Chapter 12
Sasolburg: A Town Built Around the Chemical Industry Suffering Under Poor Governance and Its Environmental Legacy

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Abstract Sasolburg is one of the 'new towns' in South Africa developed during the 1940s and 1950s to house employees at nascent industrial and mining locations as part of South Africa's industrialisation drive. It is linked to the petrochemical industry, specifically the development of Sasol, which refined the coal-to-oil process and is now the leading petrochemical manufacturer in the country. Although Sasol has played a pivotal role in the development of South Africa and is considered the industrial hub of the Free State, it is also the second-largest emitter of greenhouse gases in the country. This article traces the development of Sasolburg from its inception to its current situation within the Metsimaholo Municipality and its continuing dependence on the petrochemical industry.

Keywords Sasolburg · Sasol · Coal-to-oil · Petrochemical industry · New town · Pollution · Metsimaholo

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12.1 Introduction

The city of Sasolburg is one of the 'new towns' in South Africa developed during the 1940s and 1950s to house employees of the nascent industrial and mining locations established as part of South Africa's industrialisation drive and plans to employ 'poor whites' in the first half of the twentieth century (Freund 2020; Sparks 2012). It forms part of the Vaal Triangle, an industrial node established on the banks of the Vaal River, along with Vanderbijlpark – a new town established in 1943 to boost the emerging iron and steel industry – and a state-owned company, ISCOR. The area is rich in coal, essential for both iron and steel manufacturing and the coal-to-oil and gas manufacturing process, with water provided by the Vaal River. Sasolburg is linked to the petrochemical industry, specifically the South African Coal, Oil and Gas company, now known as Sasol, which refined the coal-to-oil process. Although Sasol previously depended on the coal mined around the town, it now uses gas from Mozambique. The city is the headquarters of the Metsimaholo Local Municipality and the Fezile Dabi District Municipality.

Sasolburg was chosen as a case study for this book due to its unique origins as a company town established for the state's focus on economic development and self-sufficiency, which occurred at the expense of the environment. An element of the development of the two new towns was for the newly elected National Party to prove to all that white Afrikaners were as capable as the English. At the same time, it exposes starkly different approaches to the urbanisation of the apartheid government: well-planned and managed suburbs for whites but hostels and townships for blacks to limit the urbanisation of the black population, confining them to ethnically demarcated 'homelands' or bantustans (Freund 2007). According to this policy, only (male) workers were allowed in 'white' South Africa. As they were viewed as temporary lodgers, the plan was to confine them to hostels that could be easily controlled. However, since it was impossible to prevent the urbanisation of the black population, they were housed in 'townships', separated from white suburbs by buffers, such as railway lines, main roads, or, as in the case of Sasolburg, industrial areas. Zamdela is the township associated with Sasolburg. Sasol has contributed to the industrial development of South Africa and is known as the Industrial Hub of the Free State today. Sasol contributes about ZAR 13 billion to the national gross domestic product (GDP) and employs more than 26,000 people (Sasol Limited: online).

Despite the significant contribution of the city to the country's economy, along with so many municipalities in South Africa, it suffers from poor governance and service delivery. Furthermore, Sasol has been accused of undermining the Zamdela area (Sparks 2019) and general degradation of the environment (Groundwork 2003; Maponya and Rampedi 2013; Moshyana 2013; Weissflog et al. 2004). However, it has refuted these accusations (Fig. 12.1).

In researching this chapter, the authors consulted multiple sources of information on the history, development, and current situation of the city. These included scholarly books and articles; grey literature such as dissertations and theses; official

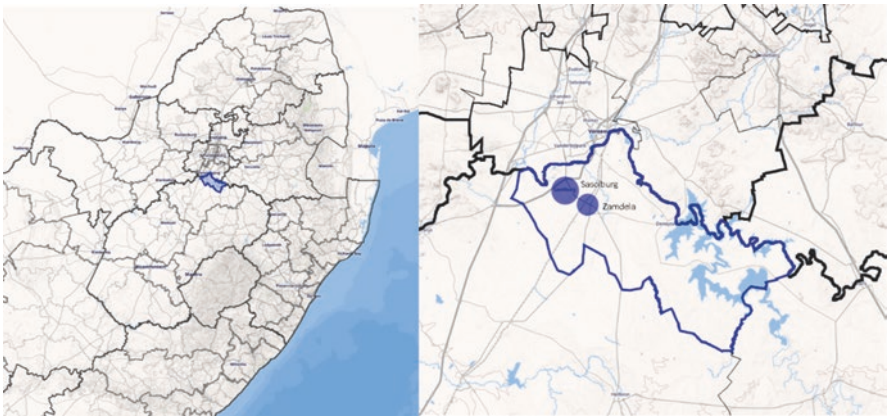

Fig. 12.1 Location of Sasolburg. (Source: Spatial Data Services 2022)

reports by government agencies, including the local and district municipality; and newspaper articles. Additionally, Spatial Data Services Africa (Pty) Ltd. provided much of the population data. These secondary sources were complemented by interviews with municipal officials and a range of businesses (large, medium, and small) in the area. It was hoped to interview at least four municipal officials, two local councillors, and numerous enterprises (owners or employees), with an equal number of respondents from large, medium, and small businesses. However, most of those approached for interviews were reluctant to participate in the research. Only three municipal officials, two local politicians, and six businesses were interviewed through telephonic interviews based on a structured questionnaire.

