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Decades of Mining Sector Decline: a Socio-economic Profile Analysis of the West Rand, South Africa

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Abstract

For decades, mining has played a key role in the development of the South African economy in terms of output, foreign exchange earnings, employment, and tax revenue. In the last 30 years, this has changed dramatically, with notable declines in mining's contribution to South Africa's GDP and employment. These changes are echoed by accompanying changes in the towns, cities, and provinces where closing mines are situated. Resource-based towns and cities indeed face uncertain futures as these declines take shape. This necessitates urgent and deliberate interventions to provide a turnaround strategy to counter the deteriorating socio-economic profile of such areas. Within this context, the aim of this article is to conduct a socio-economic profile analysis of the West Rand. Specifically, the study will provide an overview of the existing population profile, population growth rate, human development profile, structural composition of the economy, crime trends in the area, and tourism trends in the area. The results of this study can form the foundation of an evidence-based formulation of longer-term post-mining development strategies. By analysing these trends, we can gain a deeper understanding of the challenges and opportunities facing these municipalities and their residents, and identify potential strategies for sustainable development and growth. The study will be based on a quantitative research approach analysing secondary data obtained from the IHS Markit database.

Keywords: *Mining South Africa, Mining decline, Socio-economic profile, West Rand, Tourism, Local economic development (LED)*

Introduction and aim of the study

Mining's historical role in the development of the South African economy has been well documented. For many decades, the sector acted as a key contributor to total output, foreign exchange earnings, employment, and tax revenue for the government. Over the past three decades, this picture has changed dramatically to one of significant structural change, with notable declines in mining's contribution to South Africa's gross domestic product (GDP) and employment (Loots, 1998; Fedderke & Pirouz, 2002). There was a significant decrease in mining's contribution to value-added in the economy, primarily as a result of the fall in the production of gold and uranium (Fedderke & Pirouz, 2002). For example, in 2006, South Africa was still the largest producer of gold in the world —a position that was South Africa's for the best part of a century. Three years later, in 2009, the country moved down to fourth place, after China, Australia, and the United States of America (Ruffini, 2010). The production of 205 metric

tonnes in 2009 was just more than 20 per cent of the 1000 metric tonnes produced at their peak in 1970 (Ruffini, 2010). The decline was evident for many years, but the recent decreases can be described as indeed being rapid (Ruffini, 2010).

The diminishing role of mining as an employer is less severe than the decreased contribution to value-added in the economy. The decline is again mainly due to the enormous loss of employment in gold and uranium mining, which is the largest employer in the mining sector as a whole. The 1990s, in particular were characterised by a dramatic fall in the employment of particularly unskilled workers in the sector (Fedderke & Pirouz, 2002; Marais *et al.*, 2022a). The changes in the fortunes of the gold mining sector are echoed by the accompanying changes in the towns, cities, and provinces where closing mines are situated. Resource-based towns and cities indeed face uncertain futures as these declines take shape.

Many of the case studies in the literature (e.g., Merafong in Marais & de Lange, 2021) reflect a tale of a city whose economy and population have diminished but whose urban settlement area has nonetheless grown (Marais & de Lange, 2021). Using the same case study[2], Marais and De Lange investigated the implications of the economic growth path dependence of South African mining policy (Marais & de Lange, 2021). They found that policymakers often focus their development plans on the expansion phase of the mining town in question and often emphasise short-term growth goals. Therefore, policymakers do not make sufficient provision for the decline phase of their city (Marais & de Lange, 2021). This approach contradicts the reality that mining resources are fixed. Therefore, governance and planning should consider these longer-term realities when the resources the mining town or city was built on are no longer available (Marais *et al.*, 2022a). Indeed, mining cities have the difficult task of having to think about the very real implications of the eventual decline associated with the finite nature of the resources they were built on (Marais *et al.,* 2022a).

The West Rand District Municipality is a classic example of a mining community facing this challenge. In 2018, West Rand was estimated to have contributed approximately 3.8 per cent to the economic output of the

[2] Marais and de Lange (2021) used Merafong City, a gold mining centre in Gauteng, as a suitable case study to explain the unexpected aftermath of large-scale decreases in the level of the population and economic activity. Despite the decline in its mining activity, the city's footprint has expanded by 35%(Marais & de Lange, 2021) The authors identified inappropriate post-apartheid policies, the power of the mining companies, the relaxation of planning legislation, a planning mindset that promotes growth, and a reluctance to plan for decline as significant reasons for the observed problems (Marais &de Lange, 2021).

Gauteng Province. The sector that predominately drives the economy of the district is mining. However, the contribution of the mining sector to the GDP has diminished since 2011. Furthermore, the unemployment rate has increased significantly in the area since 2011, with youth unemployment at alarming levels.

The decline in the mining sector's contribution to the regional economy and worsening socio-economic conditions in the district municipality necessitate urgent and deliberate interventions to provide a turnaround strategy to counter the deteriorating socio-economic profile of the area. Within this context, the aim of this article is to develop an understanding of the historical context since 2011 of the West Rand District as well as to conduct a socio-economic profile analysis of the West Rand. Specifically, the study will provide an overview of the existing population profile, population growth rate, human development profile, structural composition of the economy, crime trends in the area, and tourism trends in the area. These are all key elements in unpacking the mining decline.

The results of this study can form the foundation for the evidence-based formulation of longer-term post-mining development strategies for the area, heeding the call of Marais and De Lange (2021). By analysing these trends, we can gain a deeper understanding of the challenges and opportunities facing these municipalities and their residents and identify potential strategies for sustainable development and growth. The study will be based on a quantitative research approach analysing secondary data obtained from the IHS Markit database.

The rest of the article is structured as follows: The study area will be presented next. The next section deals with the socio-economic profile of the West Rand District. This section will look at the West Rand District in terms of population size, human development, unemployment, the structural composition of the economy, crime in the district, and tourism in the district. The third section analyses the key trends in the district, after which appropriate conclusions and tentative policy recommendations will be drawn.

Study area

The West Rand District Municipality is in the west of the Gauteng Province of South Africa. The West Rand extends from Randfontein (the seat of the district) in the west to Roodepoort in the east and includes the town of Krugersdorp. It is bordered by Bojanala Platinum to the north-west, the City of Tshwane to the north-east, the City of Johannesburg to

the east, Sedibeng to the south-east, and Dr Kenneth Kaunda to the south-west. It comprises three local municipalities, namely Merafong City, Mogale City, and Rand West City (see Figure 1).

Figure 1: West Rand District

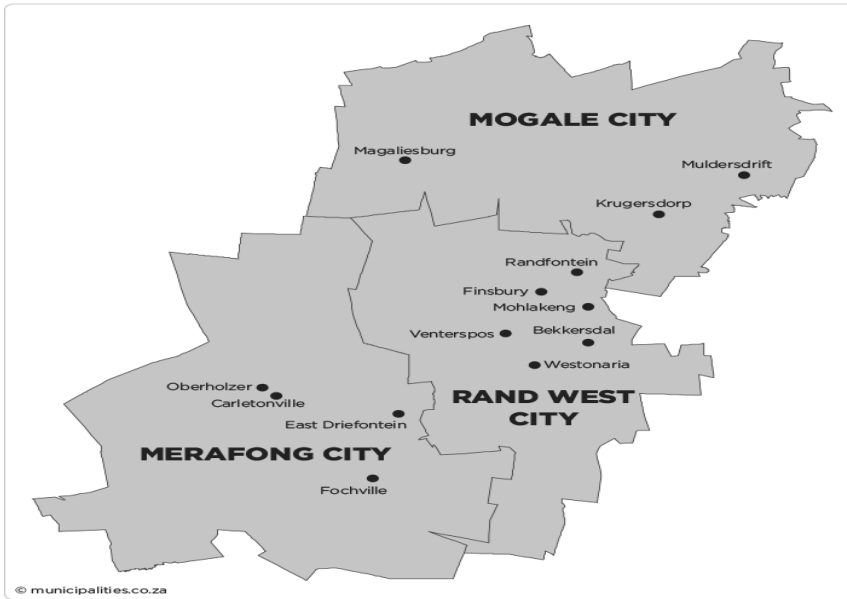


Figure 1 above shows the location of the West Rand District Municipality within Gauteng.

