THE MINING SECTOR

LOCAL PROFILES AND IMPACT

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1. INTRODUCTION

The South African mining sector is the fifth largest in the world (Antin, 2013). Until recently, the four most important minerals were the PGMs (platinum group metals), gold, coal and iron ore – in order of importance. In 2013 coal displaced PGMs as the most important in terms of revenue, but not employment (ibid).

The value of mining in the overall South African economy (as a percentage of GDP) has declined over the past three decades, although the inclusion of the indirect benefits of mining suggest that the sector may be "worth" around 18% of the total economy, more than 3 times its direct value (Antin, 2013). Mining is still a very important (and in some instances growing) part of the economy for a number of local municipalities, particularly relatively remote rural areas, where other economic opportunities are limited. In these economies – characterised by high levels of poverty and unemployment – mining is often a critical sector. In many of these areas the growth of the mining sector has been associated with increasing employment. However, mining is also characterized by negative externalities in these circumstances, such as inward migration, which creates social problems and puts pressure on service delivery, in addition to causing pollution and diverting scarce water resources.

This report is intended to provide information on the state and impact of mining in South Africa, with a focus on the local municipalities where mining is a significant part of the local economy. The main information presented is the following:

- A list of local municipalities where mining is significant in the local economy, indicating the quantum of and importance of mining as well as the main products mined.
- A review of the change of the role of mining in the local economy, both in absolute terms and compared to the growth of the overall economy.
- Employment trends.
- An overview of demographic indicators in each municipality, detailing changes in population and household numbers, as well as unemployment, household income and poverty rates.
- A review of service delivery indicators – housing, water and sanitation – to provide insight into the social living conditions in these municipalities.
- An overview of institutional capacity in the relevant municipalities: to what extent are these municipalities able to deal with the additional demands placed on service delivery by an increase in inward migration?
- A discussion of key impact issues such as pollution, land use and water.

The information contained in this report was obtained primarily from Quantec and the Census 2001 and 2011 data reports (*Statistics by Place*) for local municipalities. Additional information was obtained from StatsSA P9115 and underlying data sets (non-financial census of municipalities); municipal IDPs; Chamber of Mines' publications, the 2015 Auditor-General's report on municipal audit outcomes, independent research reports and a range of media reports.

2. PROFILE OF MINING ACTIVITY IN SOUTH AFRICA

2.1 Focus Areas

The table below sets out the twenty most important local municipalities in terms of the **absolute** value of mining activities, as at 2013. The data for this calculation was based on the data collated by Quantec under SIC Code 2 – Mining and Quarrying. This covers the following activities:

- Mining of coal and lignite
- Extraction of crude petroleum and natural gas
- Mining of metal ores
- Other mining and quarrying
- Mining support service activities

No additional de-segregation of this data is available at a municipal level on a consistently comparable basis. The main mining products in each municipality were determined on the basis of information contained in municipal documents, company profiles and various media reports.

TABLE 1: TWENTY LARGEST MUNICIPALITIES RANKED BY CURRENT VALUE OF MINING[1] (2013)

RANK (2013)	MUNICIPALITY	PROVINCE	VALUE OF MINING (2013 – R millions)	MAIN PRODUCTS
1	Rustenburg	North West	33,618	Platinum
2	Emalahleni	Mpumalanga	26,239	Coal
3	Thabazimbi	Limpopo	19,952	Platinum, iron ore
4	Greater Tubatse	Limpopo	15,117	Chrome, platinum
5	Matjhabeng	Free State	12,066	Gold
6	Govan Mbeki	Mpumalanga	11,964	Coal
7	City of Joburg	Gauteng	10,286	Gold
8	Ekurhuleni	Gauteng	8,446	Gold
9	Madibeng	North West	8,120	Platinum
10	Steve Tshwete	Mpumalanga	7,471	Coal
11	Ba-Phalaborwa	Limpopo	7,011	Copper, phosphate, vermiculite
12	Moqhaka	Free State	6,807	Diamonds
13	Moses Kotane	North West	6,502	Platinum
14	Gamagara	Northern Cape	6,270	Iron ore
15	Thaba Chweu	Mpumalanga	5,945	Platinum, gold
16	Merafong City	Gauteng	5,744	Gold
17	Westonaria	Gauteng	5,350	Gold
18	Mogalakwena	Limpopo	4,306	Chrome, PGM, iron, titanium, vanadium
19	Masilonyana	Free State	4,248	Gold
20	Matlosana	North West	4,204	Gold, uranium

[1] Using data for all activities under SIC code 2 – Mining and Quarrying
Source: Quantec

North West, Mpumalanga and Limpopo are the largest provinces in terms of the value of mining activity, with the platinum group metals making up the most important products in these areas.

In terms of the Rand value of mining activity the traditional mining centres of Joburg and Ekhuruleni are still significant, but in terms of the **relative** importance of mining in those economies, it is fairly insignificant. In 2013 the share of total GVA attributable to mining activity was 1.9% in Ekhuruleni and 1.45% in Joburg Metro. In addition, we could reasonably assume that the role of *mining support service activities* (which is included under SIC code 2) – rather than mining *per se* - is particularly important in these two metro areas, given the likelihood that many of the large mining support companies are located in these two metro areas.

In other locations listed in Table 1 – such as Matjhabeng (Free State) and Merafong (Gauteng) – the share of mining in the wider economy has also declined steadily over the past two decades. In 1996, the share of mining in the overall economies of these two municipalities was 70.6% and 54.5% respectively. By 2013 this had fallen to 24.9% and 24.2% respectively. Table 2 below sets out those municipalities where mining contributed more than 30% of gross value added (GVA) in 2013. These are the municipalities where mining has a significant importance in terms of its contribution to local employment and income generation, and also in terms of the negative externalities associated with mining.

