as sites of industrial development (Lewis & Bloch, 1998:746).

Blakely & Kaplan (1997:14) state that there are two criteria in the designation of SDIs:

- Redistributive concerns predominate in those criteria that insist that SDI designation is reserved for previously disadvantaged communities; and
- It must be demonstrated that the region concerned has underutilised potential that will be exploited by the injection of SDI measures and resources.

3.2.1 Key principles of the spatial development initiative programme

The key principle of the SDI programme is that it aims to create an attractive environment for private sector investment by moving away from the protected and isolated approach towards economic development (Kaplinksy & Morris, 1999:721). According to Jourdan *et al.* (1996:2), the creators of the SDI programme argued that a paradigm shift in economic policy occurred, causing the move away from protected and isolated economic development to one in which international competitiveness, regional co-operation and a diversified ownership base is paramount to success. This stress on regional co-operation linked to international competitiveness is seen as consistent with international economic trends in terms of regionalisation and globalisation, which are geared towards the formation of a new transnational regionalism (de Beer *et al.*, 1998:56).

The following underlying principles guide the SDI approach to development (Thomas, 2009:2):

- An SDI must be able to demonstrate economic potential through underutilised natural resources or the development of financially viable projects that would utilise excess market capacity;
- The private sector should be involved as far as possible, either in the form of PPPs or endogenous private investment that carries several public incentives;
- Applying public sector resources where they will have the most impact instead of spreading them evenly over the entire locality where some resources would remain unproductive;
- The positive outcome of the SDI programme should be shared with those individuals who have been excluded from reaping the rewards of enhanced economic growth. This implies that the focus of SDI programmes should be on SMME support, job creation and welfare enhancement.

3.2.2 Strategies of the spatial development initiative approach

De Beer (2001:3) has identified a number of key strategies that underpin the SDI approach, and it is the application of these strategies that appears to have been largely responsible for the level of success achieved with the programme.

3.2.2.1 Co-operation, collaboration and integration in terms of economic policy and strategy

Prior to the political changes in South Africa, the various regions within the country had not been able to design and implement inclusive, collaborative and integrated economic policies and strategies. Kaplinksy and Morris (1999:732) state that the sanctions imposed on South Africa during the apartheid era forced the national government to manage the economy as a closed economy. However, when democratisation was achieved there was an almost immediate emphasis toward facilitating greater regional integration of economic and development strategies (Jourdan, 1998:717).

3.2.2.2 Focus on existing transportation/development corridors

De Beer (2001:21) has identified two main aspects that should be noted in this regard. Firstly, Regional Development Corridors (RDCs) have been selected as priorities for public sector support due to their potential for sustainable economic growth. SDI initiatives cannot be applied to just any locality as capacity constraints would exist in certain regions. In order to achieve sustainable economic growth, the development corridors or any other spatial initiative must rely on the inherent characteristics of the locality concerned.

Secondly, Blakely and Kaplan (1997:26) state that the development corridors identified for the project are not new. Existing transport and economic infrastructure is rehabilitated or expanded in order to enhance efficiency and effectiveness.

3.2.2.3 The promotion of development corridors rather than transportation routes

The SDI approach advocates the development of transportation corridors as a means of exploiting any development opportunities that are located along transportation routes linking resource rich areas with coastal ports or even linking a few nodes along a transportation route. This ensures that economic development opportunities occur in relation to enhanced transportation networks. According to De Beer (2001:23), once certain key investments have been made a number of downstream or ancillary activities would locate to the region concerned.

3.2.2.4 Greater regional competitiveness via regional integration and collaboration

In order to take advantage of the benefits of SDI strategies within a certain region, local authorities should ensure that intraregional trade takes place in order to strengthen the economy of an overall region rather than just a few smaller localities. De Beer (2001:22) states that the region should have an overall economic vision that would enable all individual markets to become globally competitive.

3.2.2.5 A far greater emphasis on the role of the private sector

According to Kaplinksy and Morris (1999:734) local authorities should be more receptive to private sector involvement in local development. In fact, local authorities should encourage and facilitate relationships with private role-players to take advantage of the possible alternatives and opportunities in terms of appraisal, financing and maintenance of projects.

By promoting endogenous private investment, local authorities attract a large number of individual private sector investors, developers, and operators into a locality. This not only lessens the perceived investment risk for the private sector but also provides marketing and development momentum for the locality (Kaplinksy & Morris, 1999:736).

3.2.2.6 Vertical and horizontal institutional collaboration

The planning, design and implementation of the RDCs and their constituent projects should be supported at all levels of authority. Local authorities as well as provincial and national authorities must all agree on the necessary SDI strategy in order to promote greater co-ordination and integration of economic and development policy and strategy (Markusen, 1994:78).

3.2.3 The primary objectives of the spatial development initiative programme

According to Hartzenberg (2001:771) the SDI programme aims to unlock the inherent potential of a specific location through:

- Public-private ownership of necessary infrastructure;
- Greater private sector investment in key projects to promote sustainable economic growth;
- Removal of potential barriers to investment in order to mobilise private investment;
- Public sector focus on the SDI project in order to incorporate broader development goals into the national development objectives; and
- Exploitation of underutilised local resources in order to provide a basis for modern industries and export-orientated growth.

3.3 THE BLUE IQ INITIATIVE

According to the United Nations Capital Development Fund (UNCDF, 2002), the decentralisation of economic activity in localities is the main driving force behind the greater policy significance of sub-national planning. Bloch (2000:228) states that sub-national development planning encompasses initiatives which are undertaken by all spheres of government and represent a particular set of local economic development planning initiatives. At the core of these planning initiatives is the emphasis on strategies, such as the SDI programme, that take into account the position of production systems and the key industries in a specific locality or regions (Helmsing, 2001:12). In order to facilitate the achievement of the goals and objectives established by LED strategies meso-

institutions, which operate at the sectoral or regional level, are necessary to act as drivers of these LED strategies. These institutions are in the prime position to utilise local infrastructure and resources to their fullest potential.