Demographic and socio-economic analyses of Mogale City, Merafong City, and Rand West City

The discussion of the demographic and socio-economic profile of Mogale City, Merafong City, and Rand West City includes the following: an analysis of the population profile, human development profile, labour and employment profile, income and expenditure profile, the structural composition of the economy, crime in the area, and tourism trends in the area.

Population profile

In 2021, Gauteng had a total population of 15,888,000. The West Rand made up 5.7% of the total Gauteng population (https://www.statista.com/statistics/1112169/total-population-of-south-africa-by-province/).

Table 1 displays the population trends of the West Rand for the period 2011-2021.

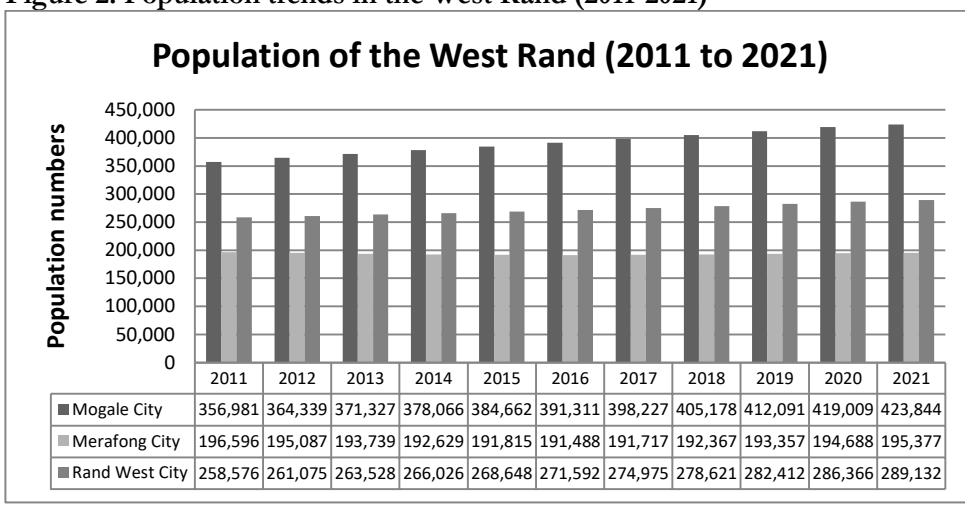
Table 1: Population of the West Rand (2011 to 2021)

Year	West Rand	Mogale City	Merafong City	Rand West City
2011	812 153	356 981	196 596	258 576
2012	820 501	364 339	195 087	261 075
2013	828 593	371 327	193 739	263 528
2014	836 721	378 066	192 629	266 026
2015	845 125	384 662	191 815	268 648
2016	854 391	391 311	191 488	271 592
2017	864 920	398 227	191 717	274 975
2018	876 167	405 178	192 367	278 621
2019	887 860	412 091	193 357	282 412
2020	900 062	419 009	194 688	286 366
2021	908 354	423 844	195 377	289 132

Source: IHS Markit, Regional eXplorer, 2023

Figure 2 shows the population trends in the West Rand for the period 2011-2021.

Figure 2: Population trends in the West Rand (2011-2021)

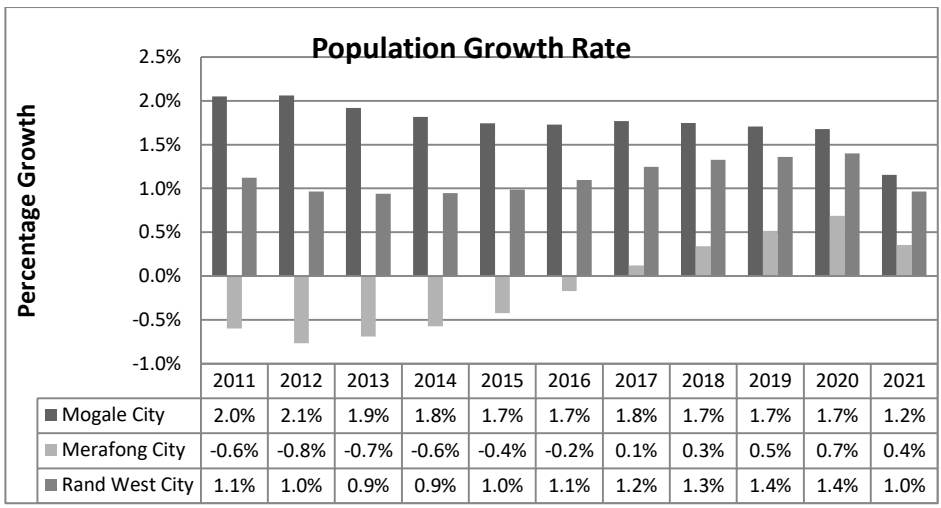


Source: IHS Markit, Regional eXplorer, 2023

Figure 2 illustrates that the population grew in the West Rand by almost 100 000 people from 812 153 to 908 354, or 11.8%, during the last decade.

However, Merafong City was the only location that experienced a small, accumulated population decline during the past 10 years. The population of Mogale City grew by 18.7% (from 356 981 to 423 844), and the population of Rand West City increased by 10.6% (from 258 576 to 289 132). These figures confirm the findings in the literature of Marais and De Lange (2021) that a decline in mining activities does not necessarily imply a decline in the city's socio-economic footprint. The population growth should be viewed in light of the huge influx of people to Gauteng, since the West Rand District Municipality is in relatively close proximity to the hub of economic activity in Gauteng. The West Rand is also transversed by two major national roads, namely the N12 and N14.
Figure 3 below represents the population growth rate in the West Rand for the period 2011-2021.