The next section provides the chosen theoretical framework – the development conflicts between the economy, the environment, and equity and their applicability to Sasolburg. Section 12.3 describes the planning and development of Sasolburg. Thereafter, Sect. 12.4 provides an overview of the population and economy of the Metsimaholo municipality, followed by discussions of the governance, development, and management challenges of the municipality and the environmental problems caused by seven decades of mining and manufacturing. We conclude the chapter with thoughts on the future of the city and its dominant industry.

12.2 Sustainable Development and the Development Conflict

Sustainable development is commonly quoted as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (World Commission on Environment and Development (WCED) 1987). It implies intergenerational equity and a balance between the use of natural resources and human needs. Other definitions include geographical and procedural equity (Haughton 1999). Several authors have criticised these definitions of sustainable

development as merely a 'greenwash' that panders to neoliberal capital interests (Castro 2004; Du Plessis and Brandon 2015; Jabareen 2006) and neglects the dire state of the environment. Connelly (2007) notes that there are several approaches to dealing with conflicts, contradictions, and ambiguities in the definitions. These may simply be ignored, or a definition that suits the situation, organisation, or author is adopted, such as an emphasis on the environment or equity and poverty reduction (Jabareen 2006). Two decades ago, Haughton (1999) identified this range of definitions and pointed out that sustainable development is about changing human behaviour from exploitation to regenerative development (Du Plessis 2012):

> Sustainable development, then, is about recognizing and accepting our responsibilities not just for where we live, but more widely for the environment at a global scale. In order to do this, we need to look beyond the environment itself, to the broader economic, social, and political systems within which human decisions are made. Fundamentally, sustainable development requires not just altering behavior patterns in relation to the environment, but about changing the broader systems that shape human behavior (Haughton 1999: 234).

Berke and Manta Conroy (2000: 23–23) developed principles that should guide planners towards more sustainable growth. These are (1) harmony with nature, which includes protecting ecosystem services and biodiversity; (2) building liveable environments that adapt to the needs of residents and users and protect unique features; (3) an economy that functions within the limits of the environment and fosters liveable environments that meet local needs; (4) equitable access to a healthy, dignified environment and social and economic services; (5) polluters paying for damages (and reparation costs); and (6) limiting the detrimental impacts of local actions on other places (geographic equity). These principles are the basis of their expanded definition of sustainability as the need to:

> … foresee and shape the scope and character of future development, identify existing and emerging needs, and fashion plans to assure that those needs will be met and that communities will be able to continuously reproduce and revitalize themselves. By this definition, built environments become more livable; ecosystems become healthier; economic development becomes more responsive to the needs of a place rather than furthering the profits of a powerful few; and the benefits of improved environmental and economic conditions become more equitably distributed (Berke and Manta Conroy 2000: 22).

Sustainable development is often symbolised by three intersecting circles representing the environment, the economy, and society, each enjoying equal status, which seldom occurs in practice. Campbell (1996, 2013, 2016) recognised the unequal weights of these domains. He described these goals as the corners of a triangle that depicts some of the competing demands of sustainable development, where the sides of the triangle represent conflicts between the points.

The axis between social justice and equity and environmental protection reflects the development conflict. This conflict is evident in the Global South, where marginalised residents are forced to use local resources for their immediate need to survive while recognising longer-term impacts on the environment. The second area of contestation is the property conflict, which juxtaposes the economy and the need for social justice and redistribution of resources. Gentrifying neighbourhoods, slum clearance for new buildings and infrastructure, or the relocation of 'squatters' to

peripheral locations for mega events (Maharaj 2015) are examples of this area of contestation.

The axis between the environment and economic development is a conflict of resources. It is experienced in mining regions, where the landscape and ecosystems are sacrificed for financial gain. Clearing tropical forests for plantations and rangelands is another example of this conflict arena. The need for investment, revenue, and employment drives many communities to accept the despoiling of land for the anticipated financial gain (Walker and Salt 2012).

As the remainder of this chapter will explain, all conflicts are evident in the development of Sasolburg/Zamdela. The government of the day had little concern for the environment as its focus was on economic growth and reducing dependence on oil imports. All residents have suffered the impacts of air and water pollution, land despoilation, and undermining, while the harsh social injustices of apartheid are still obvious.

12.3 Planning and Development of Sasolburg

Sasolburg was developed as a company town to serve the new Sasol company, established to extend the Fischer-Tropsch coal-to-oil process, reduce South Africa's dependence on oil imports, and prove to the world that the National Party Government was capable of governing despite opposition to its apartheid policies. It took several years for the process to be sufficiently refined to become profitable (Oranje 1996). In 1973, due to the oil crisis, a second plant and then a third were required, both built in the new town of Secunda, which now concentrates on manufacturing petroleum and related products such as aviation fuel. The Sasolburg plant currently focuses on chemical production from imported natural gas (Sasol 2022).