In South Africa one of the most advanced meso-institutions currently in operation is the Gauteng Provinces' Blue IQ project. Based in Johannesburg, Blue IQ is an initiative of the Gauteng Provincial Government to invest in the development of economic infrastructure in identified mega projects in tourism, smart industries and high value added manufacturing (Blue IQ, 2002a). According to Blue IQ (2008:4) the Gauteng economy accounts for a third of the national gross domestic product (GDP) and has a critical role to play in reducing unemployment and increasing economic growth for the nation. Blue IQ has a critical role to play in this regard and, as such, is aligned with the Provincial Growth and Development Strategy (GDS).

3.3.1 Development of Blue IQ

According to Rogerson (1998:189) the origins of Blue IQ can be traced back to South Africa's initial top-down programme of SDIs. On maturation, the management of several SDI programmes passed to the provincial authority concerned. As a result, the South African government has promoted the SDI programme as a vehicle for achieving higher rates of economic growth and job creation in certain localities (Jourdan, 1998:720).

The Gauteng SDI was viewed as a particularly distinctive project as it was based on an economic vision that was developed by provincial rather than national government (Lowitt, 2001). Unlike other South African SDIs, the focus of which was to identify potential investment projects and market these projects to investors, in Gauteng the essential focus was upon building PPP's through the provision of economic infrastructure and institutional collaboration so that an efficient investment environment was developed in various targeted localities (Spiropoulos, 2000:10).

In 1997 the Trade and Industry Strategy (TIS) was initiated, which provided an action plan that would forecast the needs of the province's citizens. From this emerged a plan to deliver longer-term sustainable growth and employment by

changing focus to financial and business services, value-added manufacturing and tourism. This led to the identification of 11 potential projects to be launched by the Strategic Economic Infrastructure Investment Programme (SEIIP) (Blue IQ, 2008:4).

The SEIIP was re-launched as the Blue IQ initiative in 1998 (Blue IQ, 2008:4; Fuchs, 2001:60). According to Maharaj (2001) the core responsibility of Blue IQ is to develop local infrastructure, implement marketing and investment strategies, reduce potential barriers to investment and encourage skills training and resource building in the areas of technology in order to provide support for local SMMEs. In July 1998 the DTI took over ownership of the Gauteng SDI which was the main centre for the Blue IQ initiative. Under the new ownership, there was a re-prioritisation of projects, the acceptance of new projects and the downgrading of others. Special Places (1998:16) states the new aim of the SDI was to express these projects spatially and to complement the dynamic trends and potential, locally.

Spiropoulos (2000:12) indicates that a notable development was the greater spatial definition given to the SDI through conceptualisation of a proposed corridor between the Council for Scientific and Industrial Research (CSIR) and Newtown. Within this corridor locality-based economic opportunities otherwise known as Special Economic Zones (SEZs) were developed. These opportunities had two underlying aims. The first was the provision of a platform for innovation and economic growth. The second was to implement strategically selected IDZs linked to dryports or inland container depots in order to expand export-oriented investment in manufacturing. According to Special Places (1998:17) these aims were also necessary for the development of a cost-efficient freight movement and rail commuter system.

3.3.2 Functions of Blue IQ

The projects initiated by Blue IQ have unlocked potential in key growth and development areas within the province. The Blue IQ initiative has identified three main functions to guide its involvement in various operations (Blue IQ, 2008:5):

- Project management agents that would design and construct the necessary infrastructure in order to develop and finalise projects within its mandate;
- Provide support to local industries and emerging SMMEs in order to facilitate economic growth and development within a locality; and
- Act as an asset manager or shareholder within the projects concerned in order to focus on the commercialisation of projects that have reached maturity. This will ensure that the various social and political goals of various LED strategies are met.

3.4 INDUSTRIAL DEVELOPMENT ZONES AS A SPATIAL DEVELOPMENT INITIATIVE

By formulating a framework for the establishment of IDZs as a SDI, the South African government is assisting the country in developing its manufacturing industries to keep up with the pace of globalisation as well as to increase employment, attract investment to a locality and promote competitiveness within the region concerned (DTI, 1999b:1). South Africa's IDZ programme is aimed at establishing conditions in which companies can enter into global markets through increased competitiveness in South Africa's manufacturing sector.

Kleynhans (2003:199) states that the main locational advantages of an IDZ reside in the quality of its physical, transport and communications infrastructure. The development of IDZs will potentially influence all aspects of community life in the less developed regions. Structural changes in the commercial and industrial sectors would occur as well as patterns of distribution between the advantaged and disadvantaged members of the community at large.

The IDZ programme is aligned with the view that regions within a country are key sites for development and, as such, the provision of reliable economic infrastructure is necessary. For this reason, IDZs support export-orientated industrial policies and promote increased employment and growth through industrialisation (Hartzenberg, 2001:772). According to Dippenaar (2001:180) and IDZ should be seen as:

- An instrument for the development of strategic resource-intensive industries and higher value-added manufacturing activity;
- An initiative that would optimise the use of underutilised infrastructure and resources;
- A means of employment generation;
- A method for attracting, not only private investment but also foreign direct investment (FDI); and
- A catalyst for the establishment of SMMEs in underdeveloped industries within the locality concerned.