Figure 3: Population growth rate in West Rand (2011-2021)



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Mogale City	2.0%	2.1%	1.9%	1.8%	1.7%	1.7%	1.8%	1.7%	1.7%	1.7%	1.2%
Merafong City	-0.6%	-0.8%	-0.7%	-0.6%	-0.4%	-0.2%	0.1%	0.3%	0.5%	0.7%	0.4%
Rand West City	1.1%	1.0%	0.9%	0.9%	1.0%	1.1%	1.2%	1.3%	1.4%	1.4%	1.0%

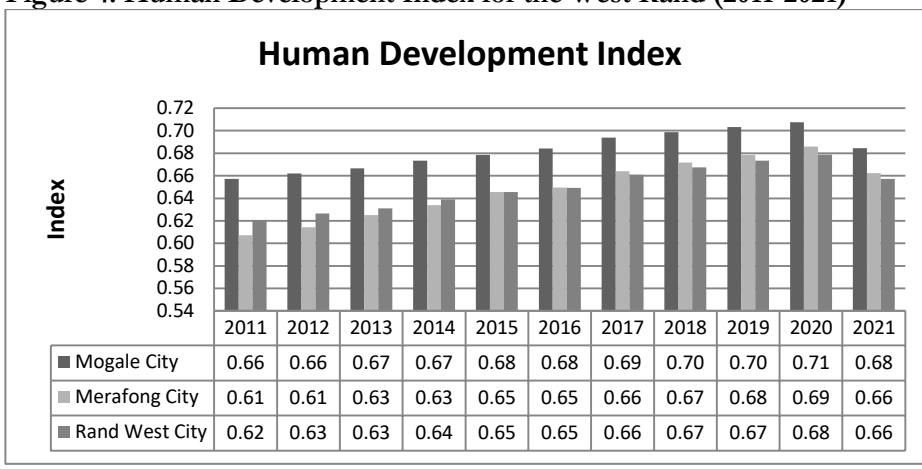
Source: IHS Markit, Regional eXplorer, 2023

According to Figure 3, from 2011 to 2016, Mogale City and Rand West City experienced positive population growth rates, while Merafong City experienced a small decline in population growth rates for the same years. Since 2017, all three municipalities in the West Rand District Municipality have experienced positive population growth rates. However, these growth rates are still significantly lower than the 3.5% average population growth rate Johannesburg as a city experienced over the same decade.

Human development profiles

Figure 4 below illustrates the Human Development Index (HDI) for the West Rand for the period 2011-2021.

Figure 4: Human Development Index for the West Rand (2011-2021)



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Mogale City	0.66	0.66	0.67	0.67	0.68	0.68	0.69	0.70	0.70	0.71	0.68
Merafong City	0.61	0.61	0.63	0.63	0.65	0.65	0.66	0.67	0.68	0.69	0.66
Rand West City	0.62	0.63	0.63	0.64	0.65	0.65	0.66	0.67	0.67	0.68	0.66

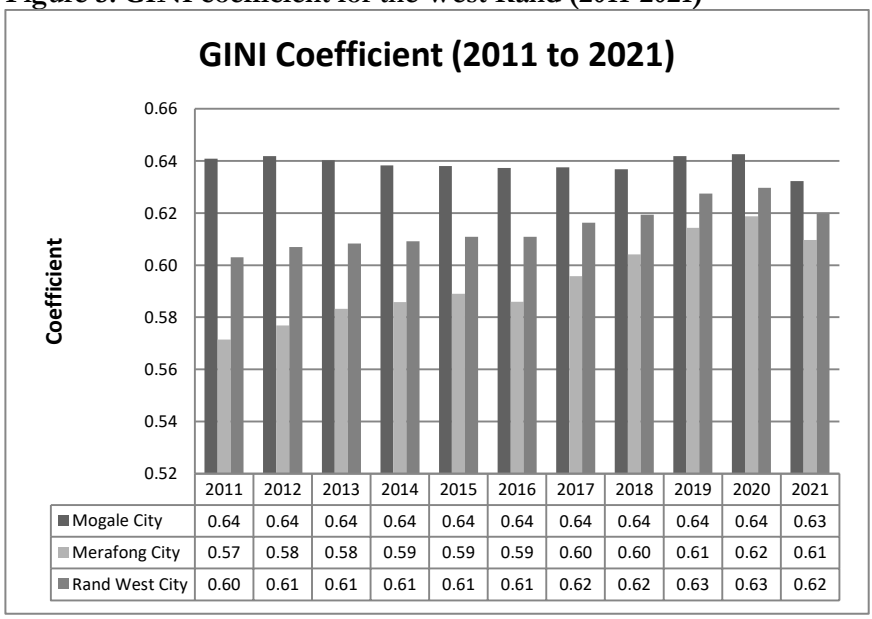
Source: IHS Markit, Regional eXplorer, 2023

For the last three decades, the UNDP's Human Development Index (HDI) has been used globally to measure the human development status of countries, regions, and sub-regions. The HDI is an index consisting of measurements for life expectancy, knowledge, and standard of living. It is a composite index and comprises indicators of life expectancy, adult literacy, and combined primary, secondary, and tertiary enrolment, as well as GDP per capita as a proxy for disposable income (Booysen *et al.*, 2011). Therefore, it is an index that combines these proxies for health, education and income. From 2011 to 2020, there was a steady improvement in the HDI of the entire West Rand. Mogale City's HDI increased from 0.66 to 0.71; Merafong City reported quite a significant improvement from 0.61 to 0.69; and Rand West City reported a similar increase from 0.62 to 0.68. However, due to the impact of COVID-19, the HDI figures declined for all three locations to the HDI levels of 2017, pushing human development levels back by four years.

Economists use various metrics to measure income inequality, such as the Lorenz curve, the Gini coefficient, decile ratios, the Palma ratio, and the Theil index. However, this section only focuses on the Gini coefficient as the most common measurement of inequality. Analysing inequality is

important since it may generate economic inefficiency and slow socio-economic development.

Figure 5: GINI coefficient for the West Rand (2011-2021)



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Mogale City	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.63
Merafong City	0.57	0.58	0.58	0.59	0.59	0.59	0.60	0.60	0.61	0.62	0.61
Rand West City	0.60	0.61	0.61	0.61	0.61	0.61	0.62	0.62	0.63	0.63	0.62

Source: IHS Markit, Regional eXplorer, 2023

According to the Gini coefficient values for the West Rand from 2011 to 2021 in Figure 5 above, the Gini coefficient increased incrementally for Merafong City and Rand West City over time. This means that the levels of inequality increased for the communities in these two municipalities. For Mogale City, the Gini coefficient figures remained at .63 or .64, and are therefore consistently high, representing the location with the highest inequality. According to Statista/World Inequality Lab, South Africa's Gini index score was .63, the largest income inequality in the world. The figures for the West Rand are on par and/or marginally lower if compared with the rest of South Africa.

Labour and employment

South Africa has been plagued by persistently elevated levels of unemployment for decades. In fact, according to the World Bank, it has one of the highest unemployment rates in the world, outstripping Gaza, the West Bank, Djibouti, and Kosovo (Magome, 2023). Since 2000, the official unemployment rate has exceeded 20%. In 2021, it reached 34.4%

as a result of the COVID-19 pandemic. If one uses the expanded definition of unemployment (i.e., including discouraged workers), this figure exceeded 44.4% in the second quarter of 2021 (Statistics South Africa, 2022). The West Rand area displays the same trends as the rest of the country in terms of the labour market and levels of unemployment.
Table 2 below shows the number of people unemployed (official definition) in the West Rand for the period 2011-2021.