TABLE 2: MUNICIPALITIES WHERE MINING[1] CONTRIBUTES MORE THAN 30% OF GVA (2013)

MUNICIPALITY	PROVINCE	MINING % of GVA (2013)	VALUE OF MINING (2013 – R millions)	MAIN PRODUCTS
Thabazimbi	Limpopo	87.58%	19,952	Platinum, iron ore
Gamagara	Northern Cape	77.54%	6,270	Iron ore
Fetakgomo	Limpopo	73.71%	3,473	Platinum
Greater Tubatse	Limpopo	64.02%	15,117	Chrome, platinum
Richtersveld	Northern Cape	55.03%	1,386	Diamonds
Kgatelopele	Northern Cape	54.53%	1,882	Lime, Gypsum
Masilonyana	Free State	52.32%	4,248	Gold
Rustenburg	North West	51.48%	33,618	Platinum
Lephalale	Limpopo	49.46%	3,855	Coal
Westonaria	Gauteng	48.87%	5,350	Gold
Dikgatlong	Northern Cape	47.33%	1,459	Diamonds
Khâi-Ma	Northern Cape	46.09%	879	Zinc
Thaba Chweu	Mpumalanga	45.52%	5,945	Platinum, gold
Ba-Phalaborwa	Limpopo	44.85%	7,011	Copper, phosphate, vermiculite
Mkhondo	Mpumalanga	42.82%	3,174	Iron ore
Kamiesberg	Northern Cape	41.41%	615	Heavy mineral sands, copper
Tsantsabane	Northern Cape	41.00%	1,296	Iron ore
Emalahleni	Mpumalanga	38.30%	26,239	Coal
Moses Kotane	North West	33.52%	6,502	Platinum
Nama Khoi	Northern Cape	32.82%	2,392	Copper
Moqhaka	Free State	32.44%	6,807	Diamonds

[1] Using data for all activities under SIC code 2 – Mining and Quarrying

There are three municipalities – Thabazimbi, Gamagara and Fetakgomo – where mining makes up more than 70% of the overall economy, with platinum and iron ore the most important products. Many of the municipalities listed in Table 2 are essentially rural in nature – particularly the seven located in the Northern Cape and several in Limpopo and Mpumalanga. This has some important implications for the impact of the externalities of mining activity, particularly with regards to land use and water allocation. In addition, many of these rural municipalities lack the capacity to deal with the service delivery pressures caused by an influx of migrants looking for employment in the mines (as discussed in more detail in sections 4 and 5 below)

The remainder of this report focuses largely on these 21 municipalities together with three additional municipalities - Dannhauser , Albert Luthuli and Bela-Bela – key data for which is shown in Table 3 below. Although the 2013 data indicate that mining contributes less than 30% of the GVA of these three municipalities, they have been included because there has been a very significant percentage change in their mining GVA from 1996 to 2013: A significant decline in Dannhauser and Albert Luthuli and a big increase in Bela-Bela (see Table 5).

The discussion on the long-term impact of mining and mining closures in Section 5 below does, however, include certain of the areas included in Table 1, most particularly the West Rand of Gauteng.

TABLE 3: KEY DATA FOR DANNHAUSER, ALBERT LUTHULI AND BELA-BELA

MUNICIPALITY	PROVINCE	MINING % of GVA (2013)	VALUE OF MINING (2013 – R millions)	MAIN PRODUCTS
Dannhauser	KwaZulu Natal	7.10%	312	Coal
Albert Luthuli	Mpumalanga	6.46%	608	Coal
Bela-Bela	Limpopo	6.08%	319	Diamonds

Source: Quantec, various media

The importance of platinum in all of the mining areas that the report focuses on is clear. This reflects South Africa's number one position in both the production of PGMs and reserves of these minerals. The PGM sector is also the most important source of employment in the mining sector. Table 4 below sets out key indicators for South Africa's main mining commodities, as at 2011:

TABLE 4: THE TOP SEVEN MINING COMMODITIES IN SOUTH AFRICA (2011)

Indicator	PGM	Gold	Coal	Iron Ore	Chromium	Manganese	Diamonds
Producer[1]	1	5	7	6	1	2	3
Reserves[1]	1	1	6	13	1	1	4
Employees ('000)	195	145	78	22	16	7	12
Profit Margin (%)	35	24	19	8	3	1	2
Total Sales (R billions)	84	68.9	87.8	62.6	8.6	9.9	14.4

Source: Antin, 2013, p6.

[1] Global Ranking

2.2. Economic importance of mining

Table 5 below sets out the real change in both total GVA and mining GVA for the 24 focus municipalities, for the period 1996 to 2013.

TABLE 5: CHANGE IN REAL GVA 1996 – 2013 (%)

MUNICIPALITY	% CHANGE TOTAL GVA	% CHANGE MINING GVA
Thabazimbi	27.8	21.8
Gamagara	109.8	114.1
Fetakgomo	73.8	75.0
Greater Tubatse	202.2	212.6
Richtersveld	-18.9	-46.3
Kgatelopele	21.6	-18.2
Masilonyana	77.5	62.7
Rustenburg	53.3	30.4
Lephalale	3.1	36.8
Westonaria	-46.5	-69.9
Dikgatlong	43.4	27.9
Khâi-Ma	76.5	26.5
Thaba Chweu	193.7	1037.0
Ba-Phalaborwa	7.0	-25.2
Mkhondo	37.3	434.1
Kamiesberg	4.3	-36.1
Tsantsabane	76.1	117.5
Emalahleni	72.6	59.5
Moses Kotane	62.1	58.1
Nama Khoi	8.1	-47.2
Moqhaka	35.4	88.6
Dannhauser	-8.8	-90.2
Albert Luthuli	61.1	-60.5
Bela-Bela	857.0	112.5

Source: Quantec

Table 6 below highlights those municipalities where the growth in real mining GVA has outpaced the growth in overall GVA, indicating that these are the locations where the **relative** importance of the mining sector is particularly significant, both for levels of economic activity and as a source of employment:

TABLE 6: LOCATIONS WITH THE GREATEST RELATIVE IMPORTANCE OF THE MINING SECTOR

MUNICIPALITY	% CHANGE MINING GVA (1996 – 2013)	% CHANGE TOTAL GVA (2006 - 2013	Mining share of total GVA (2013
Gamagara	114.1	109.8	77.54%
Fetakgomo	75.0	73.8	73.71%
Greater Tubatse	212.6	202.2	64.02%
Lephalale	36.8	3.1	49.46%
Thaba Chweu	1037.0	193.7	45.52%
Ba-Phalaborwa	7.0	-25.2	44.85%
Mkhondo	434.1	37.3	42.82%
Tsantsabane	117.5	76.1	41.00%
Moqhaka	88.6	35.4	32.44%

It is worth noting Ba-Phalarborwa, where there has been a significant decline in the total value of real GVA over the period, but real growth in the mining sector, underscoring the importance of mining in that local economy. The data for Thaba Chweu and Mkhondo also suggest that it is the mining sector that has prevented significant declines in real economic activity. Table 6 underscores the critical role that mining plays in areas where there is very little else in the way of economic opportunity, or employment. It also emphasizes the potentially devastating impact on these communities of any reduction in mining activity, or mine closures.