IDZs provide a further mechanism to facilitate investment in essential industries. They are designed to attract FDI for export-orientated manufacturing production and are located within designated SDI regions so as to maximise the linkage between the two programmes. Dippenaar (2001:194) proposes that countries are best placed to benefit from opportunities offered by globalisation through policies that support outward-orientated trade, investment and exchange rate policies. An IDZ is one of the strategies that meet these requirements.

The factors promoting the establishment of IDZs are the need for platforms that provide a business environment offering attractive investment incentives, high quality productive inputs and an environment that promotes investment and employment. IDZs could serve as a catalyst for the development of strategic resource-intensive industries as well as the clustering of related ancillary activities and industries. IDZs have the following aims that must be met (DTI, 1999b):

- Provide a location for the establishment of strategic investments;
- Promote and develop the use of existing underutilised infrastructure;
- Facilitate economic growth and increased employment opportunities; and
- Enable the exploitation of resource-intensive industries.

3.4.1 South African industrial development zones

Several IDZ projects have already been implemented in South Africa with great success. These include the Coega IDZ, the East London IDZ and the City Deep Transport Logistics Hub.

3.4.1.1 Coega Industrial Development Zone

The Coega project dates back to the 1970's when it was proposed that a deep-water harbour should be built at Coega, 20 kilometres north of Port Elizabeth. In June 1996 plans were drawn up for the erection of the harbour and Gencor announced its intention of establishing a new zinc refinery in the Eastern Cape (Nel, 2000:16). The Coega IDZ and port form part of the Fish River SDI with East London and Port Elizabeth forming the nodes.

According to the Coega Development Corporation (CDC, 1998) the deep-water port at Coega has three competitive advantages:

- Coega is situated midway between Durban and Cape Town, making it geographically well placed within South Africa;
- The port would be one of the busiest international sea routes and could provide access to the Americas, Europe and the Pacific and Indian Ocean Rim; and
- The semi-consolidated sedimentary rock at the mouth of the Coega River means that dredging costs can be kept to a minimum and the port can be developed at Coega more cost effectively than at other sites within the Fish River SDI.

Nel (2000:20) states that investments in Coega were estimated to be around R3 500 million and were expected to rise further to R4 000 million. The building of the port was expected to cost R1 000 million with infrastructure requiring another possible R500 million. It was estimated that another R150 million would have been needed for marketing, management and development for the first five years.

The projected impact of the Coega project between 1998 and 2005 on GDP and total employment are indicated in Table 3.1 and Table 3.2 respectively. KPMG conducted an economic impact assessment (EIA) in 1997 to determine the impact of the Coega IDZ on the Eastern Cape and South Africa. The KPMG report divided the impacts into the construction phase, operations phase and impacts as a result of induced tourism.

Table 3.1: Projected gross domestic product contribution as a result of the Coega Industrial Development Zone

1998 - 2005	GDP (R million) from construction, operation and induced tourism
<i>South Africa</i>	10 319
<i>Eastern Cape</i>	7 281
Total	17 600

Source: CDC (2006:10)

Table 3.2: Total employment impacts of the Coega Industrial Development Zone

	Construction (1998 – 2000)	Operations (1998 – 2000)	Induced tourism
<i>South Africa</i>	14 500	9 500	800
<i>Eastern Cape</i>	11 500	2 500	650
Total	26 000	12 000	1 450

Source: CDC (2006:10)

Table 3.1 indicates that Coega's contribution towards the Eastern Cape's GDP would be R7 281 million, while South Africa in general would receive R10 319 million (Nel, 2000:19 & CDC, 2006:10). In Table 3.2 one can see that the impact on employment in the Eastern Cape was estimated to be high during the construction phase followed by operations and then to a lesser extent, induced tourism. For South Africa the same applied. By February 2005, the

total number of people employed during the construction phase of the project amounted to just over 11 300 (CDC, 2006:11).

3.4.1.2 The East London Industrial Development Zone

The East London Industrial Development Zone (ELIDZ) was established in 1997 as various stakeholders in the Buffalo City Municipality created a strategy that would improve the economic development of the area. Funding for the project was received by the DTI and the Department of Economic Affairs, Environment and Tourism (DEAET). According to ELIDZ (2005), the IDZ is located on the west bank of the Buffalo River adjacent to the existing port and airport.

The idea behind the IDZ is to encourage export investment by providing a duty free CSA and associated industrial park, manned by full-time customs officials, next to efficient transport infrastructure, allowing duty free imports and VAT-free purchases of South African goods. ELIDZ (2005 & 2003) states that the unoccupied land in the IDZ, as well as around the city, provides unlimited development opportunities for different ventures such as technology parks, tourism and residential complexes, logistics and housing facilities, commercial centres and industrial estates.

According to ELIDZ (2005), East London and the surrounding Border-Kei area have forged strong international links with countries such as Canada, the Netherlands, China, Germany and Botswana. The Eastern Cape has signed various protocol agreements with provinces in highly industrialised countries. Mostly, it has benefited from technical co-operation and support received from Germany.

3.4.1.3 The City Deep Logistics Hub

The City Deep Transport Logistics Hub project provides Gauteng-based manufacturers with access to logistics services that would enable them to compete effectively in the global market. This is achieved through the enhancement of the existing logistics cluster in City Deep. Enhancement activities include (Blue IQ, 2000):

- Improving road access into, out of and within the area;
- Improving the rail service between City Deep and the various South African sea ports and SADC ports;
- Improving the telecommunications infrastructure in the area; and
- Undertaking a general area upgrade to address problems such as crime and grime, fragmented land use patterns and imbuing the area with a strong and sustainable vision as the logistics focal point of Gauteng for containerised freight.