Table 2: Number of unemployed people in the West Rand: Official Definition (2011 to 2021)

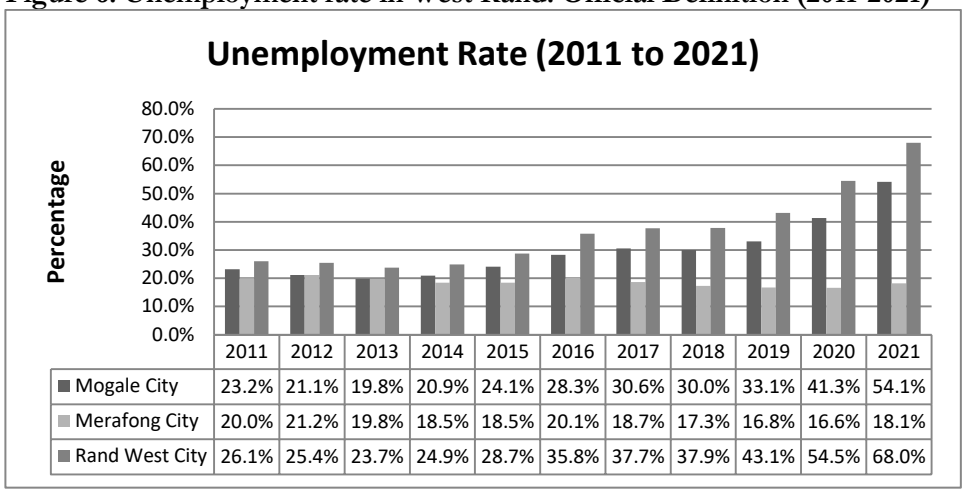
Year	West Rand	Mogale City	Merafong City	Rand West City
2011	40 906	19 202	6 906	14 798
2012	39 829	17 942	7 283	14 604
2013	38 201	17 383	6 942	13 876
2014	41 526	19 573	6 642	15 311
2015	49 468	24 147	6 607	18 715
2016	61 382	29 800	7 084	24 498
2017	65 653	32 936	6 516	26 201
2018	63 762	31 949	5 950	25 864
2019	70 321	35 023	5 819	29 478
2020	80 218	39 723	5 648	34 847
2021	100 334	50 476	6 105	43 753

Source: IHS Markit, Regional eXplorer, 2023

Between 2013 and 2017, the increase in the number of unemployed people in the entire West Rand region was a staggering 72%. The growth in the number of unemployed people between 2017 and 2021 was equally disturbing, at 53%. The combined effect of structural changes in the economy of the West Rand as well as the possible fallout of the COVID-19 pandemic is unambiguous evidence of the numbers presented in the table and graphically.

The increase in the number of unemployed people in the area of the West Rand is mirrored in the official unemployment rate, as presented in Figure 6 below, which shows the unemployment rate (official definition) for the West Rand for the period 2011 to 2021.

Figure 6: Unemployment rate in West Rand: Official Definition (2011-2021)



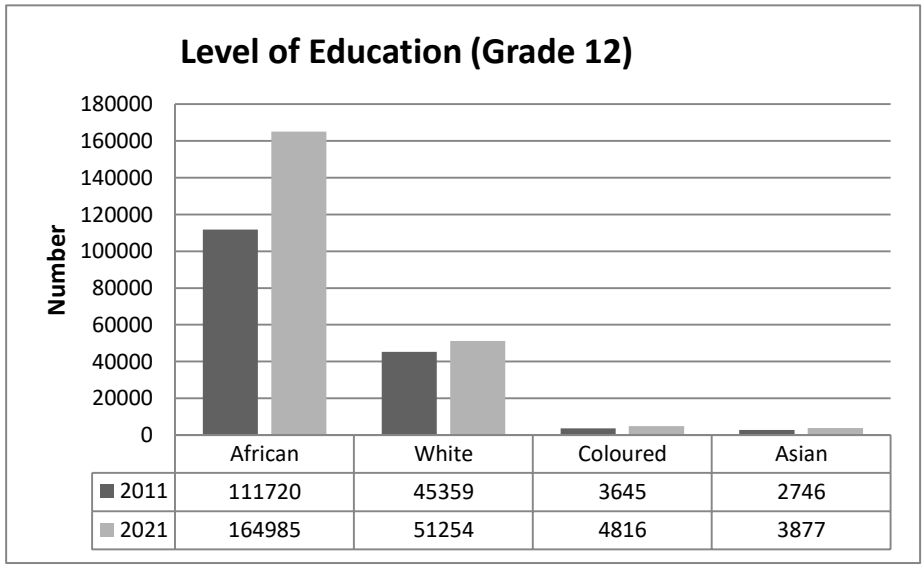
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Mogale City	23.2%	21.1%	19.8%	20.9%	24.1%	28.3%	30.6%	30.0%	33.1%	41.3%	54.1%
Merafong City	20.0%	21.2%	19.8%	18.5%	18.5%	20.1%	18.7%	17.3%	16.8%	16.6%	18.1%
Rand West City	26.1%	25.4%	23.7%	24.9%	28.7%	35.8%	37.7%	37.9%	43.1%	54.5%	68.0%

Source: IHS Markit, Regional eXplorer, 2023

The economic reality facing the West Rand is stark. In 2021, the unemployment rate in Rand West City was almost double the national average official unemployment rate of around 34%. This alarming change occurred within the last decade. In 2014, for example, the official unemployment rate for Rand West City was basically the same as the national official unemployment rate of around 24%. The last decade was therefore indeed a devastating one as far as the area's unemployment levels are concerned. Mogale City displays a similar trend, and its unemployment rate was also much higher in 2021 compared to the national average mentioned above. Merafong City displays a much more stable pattern.

The unemployment figures must be viewed in conjunction with further context in terms of some of the human capital characteristics in terms of the potential labour force in the West Rand. Figure 7 below represents the number of people who obtained a grade 12 qualification in the West Rand in 2011 and 2021, respectively.

Figure 7: The number of people who obtained a grade 12 qualification in the West Rand in 2011 and 2021, respectively



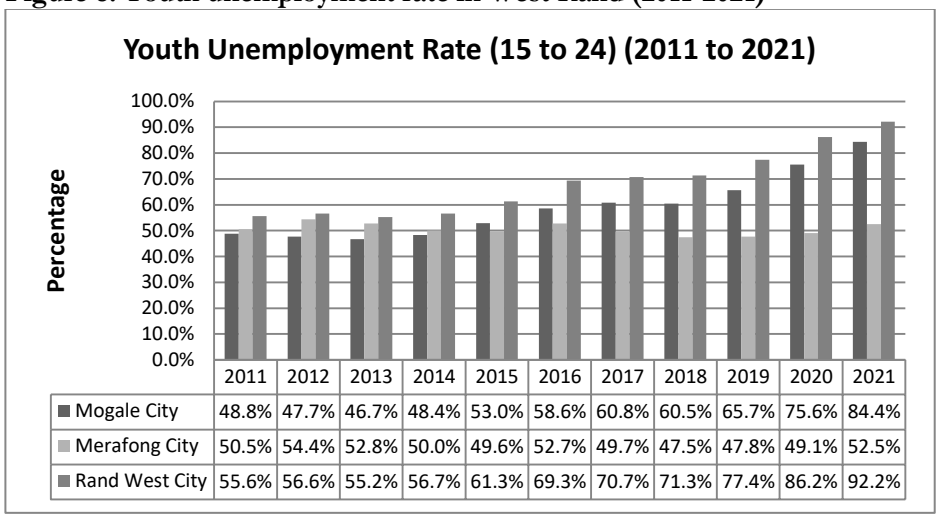
Source: IHS Markit, Regional eXplorer, 2023

Figure 7 shows that, within a period of ten years, the number of African people who hold a grade 12 qualification increased by no less than 48%. At first glance, this may lead to optimism from a human capital point of view for increased possibilities of finding employment. Unfortunately, this is not the case. Young people in South Africa who have not obtained a matriculation certificate are at a severe disadvantage when entering the job market, with little hope of securing full-time employment (Frame, De Lannoy, & Leibbrandt, 2016). Even though more young people are obtaining grade 12, it does not significantly improve the matriculant's chances of getting a formal job in a saturated labour market. In fact, Professor Duncan Reekie made the point in 1996 that even a university degree may no longer be a meal ticket but merely a hunting licence (Reekie, 1996). This applies even more in the case of a grade 12 qualification that is simply not a guarantee of any sort in terms of employment in a South African labour market that is simply unable to provide the number of job opportunities required by a steadily growing potential labour force.