3. DEMOGRAPHIC PROFILES

This section discusses trends in population, households and unemployment in the 24 focus municipalities. Census data for 2001 and 2011 (which has a relative high degree of accuracy) has been used for those two years, together with Quantec data for 2006 and 2013.

3.1*. *Population and households

The growth in households is particularly important, since it is at the household level that basic services are demanded, and thus that pressure on local government is felt. The general trend in South Africa over the past 20 years is a more rapid increase in the number of households than in the overall population growth rate, reflecting a decline in the number of persons per household.

Table 7 below illustrates this trend very well, showing the change in population and households, from 2001 to 2011. In almost every municipality (save for Thabazimbi and Dikgatlong) the growth of households has outstripped the growth in the overall population. Even where there has been a decline in the population, the number of households has increased.

TABLE 7: POPULATION/HOUSEHOLD GROWTH 2001 - 2011

MUNICIPALITY	POPULATION			HOUSEHOLDS		
	2011	CHANGE - 2001	% CHANGE	2011	CHANGE - 2001	% CHANGE
Thabazimbi	85,234	19,701	23.1	25,080	4,346	17.3
Gamagara	41,617	18,415	44.2	10,808	5,502	50.9
Fetakgomo	93,795	1,197	1.3	22,851	3,968	17.4
Greater Tubatse	335,676	66,068	19.7	83,199	29,443	35.4
Richtersveld	11,982	1,857	15.5	3,543	939	26.5
Kgatelopele	18,687	3,944	21.1	5,381	1,796	33.4
Masilonyana	63,334	-1,075	-1.7	17,575	511	2.9
Rustenburg	549,575	162,479	29.6	199,044	85,650	43.0
Lephalale	115,767	30,495	26.3	29,880	9,603	32.1
Westonaria	111,767	1,968	1.8	40,101	10,003	24.9
Dikgatlong	46,841	8,579	18.3	11,967	1,743	14.6
Khâi-Ma	12,465	996	8.0	3,976	1,173	29.5
Thaba Chweu	98,387	16,706	17.0	33,352	12,095	36.3
Ba-Phalaborwa	150,637	19,101	12.7	41,115	10,069	24.5
Mkhondo	171,982	28,905	16.8	37,433	9,545	25.5
Kamiesberg	10,187	-567	-5.6	3,143	309	9.8
Tsantsabane	35,093	8,011	22.8	9,839	3,039	30.9
Emalahleni	395,466	119,053	30.1	119,874	44,957	37.5
Moses Kotane	242,554	5,379	2.2	75,193	13,434	17.9
Nama Khoi	47,041	2,141	4.6	13,193	2,221	16.8
Moqhaka	160,532	-7,360	-4.6	45,661	4,147	9.1
Dannhauser	102,161	-618	-0.6	20,439	1,119	5.5
Albert Luthuli	186,010	-1,741	-0.9	47,705	8,053	16.9
Bela-Bela	66,500	14,376	21.6	18,068	5,733	31.7

Source: StatsSA- Census 2011, Census 2001

Table 8 shows the growth in the number of households, compared to the growth in total real GVA and real mining GVA, for each of the focus municipalities. We have highlighted those municipalities (eight in total) where the growth in the number of households has been significantly **higher** than the growth in either of the real GVA numbers. This may suggest that the number of indigent or low-income households is growing relatively rapidly, due to the likely inability of the local economy to create sufficient numbers of new jobs.

TABLE 8: HOUSEHOLD GROWTH (1996 – 2013) VS REAL GROWTH IN GVA

MUNICIPALITY	HOUSEHOLDS		% CHANGE TOTAL GVA 1996 - 2013	% CHANGE IN MINING GVA 1996 - 2013
	2013	% CHANGE FROM 1996		
Thabazimbi	26,525	55.6	27.8	21.8
Gamagara	11,087	90.4	109.8	114.1
Fetakgomo	23,916	42.9	73.8	75.0
Greater Tubatse	81,380	93.3	202.2	212.6
Richtersveld	3,594	10.2	-18.9	-46.3
Kgatelopele	5,499	46.1	21.6	-18.2
Masilonyana	17,980	16.1	77.5	62.7
Rustenburg	211,978	141.0	53.3	30.4
Lephalale	31,644	69.7	3.1	36.8
Westonaria	39,149	45.3	-46.5	-69.9
Dikgatlong	12,301	45.2	43.4	27.9
Khâi-Ma	3,725	33.2	76.5	26.5
Thaba Chweu	35,084	58.5	193.7	1037.0
Ba-Phalaborwa	43,362	62.5	7.0	-25.2
Mkhondo	37,169	68.4	37.3	434.1
Kamiesberg	3,159	7.3	4.3	-36.1
Tsantsabane	10,087	57.3	76.1	117.5
Emalahleni	124,641	75.6	72.6	59.5
Moses Kotane	80,004	49.2	62.1	58.1
Nama Khoi	13,340	18.0	8.1	-47.2
Moqhaka	45,025	16.7	35.4	88.6
Dannhauser	21,261	35.5	-8.8	-90.2
Albert Luthuli	49,406	36.26	61.1	-60.5
Bela-Bela	19,296	61.5	857.0	112.5

Source: Quantec

Table 9 below indicates the percentage growth in households from 1996 to 2013 of the nine municipalities where mining has the greatest relative importance, in terms of its growth rate relative to the overall growth of the local economy. Lephalale and Ba-Phalaborwa stand out as areas where mining is very important in the local economy, and where household growth has significantly outpaced growth in the local economy (see Table 8). This may suggest that these two municipalities are particularly vulnerable in terms of unemployment in the event of a slowdown in the mining sector.

TABLE 9: HOUSEHOLD GROWTH IN KEY MINING MUNICIPALITIES (1996 – 2103)

MUNICIPALITY	% CHANGE HOUSEHOLDS (1996 – 2013)
Gamagara	90.4
Fetakgomo	42.9
Greater Tubatse	93.3
Lephalale	69.7
Thaba Chweu	58.5
Ba-Phalaborwa	62.5
Mkhondo	68.4
Tsantsabane	57.3
Moqhaka	16.7

Source: Quantec

3.2. Employment and unemployment

Mining is an important source of employment in most of the 24 focus areas. Across the aggregate economy, employment trends in mining have differed considerably across the various commodities, as indicated in Table 10 below, which shows actual employment for selected commodities for selected years, as well as the relative importance of each commodity in total mining employment.