According to Blue IQ (2000) the concentration of container terminals, storage facilities and distribution systems at City Deep provides optimal conditions for importing to and exporting from Gauteng. City Deep plays a critical role in the economy of the province with more than 30% of all South Africa's exports moving through the inland port. Rail and road freight services are offered as well as various ancillary freight services such as packaging and distribution.

The proposed benefit of the development and enhancement of this logistics hub is the increased efficiency of all firms in Gauteng that undertake substantial export and import activities (Blue IQ, 2000). However, with the expected growth in traffic along the routes utilised by City Deep, there is heavy congestion at the inland port that would need to be channelled into a similar project such as the VLH.

3.5 INDUSTRIAL CLUSTERS

Porter (2000:254) defines industrial clusters as a group of interconnected companies and institutions that are geographically proximate group. These companies are usually linked by industrial commonalities. Industrial clusters provide several advantages to SMMEs through the development of agglomeration economies and industry-specific development initiatives (Malmberg & Maskell, 2002:430).

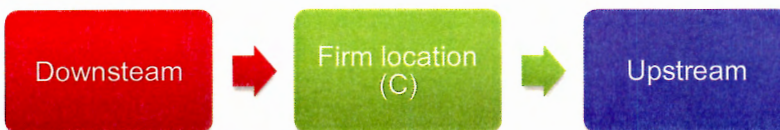
The cluster model provides organisational clusters with the tools necessary to compete on a global scale. Emphasis is placed on internal linkages that are driven by co-operation and co-ordination between participating organisations.

Humphrey and Schmitz (2000:15) state that external linkages within the clusters provide local SMMEs with the opportunity of accessing international markets and create the channels of communication necessary to acquire new forms of technology and methods of production.

According to Bennett *et al.* (1999:393) firms tend to locate in close geographical proximity to the source of their main productive input. Various firm location theories provide reasons for the spatial clustering of firms at the macroeconomic level while the theory of production is used at the microeconomic level (Baff, 1987:90).

According to OhUallachain (1984:421) vertical linkages explain the phenomenon at an industry level. Consider industries that are linked vertically as shown in Figure 3.1, where C represents the possible location for firms that operate in the value chain. The downstream industry forms the market for products produced in the upstream or dominant industry. Taking Weber's theory of firm location into account, market access considerations will also ensure that new upstream industries locate to regions where there is the possibility of downstream firm relocation (Phelps, 1992:38).

Figure 3.1: Vertical linkages between firm location and downstream industries



Source: Phelps (1992:39)

According to OhUallachain (1984:423) and Venables (1996:341) firms in the downstream industry will locate where there are many upstream firms in order to realise a cost saving as a result of the shorter production chain. The result of this combined demand-pull and cost-push action is the agglomeration of industrial activity in a single location. This is represented by C in Figure 3.1.

Regardless of the explanation, industrial clusters have a definite contribution to make toward the overall economic development of a locality (Bradshaw *et al.*,

1999:18). Rosenfeld (2001:1) states that clusters enhance a community's competitiveness in the marketplace by strengthening existing and new businesses.

3.5.1 The benefits of industrial clusters

According to Nadvi and Schmitz (1994:215) clusters can play a potentially important role within communities through job creation and income generation. This is achieved through the mobilisation of underutilised resources and provision of support to existing SMMEs within a locality. Clusters would also play an essential role in the reduction or elimination of constraints related to the realisation of the community's social and developmental goals. Rabelotti (1997:6) states that SMMEs can be further assisted by clusters through the increased accessibility to broader domestic and international markets.

Schmitz (1995:26) confirms that the gains of clustering include internationally competitive domestic economies that would result in economies of scale and scope as small firms specialise in specific industrial activities. Geographical proximity also creates the perfect environment for fostering co-operation between local role-players. These advantages of industrial clusters are grouped in terms of collective efficiency, which distinguishes between passively acquired benefits arising as a result of specialised agglomeration and actively generated gains that result from the co-operation and collaboration between firms located within the cluster (Nadvi & Barrientos, 2004:6).

Visser (1999:1554) states that one of the essential gains of industrial clusters is the specific path of regional industrial and economic development that arises, as well as the possibilities of technological innovation and growth. Clusters not only enhance the ability of small firms to compete in global markets but can also promote sustainable growth and development that would enhance the welfare of the community at large.

3.5.1.1 Benefits accruing to businesses as a result of industrial clusters

The close proximity of firms in an industrial cluster could be considered unhealthy for competition within the region (Rosenfeld, 2001:1). However, due

to the increased availability of skilled labour, technology transfers and resulting economies of scale the benefits to both firms and communities within the cluster far outweigh the possible costs (Feser & Koo, 2001; Porter, 1998:82). As firms locate to an industrial cluster, positive externalities such as knowledge spillovers, technological advancement and increased quality of human capital occurs. According to Feser and Koo (2001) there are four major sources of productivity and cost benefits that can be linked to industrial clusters:

- Increased accessibility to productive inputs and efficient infrastructure;
- Greater labour and human resource pooling;
- Greater access to information and performance measures; and
- Development of complementary products.

Rosenfeld (1994:24) indicates that access to inputs and infrastructure arises from localisation economies, which result due to the reduction in costs to firms being located in such close geographical proximity. These costs savings can be attributed to increased availability of specialised inputs such as industry specific information and SMME support systems. Access to efficient infrastructure, such as road and rail networks, can bring about greater competition and accessibility to broader domestic and international markets.

Bernat (1999:183) states that labour and human resource pooling occurs when firms compete for the same types of skills and workers. As these workers are drawn to localities with multiple employment opportunities, firms benefit by having access to a large and appropriate pool of potential employees from which to draw upon.

