

# South Africa - Operating Mines and their Closure Risks 2021-2023

**Megan Cole**

Report generated on: June 5, 2024

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## Identification

### SURVEY ID NUMBER

zaf-mc-omcr-2021-2023-v1

### TITLE

Operating Mines and their Closure Risks 2021-2023

### COUNTRY

Name	Country code
South Africa	zaf

### STUDY TYPE

Replication/Reproducibility Data

### ABSTRACT

South Africa has 230 operating mines located in diverse natural and social settings. Over 6 million people live in urban and rural mining host communities who will be significantly affected by mine closure. The national, provincial and local governments need guidance in identifying high-risk areas and relevant policy and programmatic interventions. This dataset includes data collected on mines in South Africa for the development of a quantitative mine closure risk rating system that assesses the likelihood of mine closure, the risk of social impact and the risk of environmental impact of mine closure for every operating mine in the country. The rating system was tested with 10 mines and 19 mining experts. The shape files for maps resulting from the research are also included in the dataset. The data is also available for viewing on the

South African Mine Closure Risk and Opportunity Atlas

<https://experience.arcgis.com/experience/f8bbd7f733674b9d99cd320b4f5b98f5/>

Data projection: GCS\_WGS\_1984

The data provides evidence for the research publication Cole, M.J. A Mine Closure Risk Rating System for South Africa. Mining 2024, 4, 58-78. <https://doi.org/10.3390/mining4010005>

### KIND OF DATA

Other

### UNIT OF ANALYSIS

Institutions

## Version

### VERSION DESCRIPTION

v1: Edited, anonymised data for public distribution

### VERSION DATE

2024-04-23

## Scope

### NOTES

The data covers basic information on each mine, as well as information on the likelihood of mine closure, and the risk of social impact and the risk of environmental impact of mine closure for every operating mine in South Africa. The scope, as shown in the column headings in the Attribute Table for the map data includes:

Abbreviated Name Full Name

MineID MineID

Mine\_Name Mine name

Alternativ Alternative or previous name

Farms Farms (related to mining right)

Owner Mine Owner

CompanyTyp Company type  
 Commodity Commodity  
 Mining\_Met Mining method (UG = underground, OC = opencast)  
 LOM Life of Mine  
 Latitude Latitude  
 Longitude Longitude  
 Likelihood Likelihood of closure rating (1-5)  
 Likeliho\_1 Likelihood of closure rating (Very low to Very High)  
 Social\_Rat Social risk rating (1-5)  
 Social\_R\_1 Social risk rating (Very low to Very High)  
 Enviro\_Rat Environmental risk rating (1-5)  
 Enviro\_R\_1 Environmental risk rating (Very low to Very High)

## KEYWORDS

Keyword
Mining
Mine closures
Social risk
Environmental risk

## Coverage

## GEOGRAPHIC UNIT

The data is at the level of local municipality as well as individual mines.

## Producers and sponsors

## PRIMARY INVESTIGATORS

Name
Megan Cole

## FUNDING AGENCY/SPONSOR

Name	Abbreviation
Water Research Commission	WRC

## Data Collection

## DATES OF DATA COLLECTION

Start	End
2021	2023

## DATA COLLECTION MODE

Other

## Access policy

## CONTACTS

Name	Affiliation	Email	URL
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DataFirst Support	University of Cape Town	support@data1st.org	www.support.data1st.org
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## ACCESS CONDITIONS

Public access data for use under a Creative Commons CC-BY (Attribution-only) License

## CITATION REQUIREMENTS

Cole, Megan. Operating Mines and their Closure Risks 2021-2023 [dataset]. Version 1. Cape Town: Megan Cole [producer], 2024. Cape Town: DataFirst [distributor], 2024. DOI: <https://doi.org/10.25828/2c2f-s119>

## ACCESS AUTHORITY

Name	Affiliation	Email	URL
DataFirst	University of Cape Town	support@data1st.org	support.data1st.org

## Metadata production

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## PRODUCERS

Name	Affiliation	Role
DataFirst	University of Cape Town	Metadata producer

## DATE OF METADATA PRODUCTION

2024-06-05

## DDI DOCUMENT VERSION

Version 3

**Data Description**

<b>Data file</b>	<b>Cases</b>	<b>Variables</b>
<b>mining-2807460-supplementary</b>	221	55