TABLE 10: AVERAGE ANNUAL EMPLOYMENT BY COMMODITY

YEAR	GOLD	PGM	IRON ORE	COPPER	CHROME	MANGANESE	DIAMONDS	COAL
2004	179,964	150,630	7,142	4,042	6,765	3,243	21,186	50,327
2008	166,063	199,948	13,256	N/A	12,279	3,976	18,474	65,484
2012	142,201	197,847	23,380	N/A	19,758	8,726	12,176	82,240
2013	131,591	191,261	21,145	3,536	18,359	9,866	13,547	87,768
2013: % of total mining employment	25.8	37.5	4.1	0.7	3.6	1.9	2.7	17.2

Source: Chamber of Mines, 2014, own calculations. Percentage data may not add up to 100.0 due to rounding

Together, gold and platinum account for more than 60% of mining employment. The broad trends mask a certain amount of volatility within certain sectors: Employment in diamond mining has fallen since 2005, and in 2013 employed only 61% of the number of person as in 2005. Gold has experienced a steady decline in employment in each year from 2007, resuming a trend broken between 2006 and 2007. In contrast, employment in the coal sector has been on a steady upward trend since 2004, as has manganese. In the other commodities there is more volatility, particularly in the platinum sector (reflecting volatility in international demand and problematic labour relations), which is the most important employer in mining. Platinum employment grew to a high of just under

200,000 in 2008. 2009 and 2010 saw declines in employment totaling almost 18,000. Employment recovered in the next two years, to just under 198,000 and then declined again in 2013.

Employment in iron ore grew strongly to a peak of just over 23,000 in 2012, and then declined in 2013. This decline is expected to continue following recent announcements of the closure of the iron ore mine at Thabazimbi and the scaling down of operations at Sishen. Chrome has experienced a similar trend to iron ore.

Volatility in employment may be a more important issue affecting both labour relations within a particular commodity sector as well as the impact of mining on a particular local community than the absolute number of employed persons. Volatility creates uncertainties and tensions for employees, and swings in employment and unemployment may create both incentives for inward migration and significant numbers of unemployed persons in a particular area within a relatively short space of time.

Table 11 below shows formal employment in the mining sector for each of the 24 municipalities, for selected years.

TABLE 11: FORMAL EMPLOYMENT IN MINING[1]

MUNICIPALITY	FORMAL EMPLOYMENT			
	2013	2007	2001	1996
Thabazimbi	21,240	19,256	10,294	19,315
Gamagara	4,816	5,188	3,678	3,529
Fetakgomo	5,305	4,930	1,765	2,565
Greater Tubatse	29,146	17,361	3,316	6,146
Richtersveld	2,039	2,066	1,341	1,967
Kgatelopele	1,728	2,071	1,024	1,385
Masilonyana	7,255	11,747	7,154	9,825
Rustenburg	78,921	75,623	53,939	49,609
Lephalale	5,275	3,562	1,261	2,338
Westonaria	9,815	24,022	39,975	50,864
Dikgatlong	1,974	2,033	927	884
Khâi-Ma	911	980	570	1,052
Thaba Chweu	6,043	3,110	991	674
Ba-Phalaborwa	12,260	9,906	4,676	9,135
Mkhondo	4,496	2,069	682	759
Kamiesberg	1,006	858	638	671
Tsantsabane	1,545	1,619	1,038	1,030
Emalahleni	39,010	27,404	19,949	21,340
Moses Kotane	15,510	13,991	9,011	7,870
Nama Khoi	3,898	3,988	3,944	4,080
Moqhaka	12,591	18,852	9,332	13,965
Dannhauser	763	297	297	4,939
Albert Luthuli	1,178	982	756	1,998
Bela-Bela	609	293	37	31

Source: Quantec

[1] Using Data for all employment under SIC Code 2 – Mining and Quarrying

Table 12 below indicates unemployment, and the change therein for each of the 24 focus municipalities. The data for 2001 and 2011 is based on Census data, and the 1996 and 2013 data is based on Quantec data. All the data are for the official definition of unemployment, which excludes discouraged job seekers. The official definition thus most likely under-estimates the actual level of unemployment. In addition, it should be noted that for many of the municipalities Quantec has a much lower unemployment rate than the corresponding Census data figure. Our overall assessment is that actual 2013 unemployment is most likely higher than Table 12 suggests.

TABLE 12: UNEMPLOYMENT (OFFICIAL DEFINITION)

MUNICIPALITY	UNEMPLOYMENT RATE			
	2013	2011	2001	1996
Thabazimbi	5.1	20.6	21.0	0.9
Gamagara	24.5	17.7	27.1	10.4
Fetakgomo	30.3	58.9	68.2	24.9
Greater Tubatse	24.3	50.3	61.5	15.2
Richtersveld	18.1	18.6	35.5	14.0
Kgatelopele	25.8	22.3	31.1	15.1
Masilonyana	41.5	38.8	42.1	18.6
Rustenburg	19.4	26.4	31.8	7.6
Lephalale	9.9	22.2	18.5	2.0
Westonaria	42.0	29.5	31.8	7.6
Dikgatlong	40.8	39.7	45.3	25.9
Khâi-Ma	21.8	22.1	15.3	10.7
Thaba Chweu	27.4	20.5	25.1	3.6
Ba-Phalaborwa	12.3	37.4	40.2	3.4
Mkhondo	48.9	35.9	45.8	10.8
Kamiesberg	24.9	30.8	32.0	15.5
Tsantsabane	40.1	26.1	33.9	14.4
Emalahleni	24.7	27.3	38.4	8.8
Moses Kotane	29.1	37.9	50.9	19.3
Nama Khoi	16.9	22.9	33.1	13.7
Moqhaka	29.8	35.2	39.9	13.5
Dannhauser	30.6	47.6	67.4	28.0
Albert Luthuli	34.1	35.4	52.2	23.1
Bela-Bela	11.4	22.5	32.6	2.6

Source: StatsSA- Census 2011, Census 2001, Quantec – 2006 & 2013.