Firms in close geographical proximity of their competitors can monitor the performance of their competition as well as their suppliers. By setting high standards and increasing the competitive pressure within the region, cluster-based firms can achieve higher productivity gains and produce goods that satisfy consumer demand. With SMME support firms within a region can attempt to engage in innovative production practices to gain a foothold over their competitors (Rosenfeld, 1994:25).

This drive for innovation and technological benefits can lead to improvements in the long-term competitiveness and sustainability of local businesses and industries. These benefits may involve direct or indirect co-operation. Direct co-operation is conducted through meetings between producers and suppliers and well as linkages that arise from firms using similar technologies or labour supply and would not engage in direct competition with each other. Indirect co-operation is facilitated by trade and labour associations, chambers of commerce and other community business organisations (Rosenfeld, 2001:5). Geographical proximity can lead to complementary products being developed between organisation and relationships that would benefit from joint marketing strategies.

3.5.1.2 Benefits accruing to communities as a result of industrial clusters

According to Kilkenny and Nalbarte (2000) community benefits as a result of industrial clusters come in two major forms. Firstly, the clustered firms tend to have higher productivity gains and are able to afford higher wages. The second important benefit is that increased employment opportunities and income generation that result from industrial clusters may be greater than other forms of economic development.

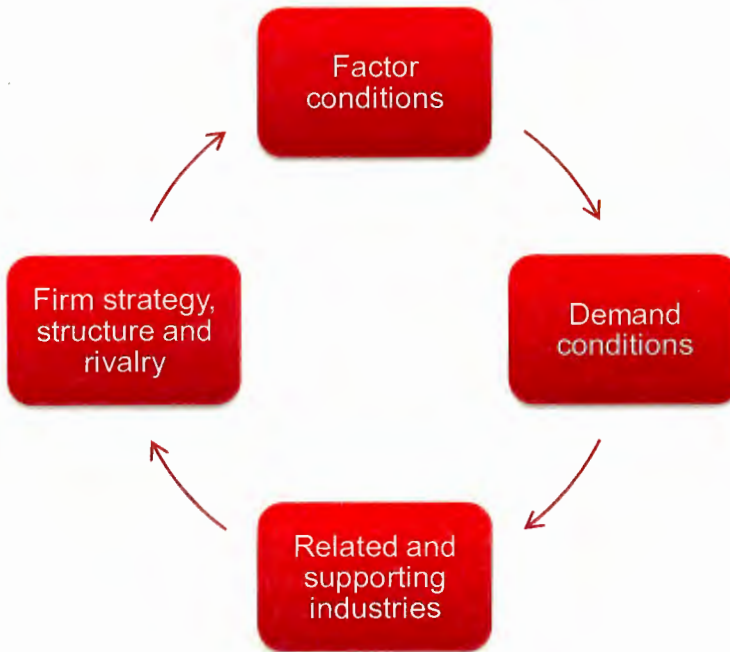
Gibbs and Bernat (1997:12) state that the increased wages in clusters can be attributed to division of labour and job specialisation. Proximity within a specific industry can result in advanced level of skills acquisition, which, in turn, would lead to higher wages. As new businesses locate to the cluster there is an increase in the demand for local materials, equipment, real estate and labour. These demands or needs are translated into expenditures which occur within the local community, thereby increasing income for local households and firms.

The more a local community is able to respond to these new business and consumer demands, the greater the likelihood of increased job opportunities and income growth. Bernat (1999:182) states that the level of wealth and income generation experienced by industrial clusters would be higher than regions where no such project exists.

3.5.2 Reasons for the success of industrial clusters

Porter (1990:48) proposed the “diamond” model of national competitive advantage to determine why firms in distinct industrial segments achieve international success. Figure 3.2 illustrates the four elements of Porter’s diamond model.

Figure 3.2: Porter’s diamond of national advantage



Source: Porter (1998:87)

According to Lundquist and Power (2002:686) factor conditions include both inherent natural resources and those created by humans such as market knowledge and human skills. Whereas the stock of natural resources is always a major factor determining the level of production, the stock of created resources is less important than the extent to which they are utilised in the production process. Shortages in the factors of production force innovation to occur and prompt firms to develop new methods of production, which often leads to a national comparative advantage and economies of scale.

Demand conditions of the local market are the second element in the Porter model. New firms within the cluster would often demand that domestic firms produce new and innovative products in order to address their needs (Morosini,

2003:307). If the domestic market for a particular product is much larger than the international market, local firms would focus on the production of that particular item. International firms would rather import the product from domestic firms, thereby creating a competitive advantage for local producers. Increased local demand for the same product would lead to a national advantage for the country concerned (Porter, 1998:83).

The development of related and supporting industries results from the cost savings that accrue to firms located in the industrial cluster. Regular contact between upstream and downstream firms contributes towards the identification and development of new production methods, innovative technologies and expanded market opportunities. According to Porter (1998:85) when local supporting industries are competitive, firms enjoy more cost effective and innovative inputs. Lundequist and Power (2002:672) state that the effect is strengthened when the suppliers of productive inputs are also strong global competitors.

Porter (1998:86) asserts that intense local competition ensures that domestic firms will be better equipped to deal with foreign competitors. In the long-run, increased local competition will force all local industries to be more efficient and innovative. With higher levels of local rivalry, international rivalry will decrease and will force domestic firms to move beyond local (Porter, 1990:52).

3.5.3 The role of the government in industrial clusters

Porter's diamond model of competitive advantage suggests that clusters help a region to become more competitive, thereby enhancing economic growth within a locality (Porter, 1990: 54, & 1998:88). To ensure that the benefits of industrial clusters are felt by the community at large, local authorities have the following responsibilities:

- Create an atmosphere within the local market that is conducive to intensive competition;
- Avoid any partnerships that would dampen levels of competition and decrease the drive to innovate;

- Ensure that the long-term impact of business decisions are taken into account; and
- Optimise factors of production, especially the human capital.