**Data file: mining-2807460-supplementary**

Cases: 221

Variables: 55

**Variables**

ID	Name	Label	Question
V1	MineID		
V2	Mine_name		
V3	Province		
V4	Company		
V5	Company_Type		
V6	Commodity		
V7	Mining_method		
V8	LOM_in_2022		
V9	Mineral_Resource__Mt_Moz_Mct_		
V10	Commodity_market_rating		
V11	LOM_rating		
V12	MRMR_rating		
V13	Cost_rating		
V14	Company_type_rating		
V15	LIKELIHOOD_RATING		
V16	LIKELIHOOD_RATING0		
V17	Likelihood_Weighted_Rating		
V18	Likelihood_Weighted_Rating0		
V19	Immediate_Community		
V20	Population_in_2011		
V21	Well_being_score		
V22	Local_Municipality__LM_		
V23	LM_Mining_jobs		
V24	LM_Dependency_ratio		
V25	Remoteness__direct_km_to_nearest		
V26	LM_audit_2021		
V27	Population_rating		
V28	Wellbeing_rating		
V29	Jobs_rating		
V30	Dependency_rating		
V31	Remoteness_rating		
V32	LM_Audit_rating		
V33	SOCIAL_RATING		
V34	SOCIAL_RATING0		
V35	Social_Weighted_Rating		
V36	Social_Weighted_Rating0		
V37	Distance_to_Protected_Area_or_Co		
V38	Terrestrial_ecosystem_threat		

ID	Name	Label	Question
V39	Distance_to_SWSA_km_		
V40	Duration_of_mining		
V41	Land_capability		
V42	Mine_water_threat_groundwater_Op		
V43	Mine_water_threat_groundwater_Un		
V44	Mine_water_threat_Surface_water		
V45	Total_Mine_Water_Threat		
V46	Distance_to_PA_rating		
V47	Terrestrial_threat_rating		
V48	Distance_to_SWSA_rating		
V49	Duration_of_mining_rating		
V50	Land_capability_rating		
V51	Mine_Water_Threat_rating		
V52	ENVIRO_RATING		
V53	ENVIRO_RATING0		
V54	ENVIRO_RATING1		
V55	ENVIRO_RATING2		

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Total: 55





**MINEID:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 221 Mean: 111 Standard deviation: 63.941  
 Type: Continuous Decimal: 0 Width: 3 Range: 1 - 221 Format: Numeric

**COMMODITY\_MARKET\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 5 Mean: 3.081 Standard deviation: 1.478  
 Type: Discrete Decimal: 0 Width: 1 Range: 1 - 5 Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		28	12.7%
2		76	34.4%
3		39	17.6%
4		6	2.7%
5		72	32.6%

**MINE\_NAME:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0  
 Type: Discrete Width: 33 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
Agnes		1	0.5%
Alexander Bay Mining		1	0.5%
Assen		1	0.5%
Aviemore		1	0.5%
Bafokeng Rasimone North Shaft		1	0.5%
Bafokeng Rasimone South Shaft		1	0.5%

Bakgatla Ivan Shaft		1	0.5%
Bakgatla Richard Shaft		1	0.5%
Bakgatla Spud Shaft		1	0.5%
Ballengeich		1	0.5%
Bathopele		1	0.5%
Beatrix No3 Shaft		1	0.5%
Beatrix No4 Shaft		1	0.5%
Beeshoek		1	0.5%
Belfast		1	0.5%
Bishop		1	0.5%
Black Chrome		1	0.5%
Black Mountain (Deeps, Swartberg)		1	0.5%
Black Wattle		1	0.5%
Blyvoor		1	0.5%
Bokone		1	0.5%
Booyse dal North		1	0.5%
Booyse dal South		1	0.5%
Bosjesspruit (Secunda)		1	0.5%
Boskop		1	0.5%
Buffelsfontein		1	0.5%
Bultfontein		1	0.5%
Chelmsford		1	0.5%
Chilwavirusiku		1	0.5%
Cooke surface		1	0.5%
Crocodile River		1	0.5%
Cullinan		1	0.5%
Delmas Colliery		1	0.5%
Demaneng		1	0.5%
Dishaba		1	0.5%
Doornkop		1	0.5%
Dorstfontein		1	0.5%
Driefontein 1		1	0.5%
Driefontein 4		1	0.5%
Driefontein 5		1	0.5%
Driefontein 8		1	0.5%
Dwarsrivier		1	0.5%
ECM Helena		1	0.5%
ECM Magareng		1	0.5%
ECM Thorncliffe		1	0.5%