The overall result of the forces described above is twofold. On the one hand, there is a significant and worrying number of youths not engaged in education, employment, or training (NEET). According to De Lannoy and Mudiriza (2019), the proportion of young people (aged 15 to 29) who were classified as NEET in South Africa was 36.5% in the second quarter of

2018, the equivalent of over 5.6 million youths. These statistics are secondarily borne out when considering the catastrophic levels of youth unemployment in the West Rand, as is evident in Figure 8 below.

Figure 8: Youth unemployment rate in West Rand (2011-2021)



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Mogale City	48.8%	47.7%	46.7%	48.4%	53.0%	58.6%	60.8%	60.5%	65.7%	75.6%	84.4%
Merafong City	50.5%	54.4%	52.8%	50.0%	49.6%	52.7%	49.7%	47.5%	47.8%	49.1%	52.5%
Rand West City	55.6%	56.6%	55.2%	56.7%	61.3%	69.3%	70.7%	71.3%	77.4%	86.2%	92.2%

Source: IHS Markit, Regional eXplorer, 2023

Therefore, of grave concern is the staggering level of youth unemployment in the West Rand. Again, the percentages in 2021 are almost double that of the official levels of youth unemployment in South Africa for the same period. The impact of these levels of youth who are unemployed on aspects such as crime, socio-economic problems such as drug abuse, and gender-based violence is nothing short of disastrous. These elements clearly reflect the significant changes in the structure of the local economy of the West Rand over the last decade.

Structural composition of the economy

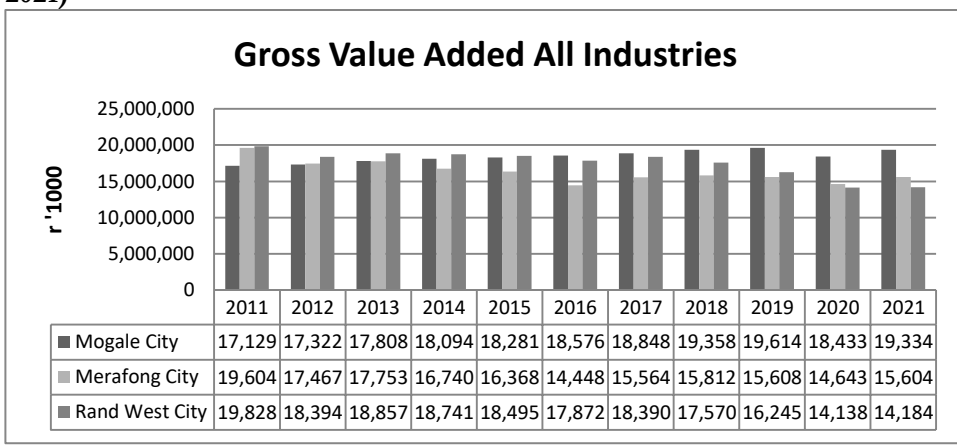
Investigating the structural composition of the local economy will add important context to the labour market discussion in the previous section. Table 3 and Figure 9 below show the gross value added of all industries at constant 2015 prices for the period 2011 to 2021.

Table 3: Gross value added: All industries in the West Rand (constant prices, 2015) (2011 to 2021) (R' 000)

Year	West Rand	Mogale City	Merafong City	Rand West City
2011	56,562,055	17,129,285	19,604,562	19,828,208
2012	53,183,935	17,322,571	17,467,307	18,394,057
2013	54,419,788	17,808,520	17,753,757	18,857,511
2014	53,577,328	18,094,990	16,740,517	18,741,821
2015	53,146,115	18,281,874	16,368,885	18,495,356
2016	50,897,272	18,576,160	14,448,183	17,872,929
2017	52,803,669	18,848,114	15,564,617	18,390,938
2018	52,741,129	19,358,304	15,812,783	17,570,042
2019	51,469,246	19,614,988	15,608,610	16,245,647
2020	47,215,465	18,433,622	14,643,391	14,138,453
2021	49,123,829	19,334,265	15,604,911	14,184,654

Source: IHS Markit, Regional eXplorer, 2023

Figure 9: Gross value added in the West Rand at constant 2015 prices (2011-2021)



Source: IHS Markit, Regional eXplorer, 2023

Table 3 and Figure 9 speak to an area that has been in considerable economic decline in the last decade. Between 2011 and 2021, the gross value added in the West Rand (at constant 2015 prices) declined by 13.12%. Gauteng Treasury (2022) also reported a 4% decline in the rate of growth of investments in the West Rand from 2016 to 2020 (Matebesi *et al.,* 2024). This figure provides an important context against which the

decrease in employment and accompanying increases in unemployment must be viewed. It is also important to take a longer view of the economic decline of the FWR area. In 1996, 55% of the West Rand economy depended on mining. By 2018, mining had contributed only 30% to the regional economy. Between 1996 and 2019, mining activity declined by 79%, leading to a decline in the overall economy by 29% (Matebesi *et al.*, 2024). The demand for labour is derived from the demand for goods and services in an economy (Yu & Roos, 2018). Decreases in output, as illustrated above, will, per definition, be reflected in lower employment levels and consequently higher unemployment.

It must, however, be noted that the economic decline was not uniformly spread across the West Rand. The disaggregated data shows that an area such as Mogale City experienced (albeit relatively modest) economic growth, while other areas suffered considerably more in terms of economic decline. For example, Rand West City's gross value added (at constant 2015 prices) declined by a staggering 28.5% between 2011 and 2021. The corresponding change for Mogale City was an increase in gross value added of 12.9%. The reasons for this may partly be vested in the structure of the area, which is referred to in the following paragraphs.

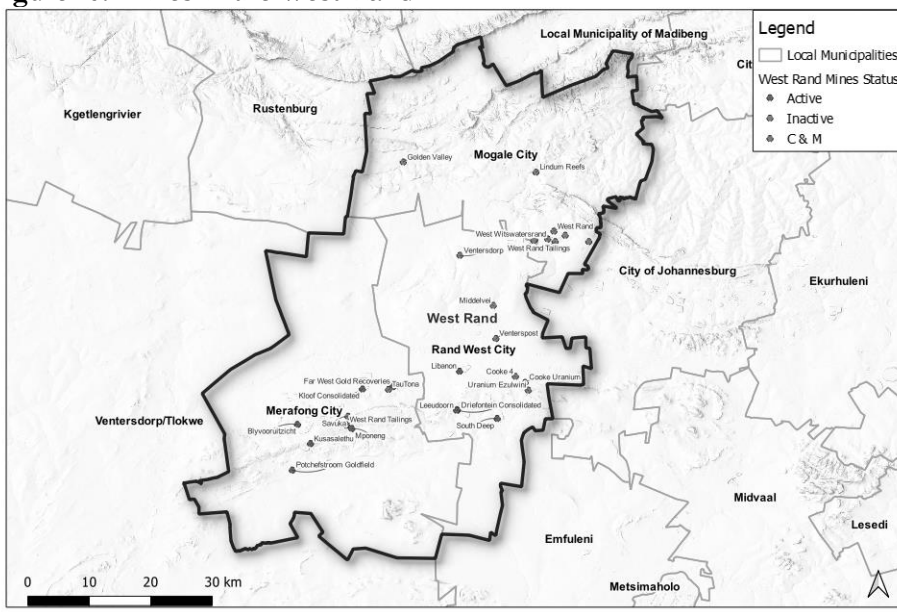
Table 4: Broad economic sectors' contribution to GDP (2011, 2021)