The choice of a site for the Sasol plant and, thus, the town depended on proximity to a rich coal seam, a reliable water source, and good rail transport, along with proximity and easy access to Johannesburg, the economic centre of South Africa. All these were available at the chosen site. Therefore, the town was located adjacent to the Sigma coal mine and the infamous Coalbrook mine, where 435 men were killed in one of South Africa's worst mining accidents. The Sasol plant was located between Sasolburg and Zamdela, with space for easterly extensions for Sasol and other chemical companies. The town was developed by a subsidiary of Sasol and strictly controlled by this company for many years, despite the appointment of a Village Board of Management in 1954 by the provincial authority (Kirchhofer 1982).

Sasolburg's planning, undertaken by Max Kirchhofer, was based on the English garden cities and green-belt new towns, along with the Radburn principles of separation of mobility and access functions of traffic (Ben-Jospeh 2005). Another key characteristic that was included in the development of Sasolburg was the creation of 'self-sufficient' precincts with a primary school and all other facilities required to make day-to-day living centrally accessible. The centralisation of day-to-day living facilities increased accessibility and decreased the transportation needs of the

residents. Open spaces with lush landscaping were intended to connect the precincts and create safe routes for residents to walk to shops or schools (Brockett 1996; Kirchhofer 1982). However, residents on the outskirts of Sasolburg were still dependent on vehicle transportation. Each precinct was simply numbered 'Woondeel (residential precinct) 1', 'Woondeel 2', etc. The size and finishes of sites and houses in each precinct reflected social stratification within the white areas (Kirchhofer 1982; Sparks 2012).

Sasolburg was initially planned for some 40,000 people (10,000 whites and 30,000 blacks) (Kirchhofer 1982). The layout had a central focus in the form of a town centre to promote centralised development, ultimately developing the city into a closed circle (Kirchhofer 1982). Over time, the original circular layout was adapted as more precincts, based on the original design principles, were added (23 in total). The urban layout adopted a curved and flowing street pattern. The town evolved with changes in population, living standards, and society (Kirchhofer 1982). Development on the city's outskirts departed from precinct principles, following no set layout and developing as the need arose.

The planned densities were 25 people per hectare for the white area. Most of the housing consisted of single-detached units (75%), and the remainder consisted of townhouses and apartments. Large sites were allocated for group housing and apartments, with garden spaces surrounding them. Single white men were housed in hostels with dedicated recreation facilities (Freund 2020). Emphasis was placed on developing units concurrently with gardens and open space (Kirchhofer 1982).

As the town was developed during the apartheid years, there were separate areas for white and black residents. Although the planners intended to adopt the same planning principles for both black and white precincts (Kirchhofer 1982), these ideals were scuppered by the apartheid government, which strictly enforced the separation of white and black residential areas and insisted on hostels for 'migrant' black workers instead of family housing (Mphambukeli 2019). However, SASOL insisted on controlling their workers' housing; thus, family housing was permitted (partially to retain increasingly skilled labour). Although these residents soon revealed similar aspirations as their white contemporaries (Marais 2018), the reality was that Zamdela had far fewer trees or paved streets and the paths were unkempt, littered, and dangerous (Freund 2020: 91). Furthermore, the effect of discrimination and segregation is visible in the higher densities. According to Sparks (2012, 2016),[1] informal settlements sprang up once the first shafts of the Sigma mine were completed and still exist on the fringes of Zamdela. However, intensive control of the town and surrounding areas would have curtailed such informality during those early years. Existing mining activities to the east and west of Sasolburg/Kamdela now limit the expansion of the area (Metsohaholo 2022: 60; Sparks 2019: 9, 12).

[1] Sparks (2012, 2016, 2019) discusses the deplorable treatment of Black workers and their families during Apartheid in the Sasol company and its towns.

In Sasolburg, and even more so in Zamdela, the social principles of Ebenezer Howard's Garden Cities, communal land ownership, and a better living environment were neglected. Zamdela residents had to contend with low living standards and a lack of services and facilities and were surrounded by industrial pollution (as they were downwind of the Sasol plant and waste disposal area). The latest town planning ideas, such as Howard's garden city, Perry's neighbourhood unit, and Radburn's layout (see Ben-Jospeh 2005), informed the design of the town, along with Kirchhofer's own ideas and ideals regarding creating liveable areas. However, for Brockett (1996), the transfer of design ideals – such as garden cities – to South Africa, given the differences in culture, lower densities, and an obsession with safety and security, has not been as successful as desired. Freund (2020) echoes the sentiment that urban design alone will not lead to sustainable cities. Management is equally important. The tight control and management of Sasolburg, when under the control of the company, meant that its lush green walkways were safe and convenient to use. With the new municipal dispensation, the level of control and management of open spaces has dissipated as local governments struggle to provide services to their communities (Auditor General 2021).

12.4 Demographics of the Metsimaholo Municipality

Since 1993, the local government system has changed significantly. In addition, the municipal boundaries have changed with each local government election. Sasolburg, Zamdela, and several small towns were incorporated into the Metsimaholo Local Municipality, and official data are currently linked to the municipality and not the previous towns. The data in the following table have been adjusted using statistical methods to accommodate changing boundaries.

12.4.1 Population

Initially, the population of Sasolburg and Zamdela grew slowly from a few thousand people in the 1960s to 20,600 whites (Kirchhofer 1982) in 1972. In 1996, the population of Metsimaholo was just over 107,000; about 163,000 in 2016; and more than 187,000 by 2020. Most of the respondents interviewed noted this steady increase in population. Given the past population growth trajectory – an average growth rate of 2% (Metsimaholo Local Municipality 2022) – the anticipated population in 2024 will be about 183,500 persons and about 6500 households. The white population decreased from 30,000 to 27,000 between 1996 and 2016 (Spatial Data Services 2022).