3.3. Income and poverty

It is a little more difficult accurately to determine poverty levels for municipalities. The table below contains two sets of data – the percentage of households that reported an income of R19,600 or less per annum in the 2011 survey and the percentage of registered indigent households for each municipality, as a measure of the prevalence of poverty. This data is self-reported by the municipalities (StatsSA, 2015) and the data for 2013 has significant gaps, thus the use of the 2014 data.

Each municipality is required to have an indigency policy (in order to plan the provision of free basic services and other concessions), and target households are those where the total combined monthly income of all persons over the age of 18 does not exceed twice the official state old age pension, which makes the current household indigency level R2,900 per month (or R34,800 per annum). One would not expect that the two data sets would be identical, but one would expect that they were generally similar: firstly, there has not been significant economic growth since 2011 to suggest a marked increase in average household income. Secondly, even allowing for the increases in the state old age pension and/or general inflation since 2011, households earning less than R19,600 per annum in 2011 would still be well below the 2014 indigency level of R34,800. Thus, in theory, we would expect that the (2014) indigency rates should be slightly higher than the (2011) household poverty rates. However, Table 13 below indicates some enormous discrepancies between the two data sets for most of the 24 municipalities. In only one municipality (Khâi-Ma) is the 2014 household indigency rate higher than the 2011 poverty rate. Those municipalities where the poverty rate is 3 or more times higher than the reported indigency rate have been highlighted. There is, in our assessment, only one municipality where the suggested sharp decline in indigency rates seems most likely to be credible, and that is Gamagara, where the employees of Kumba have benefitted from a substantial share ownership scheme. Data from SARS indicated that, for the 2013 tax year, households in Gamagara had the second highest average annual income in the country – R295, 431 (Mail & Guardian, 13 March 2015).

(Note: One municipality in this report (Mkhondo) did not report indigency data to StatsSA).

TABLE 13: POVERTY INDICATORS – 2011 & 2014

MUNICIPALITY	% H/HOLDS WITH ANNUAL INCOME R19,600 OR LESS (2011)	% INDIGENT H/HOLDS 2014
Thabazimbi	33.4	31.1
Gamagara	32.7	9.2
Fetakgomo	54.6	14.3
Greater Tubatse	52.7	11.2
Richtersveld	32.4	29.3
Kgatelopele	33.2	21.7
Masilonyana	52.1	25.2
Rustenburg	36.4	2.5
Lephalale	38.8	4.5
Westonaria	45.7	6.4
Dikgatlong	51.9	9.9
Khâi-Ma	33.7	45.6
Thaba Chweu	40.5	4.4
Ba-Phalaborwa	46.9	6.8
Mkhondo	53.2	N/A
Kamiesberg	42.9	42.5
Tsantsabane	33.9	24.0
Emalahleni	33.2	9.8
Moses Kotane	54.3	14.9
Nama Khoi	34.4	31.9
Moqhaka	44.0	19.7
Dannhauser	56.4	4.6
Albert Luthuli	57.2	10.5
Bela-Bela	41.1	20.1

Source: StatsSA- Census 2011, Census 2001, Quantec – 2006 & 2013, StatsSA, 2015

The table suggests that smaller municipalities may have more accurate indigency registers, which would make sense in terms of the administrative burden of collecting the information.

The discrepancy between the two sets of data – where the indigency rate is well below the 2011 poverty rate - may be indicative of one or more of the following:

- The municipality has a very poorly implemented indigency register policy, and there are far more indigent households in their area than they are aware of. Given the low level of institutional capacity in most of the key mining municipalities (see Section 4.2. below) this seems likely. This is important because indigent households are entitled to free services, and under-counting implies a potentially significant future "contingent liability" for these municipalities, many of whom are already under financial strain. This, in turn, may very well increase the pressure to increase revenue collections from the mines (the current situation is discussed in more detail below).

- A significant number of poor households are made up of illegal immigrants or legal immigrants who are nonetheless wary of requesting financial assistance from the authorities (but who are generally included in the Census survey).

In any event, the Census 2011 data suggest that a significant number of households in mining areas live in moderate to extreme poverty. As discussed in Section 5 below, this appears to be an important factor contributing to tensions between local communities and mining companies.

Table 14 below sets out the 2011 poverty percentages and 2013 (official) unemployment rates for those municipalities where mining has the greatest relative importance.

TABLE 14: POVERTY AND UNEPLOYMENT RATES: KEY MINING MUNICIPALITIES

MUNICIPALITY	2011: % H/HOLDS EARNING R19,600 OR LESS	UNEMPLOYMENT 2013 (%)
Gamagara	32.7	24.5
Fetakgomo	54.6	30.3
Greater Tubatse	52.7	24.3
Lephalale	38.8	9.9
Thaba Chweu	40.5	27.4
Ba-Phalaborwa	46.9	12.3
Mkhondo	53.2	48.9
Tsantsabane	33.9	40.1
Moqhaka	44.0	29.8

Source: Census 2011, Quantec

4. MUNICIPAL PROFILES: SERVICE DELIVERY AND MUNICIPAL CAPACITY

Recent research by TIPS (TIPS, 2015) indicates that a main driver of the labour unrest in the North West Province in 2012 and 2014 was the living conditions of miners (rather than the comparative level of wages). Lack of formal housing together with low levels of sanitation and water delivery were identified as key factors. In this section we have presented data around service delivery in the 24 municipalities, together with a measure of municipal capacity.

4.1. Service Delivery

Table 15 below sets out service delivery indicators for formal housing, water and sanitation, for 2001 and 2011. Those municipalities where mining has the greatest relative importance have been highlighted. Although in most instances the percentage of households with access to a particular service has increased, this has not been sufficient to compensate for the growth in households. For example, in Ba-Phalaborwa, the percentage of households with access to piped water inside their dwelling increased from 29.5% to 37.1%, but there were almost 4,500 **more** households without this service in 2011 than in 2001, due to the rapid increase in the number of households. The increase in the number of households is most likely due in part to an increase in inward migration of job seekers on the mines