Apart from the responsibilities laid out above, Morosini (2003:310) identifies the following criteria that local authorities should implement:

- The industrial cluster should be housed within a specific industry that is critical to sustainable economic growth within a region. A unique resource or productive activity is an essential component in gaining a competitive advantage (Kotval & Mullin, 1998:311);
- Ensure the development of PPPs within a locality as well as a shared vision of local development amongst firms located in the cluster;
- According to Clancy *et al.* (2001:18) there should be an individual that acts as a bridge between the community and the industrial cluster so as to ensure that all social and developmental goals within the locality are attained;
- Develop a cluster brand to attract investment interest in the cluster; and
- Hallencreutz and Lundequist (2003:534) state that provision of support to SMMEs located within the cluster would ensure long-term viability of the cluster.

The most important role for government is to identify potential clusters within their region. Information regarding the presence of clusters within a locality is a critical component in the development of a sustainable LED strategy. Once clusters have been identified, local authorities should determine whether the appropriate support infrastructure is in place so as to fully utilise the cluster (Fesser and Koo, 2001). Kilkenny & Nalbarte (2000) state that dialogue between local role-players is assisted through communication regarding the need for adequate and efficient information regarding the necessary skills and infrastructure needed in a specific locality.

3.6 VALUE CHAIN ANALYSIS

According to Nadvi and Barrientos (2004:8) a value chain mapping of clusters within a region aids in identifying potential links between key cluster stakeholders. This enables local role-players to identify the specific areas within a particular industry that would produce the greatest amount of benefits from any developmental strategies implemented within the cluster.

3.6.1 Value chains

According to Herr and Rogovsky (2007:8) a value chain is a combination of production factors that creates a product or service from the initial concept to final consumption of the product. The activities that constitute a value chain are not relegated to a single firm and can be divided amongst several firms within an industrial cluster. Herr (2006) states that a value chain can contain any combination of the following activities:

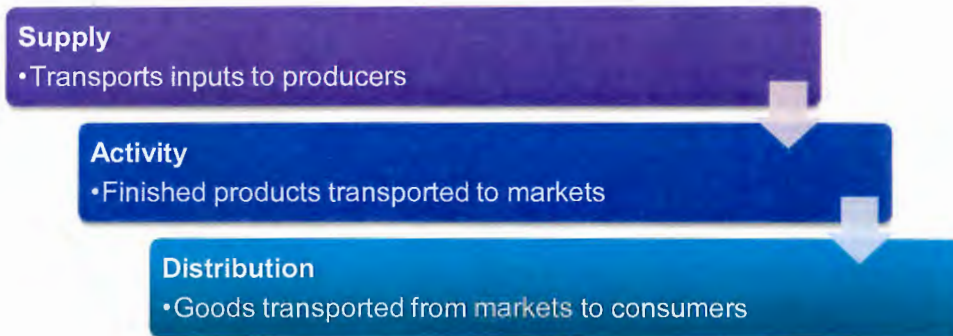
- Design of the product concept;
- Production of final or intermediary products;
- Marketing of the final consumer product;
- Distribution of the product to the end user; and
- Support services for the final consumer (such as technical assistance, etc.).

Schmitz and McCormick (2001:3) state that a value chain can take two forms, namely short and relatively uncomplicated or long and complex. Short value chains are those that do not require many productive techniques (such as dairy production) while longer, more complex value chains are those that often require higher level skills and techniques such as manufacturing and processing.

Regardless of the length of the value chain, Rodrigue (1998) states that value chains must be supported by an efficient transport system. As seen in Figure 3.3, the supply and distribution links between the supplier and customer that are crucial to the utilisation of clusters can only be brought about by an efficient transport system. Without transport networks, the goods produced cannot

reach their place of consumption and competitive footholds in domestic and international markets would be lost.

Figure 3.3: Transport and value chains



Source: Rodrigue (1998)

Gibbon *et al.* (2008:316) states that value chains are not limited to domestic boundaries and local or regional markets. Often, production processes require the services of international firms and, as such, value chains need to stretch to accommodate these extended production process. These value chains with one or more global links are referred to as global value chains (GVCs).

3.6.2 Relationships within a value chain

According to Steinle and Schiele (2002:851) managing value chains requires a basic understanding of how the value chains are organised and who are the key role-players within the chain. The identification of these key role-players is necessary for the formulation of intervention strategies which is determined by the nature of prevailing relationships within the chain (Favereau & Lazega, 2002:65).

Hess (2008:453) and Kaplinsky and Morris (2001) have identified that there are various forms of governance within a value chain that would also form part of the overall hierarchy within an industrial cluster. Value chain governance can either be hierarchical in nature or heavily network orientated. However, there can also be very little interaction between the various role-players within the cluster. Should this situation occur within the cluster then the conditions of exchanging goods and services are negotiated on a daily on the basis with the

use of the prevailing market price. This form of cluster governance is known as a market-based relationship.

Dominant role-players determine the overall character of the value chain (Gibbon, 2008:32). These lead firms govern the entire value chain and establish rules under which all firms within the chain operate. A hierarchical relationship develops within the value chain when the lead firm takes over direct ownership of either the entire chain or a part of the chain (Hess, 2008:454).

According to Kaplinsky and Morris (2001) relationships that are not defined by a hierarchical structure are known as network relationships. These can be classified as follows:

- Modular relationships occur when product architecture is modular in nature and technical standards simplify the interactions between role-players in the value chain;
- Relational relationships occur when product specification cannot be codified and transactions between suppliers and producers are more complex than the average relationship; and
- Captive relationships occur when the complexities of product specifications are high but the knowledge and capabilities of the supplier are at a low level. This would require a greater level of intervention from the lead firm. The suppliers, on the other hand, would be facing much higher costs should they swap out their clients and would thus prefer to remain captive by the lead firm (Bair, 2008:342).