Sector	Mogale City		Merafong City		Rand West City	
	2011	2021	2011	2021	2011	2021
Agriculture	1.2	1.6	0.9	1.2	0.8	1.1
Mining	2.6	2.2	36.6	27.4	35.5	32.0
Manufacturing	17.6	16.9	4.3	4.1	10.3	10.6
Electricity	3.3	4.4	1.8	3.3	0.9	1.4
Construction	3.5	2.5	1.8	1.6	2.9	2.1
Trade	9.8	9.7	9.7	10.4	9.0	9.0
Transport	6.5	5.1	5.6	4.9	4.6	3.8
Finance	20.1	17.8	14.2	17.8	13.0	13.0
Community services	24.2	26.5	16.8	18.6	15.5	17.2
Total industries	88.7	86.7	91.6	89.4	92.5	90.3
Taxes less subsidies on products	11.3	13.3	8.4	10.6	7.5	9.7
Total (gross domestic product – GDP)	100.0	100.0	100.0	100.0	100.0	100.0

Source: IHS Markit, Regional eXplorer, 2023

Table 4 presents the broad economic sectors' contribution to the GDP of the three main municipalities in the West Rand between 2011 and 2021. The contributions of the mining sector have indeed been decreasing in all three areas depicted in Table 4 (see also Figure 10). However, the role of mining in Mogale City is much smaller in terms of contribution to GDP than in the other two municipalities. It can therefore be argued that Mogale City's local economy was less vulnerable to exogenous shocks such as a declining mining industry. The contributions of other sectors may provide some form of insulation and, consequently, better economic performance over the same period.

Figure 10: Mines in the West Rand



Source: Kuzambiza-Kiingi, Nel, and Gbdegesin (2024)

The following section highlights some key trends in South Africa's economy to provide further context for the observations mentioned above.

Key trends in the national economy

South Africa's economy faces significant structural constraints that impede its ability to reach the ambitious growth targets (to grow the economy on average by 5.4 per cent annually by 2030) of the National Development Plan (NDP). Within the context of mining, specific mention must be made of capital flight[3] and its short- and long-term consequences for the sector and South Africa as a whole.

Capital flight is a reality in South Africa, even in the post-democratic dispensation (Kasongo, 2022). In fact, a large amount of investable capital left the South African economy between 1980 and 2018 (Kasongo, 2022). According to Ndikumana, Naidoo, and Aboobaker (2020), South Africa lost over US$300 billion to capital flight between 1980 and 2018. The

[3] Capital flight can be defined is a large-scale exodus of financial assets and capital from a nation due to factors such as political or economic instability, currency devaluation or the imposition of capital controls.

literature agreed that political instability and policy uncertainty were significant causes of capital flight (e.g., Fedderke & Liu, 2002).
The results were a low investment rate, falling economic growth, and widening income inequality (Kasongo, 2022). The magnitude of capital flight over the past decade has indeed been a significant negative shock to many macroeconomic indicators such as economic growth, investment, and tax revenue (Mohamed & Finnoff, 2004; Kasongo, 2022). Furthermore, capital flight contributed to the poor performance of the economy by removing resources necessary for investment in future growth (Mohamed & Finnoff, 2004).

These levels of capital outflows increase the issue of capital scarcity and diminish South Africa's ability to mobilise domestic resources in order to fill the savings-investment gap and boost domestic investment and economic growth (Ndikumana et al., 2020; Kasongo, 2022). Within the context of declining mining communities such as the West Rand, this inhibits the possibility of developing alternative avenues for growth and development—and consequently employment opportunities for post-mining communities. The structural constraints remain a challenge despite certain periods of sustained economic growth in the South African economy.

For example, the business cycle in South Africa reached a peak in November 2007. This peak was reached at the end of a 99-month upswing, considered to be the longest upward phase of the South African business cycle on record (Venter, 2009; Blaauw *et al.,* 2021). During this period, the average real GDP growth rate was between three per cent and one per cent per capita between 1995 and 2005 (Venter, 2009; Blaauw *et al.,* 2021). Despite this sustained period of economic growth, the formal labour market was still unable to absorb the constantly increasing supply of labour (Bhorat & Kahn, 2018; Blaauw *et al.*, 2021). Unemployment remained high, and other economic challenges of rising inequality and poverty also remained an issue.

Since the peak described above, South Africa's macro-economic fortunes have seen an unfortunate turnaround (Blaauw *et al.,* 2021). The 2008 global financial crisis, the destruction and looting during the era known today as state capture, rising levels of sovereign debt, and junk status downgrades by all three leading rating agencies left the economy stagnant and vulnerable to exogenous shocks (Blaauw *et al.*, 2021). Several economists and other commentators referred to the country as being on the edge of a fiscal cliff, referring to the danger that the South African government might run out of income to cover growing government expenditure (Rossouw *et al.,* 2014:144; Okoye, 2019; Blaauw *et al.,* 2021).

The COVID-19 pandemic of 2020 is the type of exogenous shock that economists, the National Treasury, and workers feared.

The fallout of the pandemic is currently being exacerbated by continuous state-imposed electricity blackouts, leaving many businesses (especially small and medium enterprises) in a state of structural vulnerability. Mkhonza and Sifolo (2022) provide sobering estimates in this regard. They quote studies by the Global Entrepreneurship Monitor (GEM) that suggest that more than 55 000 small businesses will not survive the pandemic and its longer-term fallout, resulting in at least 42 350 workers in these SMMEs who will lose their jobs (Mkhonza & Sifolo, 2022). They further report that almost a thousand businesses closed in South Africa in the first half of 2021 alone (Mkhonza & Sifolo, 2022).

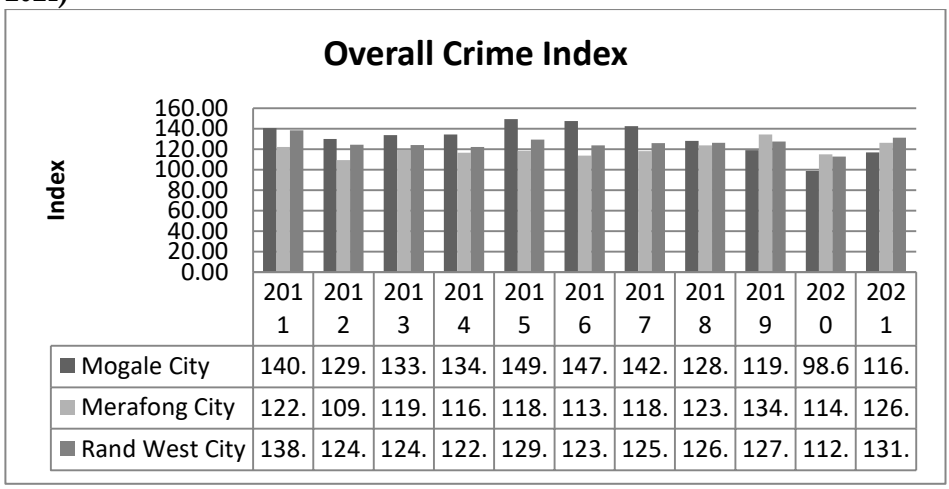
It is clear that many are not surviving, and, with the demise of small businesses, the creation of decent employment becomes increasingly difficult. Many job seekers have little choice but to venture into the informal sector in an attempt to make a living.