TABLE 15: SERVICE DELIVERY[1]: 2001 – 2011. PERCENTAGE OF HOUSEHOLDS

MUNICIPALITY	HOUSING[2]		WATER[3]		SANITATION[4]	
	2011	2001	2011	2001	2011	2001
Thabazimbi	70.7	59.3	47.3	24.7	63.1	49.5
Gamagara	74.4	84.3	59.1	61.5	77.6	70.7
Fetakgomo	94.2	80.8	5.5	1.9	1.9	2.6
Greater Tubatse	83.2	72.3	9.5	3.9	6.3	5.3
Richtersveld	88.5	89.9	68.6	58.4	69.8	76.5
Kgatelopele	89.7	87.8	74.4	57.8	89.2	80.7
Masilonyana	82.9	67.0	28.9	19.3	70.5	33.7
Rustenburg	68.7	57.2	35.8	21.3	52.7	39.9
Lephalale	82.3	76.8	31.4	22.4	39.5	30.1
Westonaria	59.0	42.9	42.2	20.5	58.6	65.0
Dikgatlong	78.5	73.2	30.7	24.3	60.0	32.7
Khâi-Ma	86.1	79.2	45.5	38.5	69.0	59.7
Thaba Chweu	74.6	68.7	38.8	30.0	64.2	57.4
Ba-Phalaborwa	96.4	80.2	37.1	29.5	40.5	40.2
Mkhondo	65.2	38.6	30.9	18.2	39.5	29.3
Kamiesberg	95.6	86.2	41.7	27.3	38.8	33.0
Tsantsabane	71.8	81.4	45.3	35.5	66.7	61.7
Emalahleni	77.2	67.1	54.9	41.9	68.8	71.6
Moses Kotane	78.3	77.9	18.6	8.3	12.3	10.1
Nama Khoi	94.7	88.4	74.9	61.2	63.5	64.7
Moqhaka	88.7	82.6	57.7	28.4	85.6	65.6
Dannhauser	82.7	66.7	19.5	8.0	11.5	10.9
Albert Luthuli	76.5	58.4	22.6	8.9	18.9	13.8
Bela-Bela	86.3	79.3	41.9	23.3	69.7	65.2

Source: StatsSA *Statistics by Place*

1 Census data 2001 and 2011
2 Formal dwelling
3 Piped water inside dwelling
4 Flush toilet connected to a sewerage system

Table 16 below sets out the eight municipalities with the overall worst results in terms of service delivery, most notably in the areas of water and sanitation (the provision of housing is largely a provincial, rather than a local competence).

TABLE 16: SERVICE DELIVERY[1]: 2001 – 2011. PERCENTAGE OF HOUSEHOLDS

MUNICIPALITY	% GROWTH IN H/HOLDS: 2001 - 2011	HOUSING[2]		WATER[3]		SANITATION[4]	
		2011	2001	2011	2001	2011	2001
Fetakgomo	17.4	94.2	80.8	5.5	1.9	1.9	2.6
Greater Tubatse	35.4	83.2	72.3	9.5	3.9	6.3	5.3
Lephalale	32.1	82.3	76.8	31.4	22.4	39.5	30.1
Mkhondo	25.5	65.2	38.6	30.9	18.2	39.5	29.3
Kamiesberg	9.8	95.6	86.2	41.7	27.3	38.8	33.0
Moses Kotane	17.9	78.3	77.9	18.6	8.3	12.3	10.1
Dannhauser	5.5	82.7	66.7	19.5	8.0	11.5	10.9
Albert Luthuli	16.9	76.5	58.4	22.6	8.9	18.9	13.8

Source: StatsSA *Statistics by Place*
1 Census data 2001 and 2011
2 Formal dwelling
3 Piped water inside dwelling
4 Flush toilet connected to a sewerage system

From Table 16, three municipalities stand out: Fetakgomo, Greater Tubatse and Moses Kotane. In all three of these municipalities water and sanitation delivery levels are particularly low, and it is likely that more than 50% of households live in poverty (see Table 13). All three are key platinum mining areas.

4.2. Municipal Capacity and Resources

The importance of service delivery issues in recent labour unrest should focus our attention on the institutional capacity and financial resources of mining municipalities. Low capacity and resource indicators coupled with existing poor levels of service delivery may suggest that delivery will remain a problem for the foreseeable future.

Table 17 below provides some insights in this respect. The first indicator is the most recent (2013/14) audit outcome. Of the 278 municipalities in South Africa, 60 (i.e. 22%) were classified as "red zone" – i.e. they had a disclaimer or adverse outcome, or the audit was not completed within the stipulated statutory period. As is clear from the table below, mining municipalities have a much higher occurrence of poor audit outcomes: of the 21 municipalities where mining makes up 30% of more of local GVA, **13 (62%) received a disclaimer** and one (Westonaria) failed to complete the audit within

the required time frame. The implication is that the most important mining municipalities are **3 times more likely** to have dysfunctional administrations than other municipalities.

TABLE 17: MUNICIPAL CAPACITY AND RESOURCES

MUNICIPALITY	2013/14 AUDIT OUTCOME	2013/14 EQUITABLE SHARE (R'000)	2013/14 ES PER HOUSEHOLD	INDIGENT H/HOLDS (2014 - %)
Thabazimbi	Disclaimer	60,129	2,220	31.1
Gamagara	Qualified	21,203	1,887	9.2
Fetakgomo	Disclaimer	52,946	2,177	14.3
Greater Tubatse	Disclaimer	148,455	1,792	11.2
Richtersveld	Qualified	12,338	3,414	29.3
Kgatelopele	Disclaimer	15,302	2,757	21.7
Masilonyana	Qualified	82,581	4,560	25.2
Rustenburg	Qualified	285,427	1,320	2.5
Lephalale	Unqualified	83,078	2,577	4.5
Westonaria	Incomplete	104,957	2,626	6.4
Dikgatlong	Disclaimer	48,022	3,859	9.9
Khâi-Ma	Unqualified	13,134	3,492	45.6
Thaba Chweu	Disclaimer	81,198	2,268	4.4
Ba-Phalaborwa	Disclaimer	69,433	1,575	6.8
Mkhondo	Disclaimer	110,712	2,928	N/A
Kamiesberg	Disclaimer	13,681	4,318	42.5
Tsantsabane	Disclaimer	26,145	2,563	24.0
Emalahleni	Disclaimer	192,475	1,515	9.8
Moses Kotane	Unqualified	248,277	3,039	14.9
Nama Khoi	Disclaimer	33,821	2,528	31.9
Moqhaka	Disclaimer	164,486	3,627	19.7
Dannhauser	Clean	52,872	2,446	4.6
Albert Luthuli	Qualified	171,462	3,411	10.5
Bela-Bela	Unqualified	48,639	2,482	20.1

Source: AGSA 2015, DORA 2014, StatsSA, own calculations

Table 17 also contains information on the equitable share received by each municipality under the 2013/14 Division of Revenue Act (DORA, 2014), and how that compares to the number of households in the municipality. General fiscal constraints imply that the equitable share will be under pressure over (at least) the next few years. This, in turn, implies that those municipalities with current poor levels of service delivery may struggle to find the resources to finance the massive roll out of services that is required, particularly in the area of water and sanitation. In this environment, the contribution of mines to municipal revenue may well come under greater scrutiny.