3.6.3 The value chain approach to cluster upgrading

Coe *et al.* (2004:467) proposes that the value chain approach is an excellent way of analysing and upgrading industrial clusters. The basic assumption is that the performance and competitiveness of industrial clusters are dependent on the relative strengths of the relationships within the value chain. Humphrey and Schmitz (2000:52) state that industrial clusters are usually the entry points for market analysis, which in turn identifies the following:

- Lead firms or main role-players within the value chain;

- The nature of the relationships amongst value chain role-players;
- Potential gaps in the chain with regard to product information and market knowledge;
- Downstream services provided by value chain role-players as well as local support services; and
- The extent and quality of communication between role-players within the value chain.

3.6.3.1 Advantages of the value chain approach

Athiyaman and Parkan (2008:215) have identified the following advantages of the value chain approach to industrial cluster upgrading:

- The value chain approach focuses on increasing the competitiveness of industrial clusters. This is achieved through emphasising the need for co-operation between local role-players and co-ordination of activities within the cluster;
- Local authorities can gain clarity with regard to the performance of a region's crucial industries. Possible area of development can be identified and underutilised resources can be highlighted and exploited;
- By definition the value chain approach facilitates the identification of the quantity and origin of added value within the production process. The various value chain components that generate the highest and lowest incomes can then be located and developmental strategies tailor-made to each can be applied;
- Value chain analysis is a means of conducting a SWOT analysis (as seen in Section 2.7.1.2) that can be used to develop a LED strategy for the locality concerned;
- Value chains allow the possibility of taking advantage of changing market opportunities and consumer demands and enables the matching of those demands and potential opportunities with appropriate actions to upgrade SMMEs and firms within the industrial cluster; and

- The value chain approach is cluster-oriented. It is based on the assertion that the most effective way of addressing the problems of SMMEs is to target actions at the cluster level.

3.6.3.2 The importance of the value chain approach

Herr and Rogovsky (2007:25) state that value chain analysis is an excellent conceptual framework for categorising economic processes, identifying industry constraints and utilising market opportunities. The value chain concept also enhances the basic understanding of the way in which trade takes place within the cluster. One of the more important reasons for conducting a value chain analysis is the identification of the weaker links in the chain and the developmental strategies that can undertaken to increase their effectiveness (Malmberg & Maskell, 2002:433).

There are certain distinct areas in which value chain analysis can be helpful (Coe *et al.*, 2004:478):

- Understanding the restrictions related to international market access;
- Acquiring increased production capability through the lead firm in the chain so as to keep pace with the lead firm's demands;
- Understanding the distribution of income gains earned along the value chain;
- Finding leverage points for growth and developmental initiatives that can be used to improve distribution gains; and
- Identifying localities and SMMEs that require technical support and assistance. The lead firms within an industrial cluster become the entry point for connecting with those SMMEs that require assistance.

3.6.4 Cluster upgrading

According to Herr and Rogovsky (2007:18) cluster upgrading enhances the competitiveness of enterprises and their respective industrial clusters. Upgrading the clusters has a positive impact on the workforce and the community at large. Sturgeon (2001:16) states that the upgrading of clusters must be viewed as a continuous process. According to the United Nations

Industrial Development Organisation (UNIDO, 2000:56) continuous upgrading requires continuous investment in innovation through the introduction of new combinations of inputs that bring about product, production process, market, inter-chain (moving to a new and more profitable value chain) and intra-chain (increasing co-operation between role-players within the cluster) upgrading.

3.6.5 Triggers for cluster upgrading

According to Gibbon *et al.* (2008:334) and Herr and Rogovsky (2007:18) there are various triggers that would cause the upgrading of an industrial cluster. These are illustrated in Figure 3.5. Each of these components will be discussed in the sections that follow.

Figure 3.4: Triggers for value chain upgrading



Source: Gibbon *et al.* (2008:334)

3.6.5.1 Increased systems efficiency

Clancy (1998:126) states increased efficiency can be achieved through co-operation between the various cluster role-players. Lower cost of production and increased market accessibility can be achieved through collaboration between the various firms in the cluster.

3.6.5.2 Improved quality

According to Gibbon *et al.* (2008:335) enterprises need to ensure that their products meet the requirements and demand conditions of an evolving international market. International standards regarding production methods and product quality, such as International Standard for Organisation (ISO) norms, should be adhered to.

3.6.5.3 Development of differentiated products

Herr and Rogovsky (2007:19) state that differentiated products can be produced if value chain role-players are willing to share information. The greater the spirit of co-operation, the harder it will be for competitors to copy the product and production process as they will have to replicate the entire system. Bair (2008:359) states that remaining competitive within a particular industry requires continuous innovation and the development of economies of scale. According to Kanji and Barrientos (2002:89) innovation activities require research and development, business development services (BDS) and government assistance where the local market is inefficient, thereby ensuring the need for PPPs in the cluster. .

3.6.5.4 Good social and environmental practices

There is increasing international pressure to ensure environmental and social objectives are met within the production process. Should domestic firms wish to participate in these international markets then standards regarding labour practices must be maintained (Altenburg & Meyer-Stamer, 1999:1698).

Kanji and Barrientos (2002:92) state that with increased availability of product information consumers are more aware of the possible negative externalities that result from production. Evidence of this is the increased demand for organic agricultural products.