The excess of males over females is typical of manufacturing and mining communities that attract labour. Table 12.1 indicates the population by group in the municipality. Although the population has increased by more than 50,000 people, the ratio of whites to blacks has halved since 1996 from 0.4 to 0.2 in 2016. The

Table 12.1 Metsimaholo population and gender: 1996–2020

	1996	2001	2011	2016	2020
Males	55,629	59,018	77,600	85,533	98,903
Females	51,393	56,767	71,449	78,036	88,033
Population density (persons/ha)	0.38	0.67	0.87	0.95	±1.09
Total population	107,022	115,785	149,049	163,569	187,187

Source: Spatial Data Services (2022)

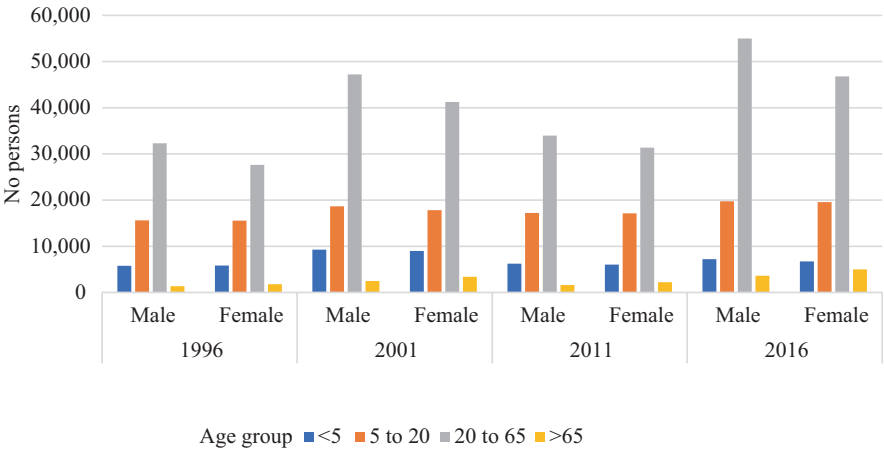

Fig. 12.2 Age structure. (Source: Spatial Data Services 2022)

number of female-headed households increased by nearly a third after 1996 but has stabilised since 2001 at roughly 33% of the total. However, since households headed by women often have a lower income than their male counterparts (StatsSA 2022b), the increasing number of households headed by women is concerning.

The age structure of the population is indicated in Fig. 12.2. Preschool children are below 5 years, school-going ages are from 5 to 20 years, economically active persons are included in the 20 to 65 age group, and over 65 s are the elderly. The number of economically active people has fluctuated since 1996. While the number of preschool children is relatively stable, the number of elderly people has grown, which could be evidence of place attachment, often linked to the ownership of a state-subsidised dwelling.

The WorldPop data (Tables 12.2 and 12.3, Figs. 12.2 and 12.3) provide a more nuanced picture of the age and gender structure. Most of the residents fall into the economically active age bracket.

Sesotho is the dominant language in the municipality and is spoken by two-thirds of the people. Afrikaans follows (15%), with IsiZulu and IsiXhosa at 5% each. English is spoken by just under 3% of people. The other national languages together comprise the remaining 2.3%. Although the total number of households has more than doubled, household sizes have decreased since 1996, probably due to (1) the

Table 12.2 Population groups, 1996–2016

	1996	2001	2011	2016
Black	75,818	93,756	122,683	134,076
White	30,099	21,239	24,372	27,704
Coloured	464	593	1061	1291
Indian	138	198	470	498
Other	502	NA	463	NA
Total	**107,022**	**115,785**	**149,049**	**163,569**

Source: Spatial Data Services (2022)

Table 12.3 Population by age group and gender, 2020

Age group	Description	Male	Female	Total
0–5	Preschool age	8539	8323	16,862
6–13	Primary school age	12,511	12,401	24,912
14–18	Secondary school age	7330	7140	14,471
19–35	Young adults	32,557	26,384	58,941
36–65	Adults	33,745	28,960	62,705
66–75	Senior adults	3149	3501	6650
Over 75	Elderly	1323	1323	2647
	Total	99,154	88,033	187,187

Source: Spatial Data Services (2022)

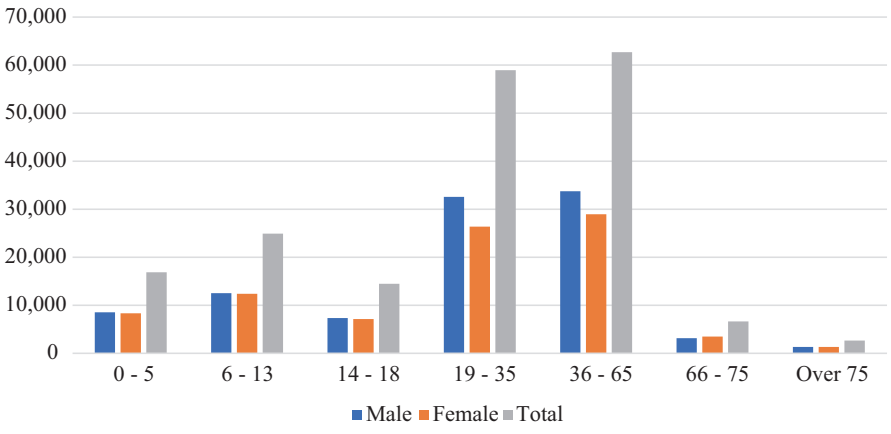

Fig. 12.3 Population per age group and gender 2020. (Source: Spatial Data Services 2022)

decanting of overcrowded dwellings into separate homes, (2) the effects of urbanisation, and (3) the general trend towards smaller families. The doubling of the number of households is reflected in the slowly growing density of people in the region. The low overall density can be attributed to the largely rural nature of the municipality. See Fig. 12.4 for a depiction of the building density.