For a substantial period of time, municipal property rates did not apply to properties beyond the urban fringe. The effective result was that agricultural land and mines were generally exempt from paying property taxes in rural areas (where most of the mines were located). This has recently changed, and local municipalities are now empowered to levy property taxes on all property within their boundaries. Most municipal property rates policies now set a rate for land used for mining. The

application of the policy appears, however, to be problematic in many instances: a discussion with the South African Local Government Association (SALGA) suggested that many municipalities are not sure how to value mines for the purposes of levying property taxes. In any event, the legislation (The Municipal Property Rates Amendment Act, 2014 – effective 01 July, 2015) excludes the value of any mining rights or mining permits from the valuation (the single biggest asset of the mine) and limits taxation to the value of the land (as land) and infrastructure above the surface. While national government benefits from the payment of mining royalties, there is no such payment directly to those municipalities where the mining activity takes place.

Merafong City Local Municipality (on the West Rand of Guateng) was the recent loser in an appeal against the valuation of mining property. The appeal board ruled that neither the "business" of the mine nor the mining rights could be included in the valuation. The judgment has resulted in a significant reduction in the applicable rates revenue for Merafong, and a corresponding deficit for the local municipality.

In addition to the exclusions that impact rates revenue, the vast majority of mines do not purchase services (such as electricity or water) from the relevant local municipality (and the sale of such services is an important source of municipal revenue). Instead they tend to purchase electricity directly from Eskom, and to have their own water use permits and sources. The end result is that municipalities are not obtaining any significant revenue benefit from the mines located within their boundaries. Given the enormous service delivery challenges that many of them face (in part the result of inward migration to work on the mines and/or retrenchments on the mines) this is an important revenue issues. Municipalities are also often not in a good position to deal with the negative impacts of mining, as discussed in the next section, and certainly the mines do not appear to be making a contribution to municipal revenues that would reflect these costs.

Most mining companies do make some kind of contribution to infrastructure in the municipalities where they are located, as part of their CSI spend. A survey of media and company reports suggest, however, that much of this is allocated to expenditure that will benefit the mine (in addition to the municipality), such as the upgrade of roads or bulk infrastructure. We cannot, however, ignore the difficulties that mines may face in partnering with administratively dysfunctional municipalities in order to be more directly involved in the provision of basic services.

5. THE NEGATIVE IMPACT OF MINING

The mining industry is associated with some of the most serious externalities of all economic activities. In this section we have briefly discussed some of the most important negative impacts of mining in South Africa, under the following headings:

- Land use
- Water
- Pollution
- Civil unrest
- Other Issues

The information contained in this section was obtained through a media scan. It is intended to provide a high level overview of some of the key issues.

5.1. Land Use

In certain instances, mining competes with other land uses, most notably agriculture (and occasionally conservation). The grating of mining licenses in these circumstances thus effectively renders the land in question unavailable for other uses. The land use conflict is probably most acute with respect to coal mining in Mpumalanga. Mpumalanga is a key agricultural area, containing 46% of all of South Africa's high potential arable soils (BFAP, 2012), but a significant amount of it is being lost to coal mining. BFAP (2012) estimates that approximately 12% of all of South Africa's high potential arable land will be irrevocably transformed by current coal mining activity in Mpumalanga, while another 13.6% is being prospected in the same province. The implication is that as much as one quarter of the country's high-value arable soil (around 1 million hectares) may be threatened by coal mining.

The Centre for Environmental Rights (CER, 2014) asserts that "(e)ven with the best post-coal mining rehabilitation (a rare occurrence in South Africa), land that has supported coal mining operations cannot ever again be used to grow crops". If that is the case, then coal mining in Mpumalanga may have devastating long-term impacts on rural livelihoods in the province, as well as national food security. The 2012-13 Dannhauser IDP (a municipality where there has been large-scale closure of coal mines over the past two decades) reports the following: *The de-commissioned mines have sterilised the affected areas, as they are no longer suitable for other uses*. This effective "erasing" of this land clearly has an impact on the ability of rural municipalities to recover from large-scale coal mine closures, since it cannot be used for agriculture – the main economic option available in these areas.

In Greater Tubatse there has been recent protest action by communities who allege that the land that they use for agriculture has been "illegally sold" to Anglo Platinum. This reflects similar tensions in

other communities in the platinum belt who believe (correctly or incorrectly) that they have not been fairly compensated for land that was historically communally-owned, and which has been appropriated for mining.

5.2. Water

South Africa is considered to be a water-stressed country, and the general medium-term (10 – 20 years) expectation is for increased water demand against limited supplies. Mining may impact negatively on water supplies in two main ways – through the pollution of critical water sources and/or catchment areas, or through the diversion of water that could be used for other purposes. There are many examples of mining threatening vital water supplies, and the most serious of these is the acid mine drainage issue on the Witwatersrand (most particularly the West Rand). A significant amount of acid drainage is decanting into the area's water system, compounded by rising groundwater as mine dewatering processes halt in line with mine closures (Rose, 2013). Much of the acid drainage is from abandoned or orphan mines, effectively making it a public problem, rather than the responsibility of individual mining companies. The Benchmarks Foundation (2014) estimates that there are around 6,000 abandoned mines in South Africa – all now the effective problem of the state (and its taxpayers).

There are, unfortunately, many other examples of mining impacting negatively on water reserves. Once again, coal mining in Mpumalanga appears to be a particular problem: a 2011 report by WWF-SA detailed the degradation of the Olifants river catchment area as a result of coal mining. The report suggested that coal mining and prospecting rights were being issued without due regard of the implications for water resources. In this regard, the pressure on Eskom to maximize electricity output as a national priority (and thus the critical need for a growing and stable coal supply) cannot be ignored. Although keeping the lights on may be a medium-term priority for the economy, the longer-term costs of depleted and degraded water resources (and agricultural land) may be more severe.