3.6.5.5 Enabling business environment

The business environment, in which all firms and clusters operate, comprises two main dimensions (Porter, 2000:263):

- The immediate (micro) environment, which is determined by prevailing market conditions and any administrative procedures and interventions instituted by local government authorities; and
- The broader (macro) environment which has a profound impact on the ability of SMMEs to operate within international markets. This macro environment is affected by domestic monetary and fiscal policies, levels of education and available infrastructure within a country.

3.6.6 Methods of cluster upgrading

The following methods can be used to upgrade industrial clusters once the value chain analysis has been undertaken (Herr & Rogovsky, 2007:35):

- The creation of small business associations (SBAs) which provide SMMEs with channels through which to voice their concerns and gain access to broader market opportunities, thereby improving their level of competitiveness;
- Meeting local demand requirements and international market standards through the co-ordination of value chain activities and co-operation between value chain role-players; and
- Establishing PPPs that are essential in overcoming the constraints inherent in a locality.

3.7 SUMMARY AND CONCLUSIONS

An LED strategy requires a vehicle for the achievement of its social and developmental objectives. A solution to this is the SDI programme instituted by local authorities that would create the framework necessary for the infrastructural development required by the LED strategy. The SDI programme also ensures that all potential constraints to investment in the locality are removed and that underutilised local resources are used to their fullest potential. The SDI programme targets specific localities that have the highest potential for economic growth. This provides the catalyst necessary for increased economic development, employment and wealth creation in the locality concerned.

SDIs are distinguished from other industrial policy programmes due to the spatial dimension embodied in their objectives. The targeted industrialisation programmes housed within the SDI allows for the development of municipalities as key sites for developmental intervention. As part of the overall LED strategy within a locality, the SDI would then ensure that the goals established by the various PPPs are met.

The key principle of the SDI programme is to create an environment that is conducive to private sector investment and increased local competitiveness. Co-operation between local and regional role-players is emphasised as one of the components necessary to compete in international markets. The SDI should be able to demonstrate economic potential within a region and ensure that the possible gains of the initiative are redistributed to previously disadvantaged communities within the locality.

There are various strategies under the SDI approach that can be used to ensure success of the overall LED strategy. Co-operation, collaboration and integration of economic policy within the locality are essential for regional development and ensure increased levels of competition through interregional trade. By focusing on existing transport or development corridors, economic efficiency and effectiveness of a region can be enhanced through the SDI. PPPs and other institutional relationships are essential for the functioning of the SDI.

The Blue IQ initiative is a more evolved form of SDI planning. Developed in the Gauteng province, Blue IQ was regarded as a means of achieving the economic and social objectives of the province. The achievement of these objectives is facilitated by Blue IQ through the development of economic infrastructure in targeted industries. Blue IQ would essentially act as a project manager, offer SMME support and would focus the commercialisation of the various infrastructural projects housed within its mandate.

An IDZ is another form of SDI with a specific focus on industrial development and the attraction of downstream industries to a locality. IDZs are aimed at establishing conditions for entry into international markets and the promotion of increased competitiveness in the South African manufacturing sector.

Essentially, IDZs should serve as a means of optimising underutilised resources, employment and income generation and serve as a catalyst for the establishment of SMMEs in underdeveloped industries within the locality. The Coega IDZ, East London IDZ and the City Deep Logistics Hub are examples of the most successful IDZ or industrial cluster initiatives in South Africa.

Industrial clusters are a group of interconnected companies in close geographical proximity. As with IDZs, the industrial cluster is developed through agglomeration economies and industry-specific development initiatives. Downstream industries tend to locate close to their main productive input so as to take advantage of the shorter production chain. Being in close proximity to competitors is an advantage in the case of industrial clusters as increased availability of skilled labour, the opportunity for technology and skills transfer as well as the possibility of developing complementary products far outweighs the negative consequences. Industrial clusters benefit local communities through higher wages resulting from increased productivity gains in the production process. The potential increase in income and employment generation may be far greater than other development initiatives.

The success of industrial clusters is based on Porter's diamond model of national advantage. Factor conditions determine the level of innovation required in order to compete in global markets. Firms would have to develop new methods of production should shortages occur, which could lead to a national comparative advantage and the development of economies of scale. Related and supporting industries also aid this process of industrial development and the enhanced local competition ensures that local firms are better equipped to deal with foreign competitors.

The most important task for local authorities is to identify potential clusters within their region. Information regarding the presence of clusters within a locality is a crucial element to the success of sustainable LED strategies. Local authorities should conduct a value chain analysis to aid in identifying the links between firms in industrial clusters. These value chains exist wherever there is a network of production activity within a certain industry. As the value chain is

not relegated to only one firm, whether domestic or international, an efficient transport network is required to utilise the benefits of the value chain.

The value chain is seen as an excellent framework for the identification of industry constraints and a roadmap for the utilisation of existing market opportunities. A value chain analysis identifies the weaker links in the chain and can assist in determining the developmental strategies needed to increase their effectiveness. Once the analysis has been complete, industrial cluster upgrading can take place in order to enhance the competitiveness of local industrial clusters. Clusters can be upgraded by increased systems efficiency, improved product quality and the development of differentiated products and the facilitation of an enabling environment through good social and environmental practices.

The chosen institutional vehicle for the achievement of the objectives established in the LED strategy should meet the requirements of the locality. Any form of spatial initiative with a decided focus on the most productive economic sector or industry within a region can ensure sustainable economic growth and development for the region concerned. From the various examples of SDIs it is clear that the most prolific vehicle for the LED strategy is one that serves to expand the local industrial base. Downstream industries provide local firms with the opportunity to develop economies of scale and thus realise cost reductions in the production process. This can be translated to increased community welfare through higher wages and increased market accessibility.