South Africa as a nation and its economy are indeed at a crossroads, with the immediate future and the decisions taken by the government seen as crucial in turning a stagnant economy around. Crime is indeed one of the issues that requires urgent attention in order to enable the West Rand to plan for a sustainable future in a post-mining environment.

Crime in the area

Much has been written on the linkages between crime and socio-economic development (see McIlwaine, 1999). Crime impedes development and discourages investment, while inequality, unemployment, and poverty often fuel crime. Crime indeed has huge social and economic costs for communities. Therefore, crime is a key issue in socio-economic development.

Figure 11: Overall crime index (financial years) in the West Rand (2011-2021)



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Mogale City	140.	129.	133.	134.	149.	147.	142.	128.	119.	98.6	116.
Merafong City	122.	109.	119.	116.	118.	113.	118.	123.	134.	114.	126.
Rand West City	138.	124.	124.	122.	129.	123.	125.	126.	127.	112.	131.

Source: HIS Markit, 2023

Figure 11 indicates that the lowest crime levels for all three locations were in 2020, the COVID-19 year of protracted lockdowns. Crime levels in Mogale City peaked in 2015, declined incrementally until 2020, and increased again in 2021. There were no clear linear tendencies in the crime trends for Merafong City and Rand West City. Since 2019, both Merafong City and Rand West City have surpassed the crime index figures of Mogale City. In 2021, Rand West City had the highest crime index during the last 10 years compared to the other two municipalities. An important factor to be considered when analysing issues of crime is the rising challenge of illegal mining in the West Rand, focusing on its economic, social, and environmental impacts.

The prevalence of illegal mining in South Africa is increasing, occurring both on the surface and underground at closed-off, abandoned, and even operating mines (Minerals Council South Africa, 2016). The term 'zama zamas' has become synonymous with illegal miners who are often equipped with heavy weapons. They regularly engage in activities that go beyond mere illegal mining (Panchia, 2023). These include turf wars, armed assaults, and other forms of organised crime (Minerals Council South Africa, 2016). Many are involved in violent confrontations with security forces and law enforcement agencies (Panchia, 2023). For example, in October 2021, approximately 300 illegal miners attacked and shot at police and security officers when law enforcement agencies attempted to prevent them from delivering food parcels to underground miners (Field, 2022). Their activities therefore significantly contribute to the deterioration of law

and order in mining areas (Minerals Council South Africa, 2016; Field, 2022; Panchia, 2023).

The reasons for the activity are multifaceted and complex. At an individual level, illegal miners often act out of economic misery (Minerals Council South Africa, 2016). From an institutional viewpoint, Field (2022) argues that the foundational policies in the early years of South Africa's democracy did not support artisanal mining as a permanent livelihood strategy, thereby leaving a vacuum for the development of illegal mining. Irrespective of the reasons behind its development, illegal mining is undeniably directly linked to the lucrative illicit trade in precious metals and diamonds (Minerals Council South Africa, 2016).

The direct and indirect costs and consequences are indeed staggering (Minerals Council South Africa, 2016; Panchia, 2023). The Chamber of Mines estimated that the direct economic cost of illegal mining activities in operating mines is conservatively calculated at more than R7 billion every year, which includes the non-payment of taxes and royalties (Minerals Council South Africa, 2016; Panchia, 2023). Beyond the direct losses, illegal mining (especially in gold) drains another R14 billion annually from the legal market (Panchia, 2023).

The broader socio-economic effect of illegal mining activities goes beyond the immediate areas of operation where the activities take place (Panchia, 2023). The rise in illegal mining activities in South Africa has led to an alarming increase in violence and criminal activities, especially in areas such as the Witwatersrand Basin (Field, 2022; Panchia, 2023). The West Rand has experienced several horrifying examples of these types of criminal activities in recent times. Field (2022) reports that, in June 2022, about 150 illegal miners stormed Sibanye-Stillwater's mothballed Cooke shaft near Randfontein, and attempted to take control of it. In 2023, South Africa was shocked by the horrific robbery and gang rape of a film crew at a mine dump close to West Village, which is a multi-racial suburb of Krugersdorp on the West Rand (Field, 2022). The inhabitants of West Village see themselves as "prisoners in their own homes". According to Field (2022:1),

> …they attribute rampant crime in the area over the last few years to the influx of illegal mining—a situation that law enforcement officials seem unable or unwilling to control.

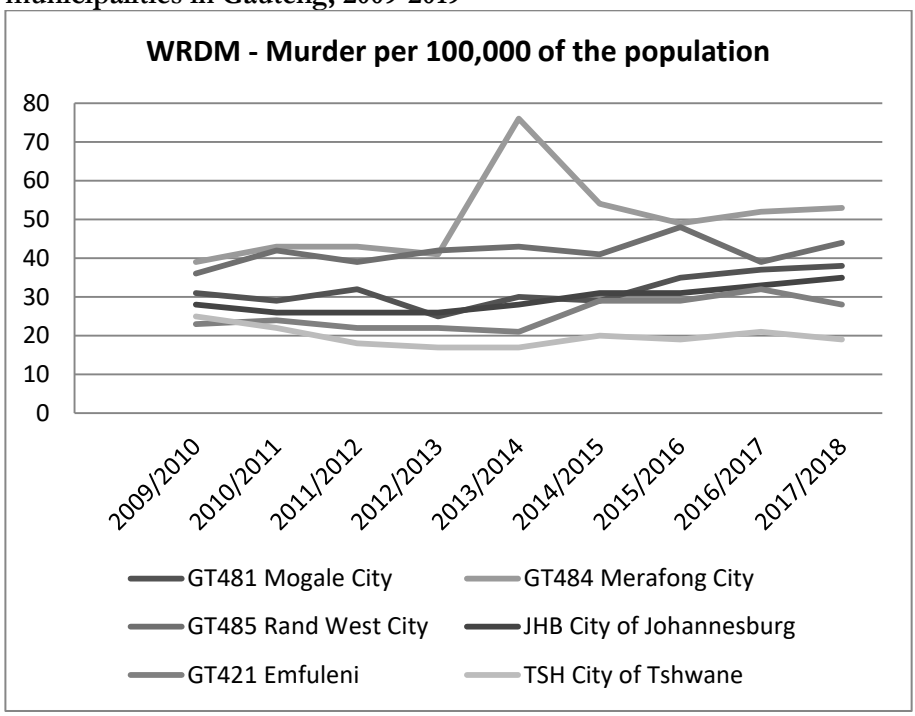
The increased levels of social unrest, with a rise in prostitution, substance abuse, and general lawlessness that mining communities on the WestRand experience as a result of illegal mining activities, are symptomatic of the

broader socio-economic challenges faced by these communities (Panchia, 2023). In the face of declining mining activities, illegal mining is often one of the few available means of livelihood (Minerals Council South Africa, 2016; Panchia, 2023). Panchia (2023:1) rightly concludes that

> ..the cycle of violence and criminality thus not only affects the mining sector but also erodes the social fabric of these communities, making the problem of illegal mining not just an economic issue but also a significant social concern.