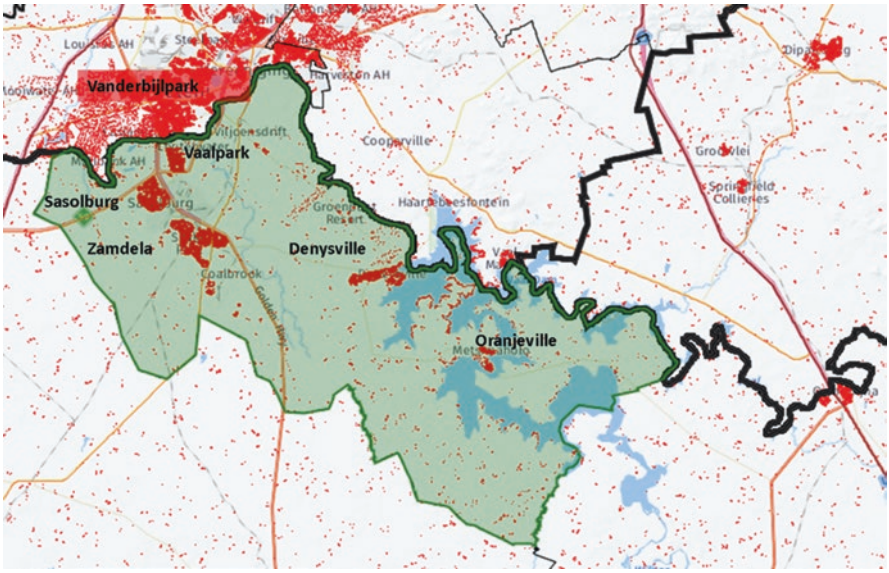

Fig. 12.4 Structure density in Metsomoholo 2018. (Source: Spatial Data Services 2022)

12.4.2 Education

The number of people who completed their schooling (matric) has increased since 1996. However, fewer people have completed any form of tertiary education (see Fig. 12.5). Business respondents have noted an increasing number of job seekers, but too few people with the skills required by industry:

> The skilled population increased only because industrial areas are willing to teach those that do not have a skill. A lot of people with higher education move away after a while looking for better jobs (Medium-sized business respondent).

> The town has skilled people, but not enough. A lot of workless people who asked for jobs or apply, do not have any [required] qualifications. They will have matric or grade 10. Some will have skills, but not great skills. People who work in industrial areas are skilled since the industries train them. But there has been an increase in the number of students that finish matric (Sasol respondent).

12.4.3 Income and Employment

Figure 12.6 suggests that income declined between 1996 and 2011 and that since 1996, more households have smaller incomes, while the number of high-income households has decreased, consistent with the educational profile, indicating fewer

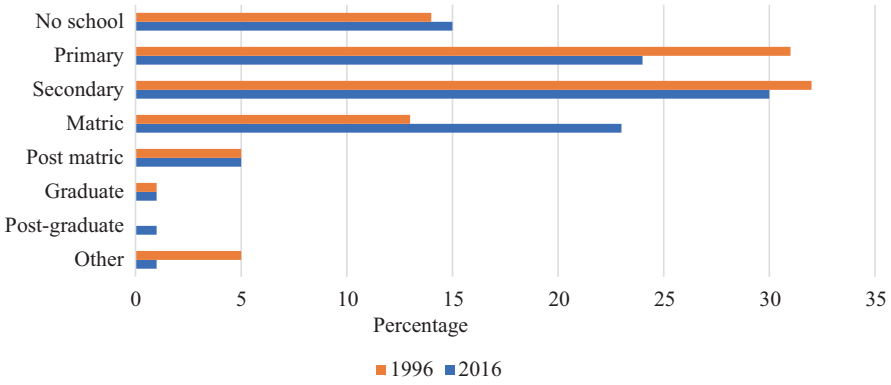

Fig. 12.5 The highest level of education achieved. (Source: Spatial Data Services 2022)

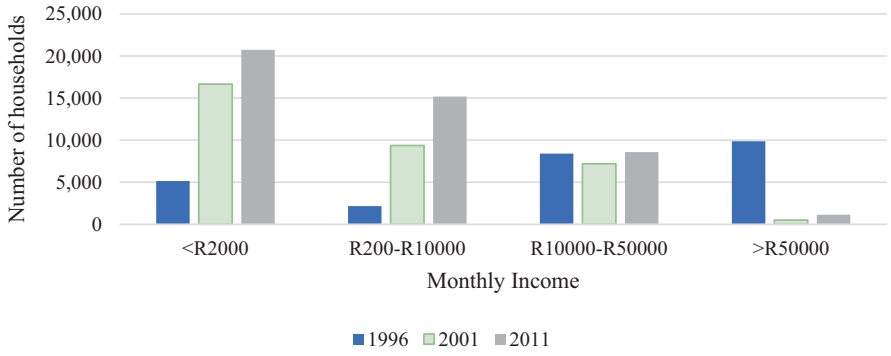

Fig. 12.6 Household income per month in 2011 rand values (Source: Spatial Data Services 2022)

people with tertiary education than in 1996. According to the Fezile Dabi (2020), approximately 43% of households live below the poverty line in the Metsimaholo LM.