ECM Winterveld		1	0.5%
East Manganese		1	0.5%
Eland		1	0.5%
Elandsfontein		2	0.9%
Elandspruit		1	0.5%
Evander 8 Shaft		1	0.5%
Fairbreeze		1	0.5%
Fairview		1	0.5%
Fentonia		1	0.5%
Finsch		1	0.5%
Forzando North		1	0.5%
Gamsberg		1	0.5%
Gloria (Black Rock)		1	0.5%
Glosam		1	0.5%
Goedehoop		1	0.5%
Goedgevonden		1	0.5%
Greenside		1	0.5%
Grootegeeluk		1	0.5%
Hakhano		1	0.5%
Helam		1	0.5%
Horizon		1	0.5%
Hotazel		1	0.5%
Impala 1 Shaft		1	0.5%
Impala 10 Shaft		1	0.5%
Impala 14 Shaft		1	0.5%
Impala 16 Shaft		1	0.5%
Impala 20 Shaft		1	0.5%
Impala 6 Shaft		1	0.5%
Impumelelo (Brandspruit)		1	0.5%
Impumzi complex		1	0.5%
Isibonelo		1	0.5%
Ivanplats		1	0.5%
Iyanga (Klipfontein)		1	0.5%
Joel		1	0.5%
Kalgold		1	0.5%
Kangala		1	0.5%
Khanye		1	0.5%
Khanyisa		1	0.5%
Khomanani		1	0.5%

Khumani		1	0.5%
Khuseleka		1	0.5%
Khutala		1	0.5%
Khwezela North		1	0.5%
Khwezela South		1	0.5%
Kiepersol		1	0.5%
Kimberley		1	0.5%
Kliprand		1	0.5%
Klipspruit		1	0.5%
Kloof 1		1	0.5%
Kloof 4		1	0.5%
Kloof 7		1	0.5%
Kloof 8		1	0.5%
Koffiefontein		1	0.5%
Kolomela		1	0.5%
Kopanang		1	0.5%
Kriel		1	0.5%
Kroondal		1	0.5%
Kusasaletu		1	0.5%
Lace		1	0.5%
Leeuwpan		1	0.5%
Lomoteng		1	0.5%
MMS		1	0.5%
Mafube		1	0.5%
Magdalena		1	0.5%
Malahleni		1	0.5%
Mamatwan		1	0.5%
Manungu		1	0.5%
Marikana 4Belt shaft		1	0.5%
Marikana E3 shaft		1	0.5%
Marikana K3 shaft		1	0.5%
Marikana Rowland shaft		1	0.5%
Marikana Saffy shaft		1	0.5%
Marula Clapham Shaft		1	0.5%
Marula Driekop Shaft		1	0.5%
Mashwening		1	0.5%
Masimong 5 shaft		1	0.5%
Matla		1	0.5%
Mbali		1	0.5%

Mecklenburg		1	0.5%
Middelburg Complex		1	0.5%
Moab Khotsong		1	0.5%
Moabsvelden		1	0.5%
Modikwa Merensky Shaft		1	0.5%
Modikwa South 2 Shaft		1	0.5%
Moeijelijk		1	0.5%
Mogalakwena		1	0.5%
Mokala		1	0.5%
Mooikraal		1	0.5%
Mooiplaats		1	0.5%
Mopani		1	0.5%
Morokwa		1	0.5%
Morula		1	0.5%
Mototolo Lebowa Shaft		1	0.5%
Mototolo/Der Brochen (Borwa Shaft		1	0.5%
Mponeng		1	0.5%
NCC Roodekop		1	0.5%
Namakwa Sands		1	0.5%
Nchwaning (Black Rock)		1	0.5%
New Clydesdale		1	0.5%
New Consort		1	0.5%
New Denmark		1	0.5%
New Largo		1	0.5%
New Vaal		1	0.5%
Nkomati		1	0.5%
Ndanganeni		1	0.5%
Nokeng		1	0.5%
Nooitgedacht		1	0.5%
North Block Complex		1	0.5%
Ntuane		1	0.5%
Overlooked		1	0.5%
Palabora		1	0.5%
Palesa (Kusela)		1	0.5%
Pensfontein		1	0.5%
Perth		1	0.5%
Phalaborwa		1	0.5%
Phalanndwa		1	0.5%
Pilanesberg Platinum		1	0.5%