The academic literature echoes Panchia's (2023) conclusion. Marais *et al.* (2022b) have shown a relationship between mine closure and crime. Marais *et al.* (2022b) found much higher crime levels in areas of mine decline than in areas of mining growth. These challenges are also present in the West Rand. Figure 12, for example, provides the murder rates per 1000 of the population in the West Rand in comparison with other municipalities in the Gauteng Province.

Figure 12: Murder rates in the West Rand in comparison with selected municipalities in Gauteng, 2009-2019



Source: South Africa Intermediate City Municipalities (ICM) (Marais *et al.*, 2022b)

The murder rates are the highest in Merafong City and Rand West City. Per 100,000 of the population, it is substantially higher than in Johannesburg. This is an important factor to consider, especially since tourism is often seen as a long-term buffer for the shrinking mining sector. It will, however, be difficult to attract significant numbers of additional tourists, irrespective of how attractive the tourism offering may be, if the crime rate in the area remains a significant factor keeping existing and potential tourists away.

Tourism in the area

According to Table 5, there was a slight increase in tourist visits from 2011 to 2012 for Mogale City and Rand West City. However, since 2013, the tourist numbers have decreased annually for all three areas (Mogale City, Merafong City, and Rand West City). The total tourist visits to the West Rand area significantly declined by 471 853, from 787 353 (in 2011) to 315 000 (in 2021).

Table 5: Number of tourist visits to the West Rand area (2011-2021)

Year	West Rand	Mogale City	Merafong City	Rand West City
2011	787,353	500,264	147,141	139,948
2012	795,928	510,271	141,698	143,958
2013	783,221	503,852	136,886	142,482
2014	752,943	476,847	133,990	142,106
2015	696,822	437,944	126,644	132,234
2016	690,631	426,898	131,974	131,759
2017	670,394	409,698	134,405	126,291
2018	642,159	388,104	135,318	118,738
2019	620,220	372,372	135,099	112,750
2020	327,542	206,511	64,616	56,416
2021	315,500	196,991	67,110	51,399

Source: HIS Markit, 2023

This is a staggering decrease in tourist visits of 59.9%. The COVID-19 years, 2020 and 2021, decimated the number of tourist visits to the West

Rand Area even further. Only in Merafong City was there a slight recovery in tourist numbers from 2021 to 2020. However, the numbers for Mogale City and Rand West City were, in both cases, much lower for 2021 than for 2020. These figures emphasise the difficulty tourism in the area faces. This does not imply, however, that there is no potential for future positive developments in this area.

Further discussion, conclusion, and policy recommendations

The demographic and socio-economic profiles of Mogale City, Merafong City, and Rand West City indicate that the West Rand District Municipality has experienced a population growth of 11.8% from 2011 to 2021, with Mogale City showing the highest increase of 18.7%. The Human Development Index (HDI) for all three locations improved steadily from 2011 to 2020, with a slight decline due to the COVID-19 pandemic. The Gini coefficient showed an increase in income inequality for Merafong City and Rand West City, with Mogale City consistently having the highest level of inequality. The labour market in the West Rand area displays the same trend as the rest of the country, with high levels of unemployment. The number of unemployed people in the entire West Rand region increased by 72% between 2013 and 2017. Overall, the demographic and socio-economic profiles of these cities show a mixed picture, with some positive developments but also significant challenges that need to be addressed.

The population growth rate poses a challenge on a number of fronts. While Mogale City and Rand West City have experienced positive population growth rates, Merafong City has experienced a small decline in population growth rates. However, all three municipalities have experienced significantly lower growth rates than Johannesburg, which is a concern for the local economies. The lower population growth rates indicate that the municipalities are struggling to attract and retain new residents, which could impact future economic growth.

The impact of COVID-19 on human development levels poses a further challenge for this district municipality to refocus its long-term development planning away from mining. Although the Human Development Index (HDI) of all three municipalities improved from 2011 to 2020, the pandemic has pushed human development levels back by four years. The decline in the HDI figures is a concern as it indicates a setback in the progress made in socio-economic development over the past decade. The pandemic has affected all aspects of life, and the decline in HDI figures is just one of the many challenges that the municipalities face. Any

effort to diversify the future economic base of the region may require higher levels of human capital than may be locally available.

The third challenge is income inequality. The Gini coefficient for Merafong City and Rand West City has increased over time, indicating that the levels of inequality have increased in these municipalities. Income inequality can generate economic inefficiency and slow socio-economic development, and it is a challenge that municipalities need to address to promote sustainable growth in a post-mining environment.

The persistently high levels of unemployment in the West Rand region pose another obstacle to future local development strategies. Mogale City displays a similar trend, with a much higher unemployment rate in 2021 compared to the national average. Merafong City displays a much more stable pattern, but the staggering level of youth unemployment in the West Rand is a cause for concern. The impact of these levels of youth who are unemployed is disastrous, leading to increased crime, socio-economic problems such as drug abuse, and gender-based violence.

The increase in crime levels must also be viewed against the backdrop of an upsurge in illegal mining activities. The socio-economic challenges posed to communities as a result of these activities are real, and present a clear and present danger to communities, which are struggling to come to terms with a declining mining sector and its implications for their livelihoods. Restructuring local economies requires significant investment, and as a result of various macroeconomic factors (including policy uncertainty and resultant capital flight), the savings and funds needed for this are often hard to come by.

Therefore, another important challenge is the structural composition of the local economy, which shows an area that has been in considerable economic decline in the last decade. This provides an important context against which the decrease in employment and accompanying increases in unemployment must be viewed. The contributions of the mining sector have indeed been decreasing in all three areas. However, the role of mining in Mogale City is much smaller in terms of contribution to GDP than in the other two municipalities. It can therefore be argued that Mogale City's local economy was less vulnerable to exogenous shocks such as a declining mining industry. The diversification of the economy will be of utmost importance.

In this regard, the work of the Alliance for Responsible Mining, a global alliance, is worth mentioning. Although they have a larger footprint in Latin America than in African countries, there are good examples of African countries such as Burkina Faso, Mozambique, and the Democratic Republic of the Congo that benefited from their support of artisanal and

informal mining to promote fair mining (see Alliance for Responsible Mining, Annual Report, 2022).

The West Rand can benefit from exploring to what extent artisanal miners could be supported in mining mines that cannot be mined productively with formal operations. These interventions could especially be aimed at rehabilitating or repurposing abandoned mines. Currently, there are 13 inactive mines in the Far West Rand region (see Figure 10) that could potentially be targeted. However, the examples of successfully utilising small-scale and artisanal mine operations in South Africa are more prevalent for other mineral commodities such as salt, limestone, gypsum, sandstone, dimension stone, and clay and not so much around gold (McGill, Phelane, & Moseme, 2004).

From this study, it is evident that mine decline always leads to dependencies and disruption. A vehicle suggested to drive future diversification is that of tourism development. However, attracting tourists back to these three areas may also pose a challenge. Historically, tourism has contributed significantly to the economy of the region. It will be of utmost importance to grow the tourism sector in the area.This is, however, not a process that will guide itself. A concerted, coordinated effort from local governments, businesses, and community organisations is the way forward to identify possible areas of tourism development. Juta (2023) emphasised the importance of local economic development (LED) strategies in the development of local economies. The development of new tourism strategies and product offerings may form an important part of future LED strategies for the region. The process involved in developing these initiatives should be bottom-up, inclusive, and participatory in its development. By working together, it is possible to create sustainable economic growth and improve the quality of life for residents in these municipalities in a post-mining environment.

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