The unemployment rate in 2018 was about 32%, with youth unemployment estimated to be in the region of 42% (Municipal Demarcation Board (MDB) 2018a, b), which may have increased in line with South Africa's national post-COVID-19 unemployment rate, which was 34% in June 2022 (StatsSA 2022a). The dependency ratio was 44.3 in 2011, which dropped to 40.8 per 100 people in 2016 (Municipalities of South Africa 2022) in Metsimaholo LM.

The chemical industry built around Sasol is the most important in the municipality, and this is evident in the employment per sector (see Fig. 12.7). Manufacturing in Metsimaholo accounts for more than double the national average, while employment in the government, community, social, and personal services is lower than the national average. In addition, agricultural employment is much lower in Metsimaholo than in the district municipality.

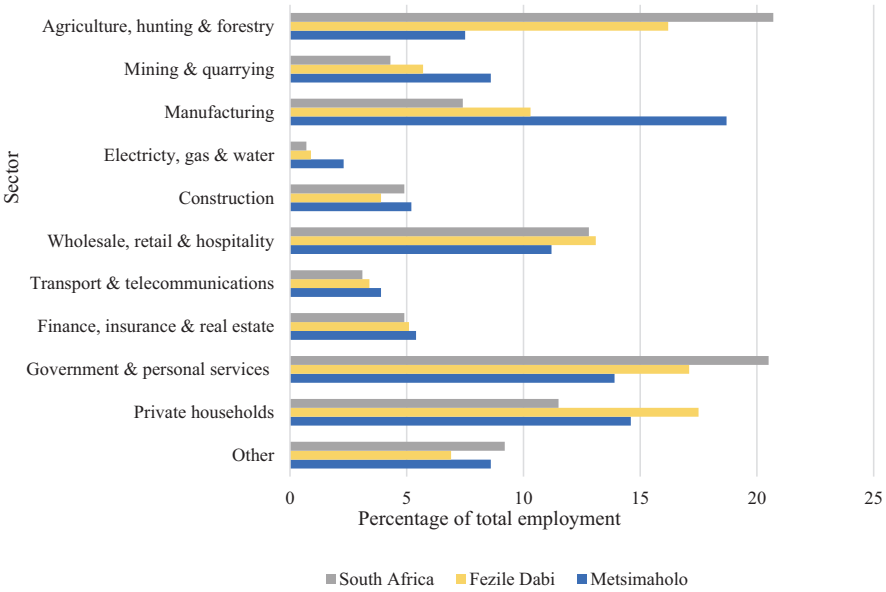

Fig. 12.7 Percentage of employment per sector. (Sources: MDB 2018a, b)

12.4.4 Economy

Sasol has played a key role in the local economy, and by establishing South Africa's chemical industry, it has been critical for the national economy. In addition to the chemical industry, there are also backward and forward links to other economic sectors that have benefitted from Sasol. The location quotient that measures an area's specialisation is indicated in Table 12.4. A ratio greater than one means that the region employs more people in that sector than the national economy and is a net exporter, which means that it is a driver of the local economy. A ratio below one means the opposite. The dominance of manufacturing and mining (gold, coal, and diamonds), along with a slightly higher location quotient of government services, is evident in the provincial economy.

Table 12.4 indicates that manufacturing, utilities, and construction are the leading contributors to the District economy. This is confirmed by the gross value added (GVA) data, which indicates that manufacturing far exceeds any other sector (Table 12.5).

The Tress index is a measure of the dependence of an economy on a few sectors or the diversity of the economy. An economy that has a range of sectors is generally able to better withstand fluctuations in the local or international economy. The more diverse an economy is, the lower is the index, and the reverse is true with a number closer to 100. Metsimaholo's economy has an index just below 50 (see Table 12.6), which indicates not only some diversity but also high dependence on a few sectors.

Table 12.4 Location quotient – the drivers in the local economy, 2018

Level of comparison	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Logistics	Business services	Community services	Government services
District economy	0.25	1.07	1.55	1.49	1.22	0.76	0.79	0.85	0.68	0.63
Provincial economy	0.25	1.14	3.45	1.81	1.36	0.60	0.64	0.61	0.52	0.52
National economy	0.37	1.73	2.72	2.38	1.02	0.72	0.59	0.44	0.68	0.51

Source: Spatial Data Services (2022)

Table 12.5 Gross value added at basic prices (R'million)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Logistics	Business Services	Community Services	Government Services	Total
2018	622	4690	**27,125**	2762	2292	3079	2640	4153	1652	2830	51,846
2019	551	3578	**27,464**	2879	2394	3255	2768	4344	1759	3007	51,998