Rhovan		1	0.5%
Rietvlei		1	0.5%
Ringside		1	0.5%
Rirhandzu		1	0.5%
Ruighoek		1	0.5%
Salene		1	0.5%
Savmore-Maquasa		1	0.5%
Sefateng Chrome		1	0.5%
Sheba		1	0.5%
Shondoni		1	0.5%
Singani		1	0.5%
Siphumelele		1	0.5%
Sishen		1	0.5%
Somkhele		1	0.5%
South Deep		1	0.5%
Spitsvlei		1	0.5%
Steenkampskraal		1	0.5%
Stellite		1	0.5%
Styldrift		1	0.5%
Syferfontein		1	0.5%
Target 1		1	0.5%
Tau Lekoa		1	0.5%
Thaba		1	0.5%
Thabazimbi		1	0.5%
Tharisa		1	0.5%
Thembelani		1	0.5%
Tormin		1	0.5%
Tshepong North		1	0.5%
Tshepong South		1	0.5%
Tshipi Borwa		1	0.5%
Tumela		1	0.5%
Tweefontein		1	0.5%
Twistdraai Thubelisha		1	0.5%
Two Rivers		1	0.5%
Ubuntu (Brakfontein)		2	0.9%
Uitkomst		1	0.5%
Ukufisa / Bekezela		1	0.5%
Usutu (Vunene)		1	0.5%
Vametco		1	0.5%

Vanggatfontein		1	0.5%
Vele		1	0.5%
Venetia		1	0.5%
Vergenoeg		1	0.5%
Vlakpoort		1	0.5%
Vlaskvarkfontein / Ntshovela		1	0.5%
Welgemeend		1	0.5%
Wessels		1	0.5%
Western Chrome Mines Mooiooi		1	0.5%
Western Chrome Mines Waterkloof		1	0.5%
Witkop		1	0.5%
York		1	0.5%
Zibulo		1	0.5%
Zondereinde		1	0.5%
Zonnebloem		1	0.5%
Zulti North		1	0.5%
Zululand Anthracite		1	0.5%
iMpunzi		1	0.5%

## PROVINCE:

Data file: mining-2807460-supplementary

### Overview

Valid: 221 Invalid: 0

Type: Discrete Width: 13 Range: - Format: character

### Questions and instructions

#### CATEGORIES

Value	Category	Cases	
Free State		13	5.9%
Gauteng		18	8.1%
KwaZulu-Natal		10	4.5%
Limpopo		39	17.6%
Mpumalanga		68	30.8%
North West		40	18.1%
Northern Cape		29	13.1%
Western Cape		4	1.8%



**COMPANY:****Data file: mining-2807460-supplementary****Overview**

Valid: 221    Invalid: 0

Type: Discrete    Width: 38    Range: -    Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
AEMFC		1	0.5%
ARM, Impala		1	0.5%
ARM, Norilsk Nickel		1	0.5%
AccelorMittal SA		1	0.5%
Afarak		2	0.9%
Afrimat, Diro		1	0.5%
Alexkor		1	0.5%
Anglo Platinum		6	2.7%
Anglo Platinum & BRPM		2	0.9%
Anglo Platinum, ARM		2	0.9%
Anker Coal		1	0.5%
Assmang		2	0.9%
Assmang, ARM		1	0.5%
Assore		1	0.5%
Assore, ARM		1	0.5%
BCR Holdings		2	0.9%
BRPM		1	0.5%
Bathlako (ex-Samancor)		1	0.5%
Bauba Resources		1	0.5%
Beryl Coal		1	0.5%
Bischi PLC		1	0.5%
Black Royalty Mining		1	0.5%
Blyvoor Gold		1	0.5%
Buffalo Coal		2	0.9%
Bushveld Minerals		1	0.5%
Canyon Coal		5	2.3%
Cape26		1	0.5%
Coal of Africa		1	0.5%
Cronimet		1	0.5%
DVD Quality Mining		1	0.5%