The Benchmarks Foundation (2014) highlighted the fact that many coal mining companies in Emalahleni appeared to be receiving their mining licenses well in advance of receiving the water licenses. This has created the perception that the granting of these water licenses is a formality, and that there is no real and objective assessment of the long-term implications of the granting of these licenses.

Competition for water between agriculture and mining (mostly iron ore) is also an issue in the arid Northern Cape. Mines are issued with "de-watering" licenses that allow them to pump vast amounts of ground water out of the mining operations, on the grounds of safety. Farmers near the mines allege that this is having a devastating impact on general ground water levels, and that their

boreholes are running dry. Although some of this water is reportedly pumped into a government water scheme, it is no longer available as ground water for farmers.

There are also some indications that the rapid expansion of several mining towns in the Northern Cape is creating a demand for water that cannot be met from the existing Vaal Gamagara scheme, and that additional water may have to be sourced from groundwater (Farmers Weekly, March 09, 2012). This will put additional pressure on farmers' boreholes and poses a threat to local agriculture.

5.3. Pollution

In addition to water pollution, there are a number of other pollution concerns around mining.

BFAP (2012) documented the impact of water pollution and dust (from opencast mining) on maize crops in Mpumalanga. Their study focused on the Delmas, Ogies and Leandra districts – one of the most important maize production areas in South Africa. They estimated a potential loss of maize production from current mining activity of 284,844 tonnes per annum, with a further potential loss of 162,736 tonnes if mining goes ahead in current prospecting areas. They estimated that this could push up maize prices by as much as 14%. In addition, declining maize production would probably contribute to the loss of jobs in the agricultural sector.

Although legislation is in place to provide for rehabilitation after mine closures, there is little information available to suggest that this legislation is actually being enforced, or how successful rehabilitation has been. In the event of mines failing to rehabilitate areas to the required standards, it is almost inevitably the local municipality which will be saddled with dealing with these issues. A good example in this respect is the local municipalities of the West Rand, which have been left to deal not just with the impact of acid mine drainage, but also with radioactive abandoned mine dumps and a severe air pollution problem (also from the abandoned dumps). There is at least one example in this area of an entire retirement housing complex having to be condemned as a result of pollution from nearby unrehabilitated dumps. It is not difficult to conclude that this is an issue that negatively impacts local economic development potential.

Air pollution from coal mining may include the following (BFAP, 2012):

- Dust from blasting, drilling, materials handling (overburden, interburden, waste rock, coal, discard), vehicle entrainment, wind erosion, tipping, crushing and screening;
- Sulphur dioxide, nitrogen oxide and carbon monoxide emissions from blasting operations; and
- Potential sulphur dioxide and volatile organic emissions from the spontaneous combustion of discard dumps.

A 2014 report by the Benchmarks Foundation detailed a wide range of externalities arising from coal mining in Mpumalanga, including water and air pollution, negative impacts on local roads and infrastructure, and the threat of subsidence.

NOTE: In terms of the key environmental issues – land use, water and pollution – there seems to be a general civil society perception that the Department of Mineral Resources is sometimes failing to enforce the applicable legislation. This perception appears to be held with particular respect to coal mining in Mpumalanga. This report has not investigated the veracity of this perception, but it may need to be addressed, particularly given the rising level of community activism with respect to the degradation of agricultural land.

5.4. Civil unrest

This report in no way alleges that mining companies are responsible for civil unrest, but it does appear that the presence of large mining operations – particularly in very poor areas – creates expectations of employment and improved standards of living that cannot be met. This seems to be a particular factor in the platinum belt: As Table 12 suggests, poverty levels in many mining areas are extremely high and, as Table 14 shows, basic service delivery in many of these areas is dire.

In these instances the mines (and their significant profits) become a catalyst for general satisfaction, and in many communities the authorities who "must do something" become an amalgam of both the local authority and the nearby mines. It is not helpful for the mines to argue that service delivery is not their problem – they are perceived to have enormous wealth and an "obligation" to the local community.

> *When the mining houses come here, they promise the communities a lot of things," said community leader and local businessman Chicco Kgoete. "When the communities see mines are not adhering to that, they become disaffected and revolt. That's when you start to see these wildcat strikes, riots … shooting, people go and vandalise mine property and throw petrol bombs."*
>
> *"They built a smelter in Polokwane and named it Polokwane Smelter, but there are no mines there," said local EFF branch commander Colin Phalane, referring to the Anglo Platinum smelter built in 2003. "They were supposed to locate that f***ing smelter here so that people can work."*
>
> City Press, 01 September 2015, reporting on Greater Tubatse

(NOTE: Greater Tubatse is located in one of the world's richest PGM and chromium deposit areas, and mining GVA grew by a real 212% from 1996 to 2103. However, data presented in this report suggest

that more than 50% of households in Greater Tubatse live in poverty; water and sanitation delivery levels are atrocious; the municipality's audit outcome has deteriorated over the past five years, to the current disclaimer outcome; and its equitable share per household in the 2013/14 financial year was less then R2,000 per household, one of the lowest of all the municipalities in this report. At the same time – see table 11 – there has been a strong increase in employment in mining in the area: between 2007 and 2013 almost 12,000 new mining jobs were created. This example illustrates the importance of the broader socio-economic context within which mines are located, which is often much more important for determining how the mines are perceived by local communities, than just the impact of the mines themselves.)

Another area of contention is the way in which the benefits of mining are allocated: local residents often believe that they should have priority on employment opportunities and other financial allocations by the mines, but the reality is often very different. The mines usually cannot employ more than a fraction of the local unemployed, and these persons may not have the required skills. In Kgatelopele in the Northern Cape, recent "service delivery" protests were parked in large part by the community's perceptions that they were "entitled" to jobs at the local mine that had, they believed, been allocated to "outsiders" (personal communication with the Kgatelopele Community Forum).

5.5. Other Issues

There is a range of research and anecdotal evidence which suggests that the inward migration associated with increased mining activity is positively associated with an increase in the prevalence of HIV/AIDS, an increase in the number of women engaging in sex work and a rise in teenage pregnancies (Cairncross et al, 2013). Once again, these issues are not caused directly by the mining activity itself, but they do contribute to perceptions of poverty and hardship in many of the communities living in close proximity to the mines. Where the local authority is particularly dysfunctional and unable to cope with the increased service delivery demands, these problems are most likely compounded.

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