Source: Spatial Data Services (2022)

Table 12.6 Tress index – level of specialisation in the local economy

Geography	1995	2000	2005	2010	2015	2016	2017	2018
Metsimaholo	44.5	49.8	48.3	48.1	49.5	50.1	49.4	49.2

Source: Spatial Data Services (2022)

Table 12.7 Services provided by the municipality

	2019/20	2018/19	2017/18	2016/17	2015/16
Water					
Number of customers	54,929	51,590	49,417	49,417	59,113
Inside the yard	47,474	45,325	45,325	45,325	48,185
Less than 200 m from the yard	40	2600	427	427	2537
More than 200 m from the yard	3750	0	0	0	4561
Indigent households with free basic service	10,151	8386	8434	8369	27,291
Electricity					
Number of customers to whom provided	51,927	51,893	51,893	51,074	38,063
Indigent households with free basic service	6540	8340	7407	5981	5116
Sewerage and sanitation					
Number of customers	51,062	40,450	39,909	31,226	43,826
Number of households using:					
Flush toilet – public sewerage	41,247	34,391	33,850	23,696	23,696
Flush toilet – septic tank	3617	696	696	1200	1200
Ventilated pit latrine	0	0	0	0	0
Bucket system	2533	1533	1533	2500	2500
Other	0	0	0	0	12,600
Domestic households with access to free basic service	9168	9176	5463	44,269	29,043
Solid waste services					
Number of customers	50,296	49,000	49,000	49,000	47,000
Indigent households with free basic service	7766	7766	7776	7233	7242

Source: https://municipalities.co.za/services/1040/metsimaholo-local-municipality

The land impacted by development has increased between 1990 and 2018 by more than 1000 ha and 1500 ha, respectively, while the land used for agriculture has declined by more than 3500 ha in this period (Spatial Data Services 2022).[2]

According to the Municipal Demarcation Board (2018a), 85% of households live in formal dwellings built of bricks and mortar/concrete. Table 12.7 shows some of the progress and state of services provided by the municipality.

[2]The land cover data for 1990 and 2014 are directly comparable. However, the categories were changed for the 2018 land cover. The data for 2014 and 2018 must be compared with caution.

12.4.5 Environmental Issues

Human activities have impacted the environment for centuries as the spread of agriculture and cities encroached on and transformed natural habitats, while mining and manufacturing have devastated landscapes (Cavanagh et al. 2022; Cook et al. 2022; Diamond 2005). Similar processes still affect many areas today. The Sasol plants in Sasolburg and Secunda have been identified as the principal sources of air pollution for many years, affecting people and crops (Bega 2019; Maponya and Rampedi 2013; Moshyana 2013; Weissflog et al. 2004). Residents have blamed the company for their respiratory diseases (Faku 2018). Non-governmental organisations (NGOs) have recently won a court case against the government to force it to ensure that Sasol (Secunda plants)[3] and Eskom comply with environmental management legislation (Bloomberg 2022). This matter was also discussed at a Parliamentary Monitoring Committee meeting (PMG 2021b). However, Sasol's response to these allegations has been that its carbon emissions are within legal limits, that it has achieved a 27% reduction in energy use, and that it wants to achieve zero carbon emissions by 2050. It is also planning to produce green hydrogen clusters with partners (Sasol 2021; Creamer 2022). Two of the conflicts identified by Campbell (1996) are evident: the resource conflict of clean air with respect to the power of large companies and environmental justice where the local community enjoys the benefits (and not only the costs) of economic development. It should be noted that the benefits have been skewed towards the affluent (mostly white population), while the externalities have predominantly been borne by blacks.

One of the reasons for locating the ISCOR and Sasol plants next to the Vaal River, one of the largest rivers in South Africa, was to use the river for waste disposal (Marais et al. 2016a, b). In 2018, Sasol was accused of dumping effluent from its plant into the river (Faku 2018). However, according to an article in the Water and Sanitation Africa trade magazine (2022), Sasol is the only private company to be recognised for its top-performing wastewater treatment systems.

12.4.6 Governance

Under apartheid, black urban areas were generally administered by a national department and later by 'puppet' local administrations, while white areas had their own local councils. These councils, especially in the Free State, had little autonomy, especially with respect to urban and regional planning. From 1990 onwards, there were a series of negotiated transitions to democratic municipalities. This included numerous changes in boundaries to ensure that the new dispensation of local government included their functional areas and disadvantaged areas, whether in 'townships' such as Zamdela or former homelands.

[3] The Secunda plants are reputed to have one the highest points of carbon emissions in the world.

According to the South African Constitution, the local government has considerable autonomy regarding its financial planning and management. Other spheres of government (i.e., national and provincial departments) may only intervene in local government affairs under specific circumstances. Municipalities have three main sources of income: property rates, income from payments for services (e.g., water and electricity), and grants from the national government. The latter includes a grant to cover some essential services for indigent households and an infrastructure grant. The provincial government can also allocate funds to prepare serviced sites and state-subsidised houses.

In 2000, three types of municipalities were established: local municipalities (LMs), district municipalities (DMs) that have two or more LMs within their area of jurisdiction, and metropolitan municipalities that have the functions of both LMs and DMs (Nel and Minnie 2022). Sasolburg is part of the Metsimaholo LM and the Fezile Dabi DM.