De Beers		1	0.5%
DiamondCorp		1	0.5%
Eastern Platinum		1	0.5%
Exxaro		3	1.4%
Foskor		1	0.5%
Future Coal		1	0.5%
Galaxy Gold		1	0.5%
Glencore		5	2.3%
Glencore, ARM		1	0.5%
Glosam Manganese		1	0.5%
Goldfields		1	0.5%
HCI / Hosken		1	0.5%
HUATIAN SA MINING & INVESTMENT		1	0.5%
Harmony		10	4.5%
Horizon Chrome Mine - Merafe Resources		2	0.9%
Hosken		1	0.5%
Ichor Coal		3	1.4%
IchorCoal		1	0.5%
Ikwezi		1	0.5%
Impala		8	3.6%
Ivanhoe Mines		1	0.5%
Izimbiwa Coal (Glencore)		1	0.5%
Jindal Mining SA		1	0.5%
Joe Singh Group		1	0.5%
Jupiter		1	0.5%
Kangra Coal		1	0.5%
Kropz		1	0.5%
Kudumane Manganese Resources		2	0.9%
Kumba		1	0.5%
Kumba, ARM		1	0.5%
Kuyasa		1	0.5%
Lindleys		1	0.5%
Londani Coal		1	0.5%
MC Mining		1	0.5%
MCMining		1	0.5%
Manngwe		1	0.5%
Menar		1	0.5%
Minerals Commodities SA		1	0.5%
Minersa		1	0.5%

NATIONAL MANGANESE MINES		1	0.5%
Northam		1	0.5%
Northam Platinum		3	1.4%
Ntsimbintle, Glencore		1	0.5%
Nuberry		1	0.5%
Overlooked Colliery		4	1.8%
PMG MINING		1	0.5%
Palaborwa Mining Co (Rio Tinto, Anglo)		1	0.5%
Pan African Resources		4	1.8%
Petra Diamonds		3	1.4%
Petra Diamonds, Ekapa		1	0.5%
Puckree Group		1	0.5%
Richards Bay Minerals Rio Tinto		1	0.5%
SAIL		1	0.5%
Sallies		1	0.5%
Samancor		8	3.6%
Sasol		6	2.7%
Sebilo Resources		1	0.5%
Sedibelo		1	0.5%
Sefateng		1	0.5%
Sepfluor		1	0.5%
Seriti		7	3.2%
Sibanye Stillwater		2	0.9%
Sibanye-Stillwater		19	8.6%
Silver Unicorn		1	0.5%
Sitatunga		1	0.5%
Siyanda Resources		3	1.4%
South32, Anglo		2	0.9%
Southern Coal		1	0.5%
Steenkampskraal Monazite Mine		1	0.5%
Stibium		1	0.5%
Tendele Coal Mining		1	0.5%
Thari Resources		1	0.5%
Tharisa		1	0.5%
Thungela		8	3.6%
Tronox		2	0.9%
Universal Coal		6	2.7%
Vedanta Zinc, Exxaro		2	0.9%
Village Main Reef		3	1.4%

WIDE		1	0.5%
WMA Chrome		1	0.5%
Wescoal		3	1.4%
Wescoal / Salungano		1	0.5%

**COMPANY\_TYPE:****Data file: mining-2807460-supplementary****Overview**

Valid: 221 Invalid: 0

Type: Discrete Width: 14 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
Emerging miner		63	28.5%
Junior		24	10.9%
Major		134	60.6%

**COMMODITY:****Data file: mining-2807460-supplementary****Overview**

Valid: 221 Invalid: 0

Type: Discrete Width: 14 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
Iron ore		3	1.4%
PGMs		42	19%
chromium		20	9%
copper		1	0.5%
diamonds		8	3.6%
fluorspar		3	1.4%
gold		31	14%
iron ore		4	1.8%
lead-zinc		2	0.9%

manganese		19	8.6%
met coal		6	2.7%
nickel		1	0.5%
phosphate		1	0.5%
phosphate rock		1	0.5%
rare earths		1	0.5%
thermal coal		72	32.6%
titanium		4	1.8%
vanadium		2	0.9%