The Metsimaholo LM has experienced various governance issues over the past 6 years, including an uprising against the inclusion of Parys (a neighbouring town) in the municipality (Marrian 2013). These problems prompted the Free State provincial government to intervene in its affairs. According to the province:

> since the election of the Metsimaholo municipal council in 2017, it has not appointed senior managers, and the Municipal Manager of the municipality was placed on suspension on 03 July 2018. The municipality also has operated for some time with middle managers acting as section 56 managers,[4] Municipal Manager and Accounting Officer [CEO]. The municipality has also been struggling with vacant senior management positions, alleged political interference, regression in audit outcomes and governance oversight as well as a deterioration of systems of internal controls, among other issues (Parliamentary Monitoring Group 2021a).

The governance woes of the municipality are reflected in its audit outcomes, a qualified audit, since 2017/2018 (National Treasury: online), as well as its ability to undertake and implement strategic planning. As one respondent from a medium-sized business commented, ‘Strategies are listed, but due to financial reasons and poor administration skills, the municipality struggles to implement and complete these strategies’, while a small business respondent noted: ‘The municipality has goals and strategies, but not everything gets implemented and some projects are uncompleted.’

Due to the governance problems of the municipality, the service delivery has faltered.

> The municipality tries, but it is not enough. By giving new strategies every few years and not implementing anything, nothing will change. The community has been complaining about service delivery for a long time, and nothing has changed. (Business respondent).

The informal settlements have been expanded, and the municipality cannot keep up with this growth. According to businesses and the municipal respondents, a community organisation, the Sasolburg Community Action Group, is working to

[4] Section 56 Managers report the municipal manager (CEO and chief accounting officer).

provide some services. The municipality is responsible for water, sanitation and sewerage systems, electricity reticulation, and waste removal. However, due to a lack of maintenance, many services are in disrepair. As the business respondents noted:

> Service delivery has been poor due to damaged infrastructure. The municipality tries to repair the damaged infrastructure, but they are not always capable. The community, however, has jumped in, and those with the skills to repair things have taken the opportunity to teach others as well.
>
> The Sasolburg Community Action Group aims to work with the local Metsimaholo municipality and other stakeholders to assist the residents of Sasolburg and surrounding areas with infrastructure services and maintenance.
>
> Some infrastructure gets fixed and service delivery has gotten better [but] it is still does not run smoothly.

Municipal respondents acknowledged some of the problems facing the municipality but indicated that Metsimaholo is trying to improve its service delivery. These problems are not unique to Metsimaholo. In recent reports on municipal performance, the Auditor General (AG) (2020, 2021) has exposed serious governance issues in South African local governments, such as wide-scale corruption; poor management, partly due to the appointment of inadequately skilled people in key posts; limited maintenance of infrastructure that is deteriorating to a point where it will have to be replaced; and a complete lack of accountability by senior staff and politicians. In addition, Pieterse (2021) and Nel and Minnie (2022) have pointed to legal, structural, and systemic problems in the conceptualisation of local government.

Unlike most metropolitan cities and regions, secondary cities seldom have diversified economies, which makes them vulnerable to fluctuations in the national and local economies (Marais et al. 2016a, b; Marais and Nel 2019; SACN 2020). As apartheid restrictions on the movement of Africans were lifted, rapid urbanisation of cities occurred, requiring the extension of infrastructure to accommodate new developments (Pieterse 2021). Today, most urban areas with viable economies attract job seekers, creating a demand for urban services.

One of the main income streams of municipalities is the charge on the provision of services, i.e., water, electricity, and refuse removal. However, given the scarcity of water in most of South Africa, households are encouraged to use water sparingly. Eskom, the power utility, cannot meet the demand for electricity, leading to rolling blackouts. In response, many households and large companies have turned to PV solar generation. From a climate change perspective, these actions are commendable, yet they have reduced the potential municipal income from wealthier households. Many lower-income households cannot (or will not) pay their service charges. Consequently, municipalities have massive debts to water utilities (€780 million) and Eskom (over € 2.7 billion) in August 2022.

Municipalities are expected to prepare integrated development plans (IDPs) as the strategic plan to guide actions and budgets for each 5-year term of the municipal council. This plan should also include the plans of the national and provincial

government departments that affect the area to ensure the alignment of development, as well as responsibilities devolved to municipalities through legislation. Thus, local governments that are the least resourced of all spheres of government bear the burden of implementing many national and provincial government strategies. The physical area of municipalities further complicates the delivery of services. Although Metsimaholo is a relatively small municipality, it still covers a large area, 1717 km^2, which must be serviced, with travel costs and time implications.

12.5 Conclusions

Sasolburg was developed as a lush jewel among the coal mines and the Sasol plant with its dust and pollution. Zamdela – although also intended to be a garden city designed according to neighbourhood design principles by planners – never experienced the same level of investment due to Apartheid policies. Currently, both areas are suffering from infrastructure failures and other service delivery problems in the Metsimaholo municipality.

However, the establishment of Sasolburg was the catalyst for the establishment of the petrochemical industry in the country, which created many jobs and training for many people and tax income for the state. Instead of a more liveable area, healthier environments, and a spread of the benefits of development, the converse appears to be happening in Sasolburg/Zamdela. Instead, it is the disadvantages of the weak governance of Metsimaholo that are being distributed.

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