## MINING\_METHOD:

Data file: mining-2807460-supplementary

### Overview

Valid: 221 Invalid: 0

Type: Discrete Width: 39 Range: - Format: character

### Questions and instructions

#### CATEGORIES

Value	Category	Cases	
OC		41	18.6%
OC, UG		11	5%
UG		65	29.4%
UG block cave		1	0.5%
UG longhole stoping		1	0.5%
UG mechanised		3	1.4%
UG mechanised bord-and-pillar		1	0.5%
UG open stoping		1	0.5%
UG, OC		1	0.5%
UG, open pit		5	2.3%
conventional UG		7	3.2%
deep conventional UG		4	1.8%
deep conventional grid UG		2	0.9%
deep level conventional UG		12	5.4%
deep level mechanised & conventional UG		1	0.5%
dredging		2	0.9%
mechanised UG		2	0.9%
mini pit		1	0.5%

open pit		44	19.9%
open pit, UG		2	0.9%
opencast, UG		4	1.8%
shallow UG		1	0.5%
shallow UG mechanised		2	0.9%
strip		5	2.3%
surface		1	0.5%
waste processing		1	0.5%

**LOM\_IN\_2022:****Data file:** mining-2807460-supplementary**Overview**

Valid: 153    Invalid: 68    Minimum: 0    Maximum: 100    Mean: 22.157    Standard deviation: 20.594  
 Type: Continuous    Decimal: 0    Width: 3    Range: 0 - 100    Format: Numeric

**MINERAL\_RESOURCE\_MT\_MOZ\_MCT\_:****Data file:** mining-2807460-supplementary**Overview**

Valid: 108    Invalid: 113    Minimum: 0    Maximum: 6399.023    Mean: 356.345    Standard deviation: 713.732  
 Type: Continuous    Decimal: 2    Width: 7    Range: 0 - 6399.023    Format: Numeric

**LOM\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221    Invalid: 0    Minimum: 1    Maximum: 5    Mean: 3.244    Standard deviation: 1.696  
 Type: Discrete    Decimal: 0    Width: 1    Range: 1 - 5    Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		57	25.8%
2		36	16.3%
3		13	5.9%
4		26	11.8%
5		89	40.3%

**MRMR\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221    Invalid: 0    Minimum: 1    Maximum: 5    Mean: 3.747    Standard deviation: 1.665  
 Type: Discrete    Decimal: 0    Width: 1    Range: 1 - 5    Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		44	19.9%
2		21	9.5%
3		13	5.9%
4		12	5.4%
5		131	59.3%

**COST\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221    Invalid: 0    Minimum: 1    Maximum: 5    Mean: 3.253    Standard deviation: 1.317  
 Type: Discrete    Decimal: 0    Width: 1    Range: 1 - 5    Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		11	5%
2		74	33.5%
3		47	21.3%
4		26	11.8%
5		63	28.5%

**COMPANY\_TYPE\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221    Invalid: 0    Minimum: 1    Maximum: 5    Mean: 2.357    Standard deviation: 1.78  
 Type: Discrete    Decimal: 0    Width: 1    Range: 1 - 5    Format: Numeric

## Questions and instructions

### CATEGORIES

Value	Category	Cases	
1		134	60.6%
3		24	10.9%
5		63	28.5%

### LIKELIHOOD\_RATING:

Data file: mining-2807460-supplementary

### Overview

Valid: 221    Invalid: 0    Minimum: 6    Maximum: 23    Mean: 15.683    Standard deviation: 4.152  
 Type: Discrete    Decimal: 0    Width: 2    Range: 6 - 23    Format: Numeric

## Questions and instructions

### CATEGORIES

Value	Category	Cases	
6		1	0.5%
7		2	0.9%
8		4	1.8%
9		12	5.4%
10		7	3.2%
11		23	10.4%
12		6	2.7%
13		7	3.2%
14		16	7.2%
15		37	16.7%
16		8	3.6%
17		22	10%
18		16	7.2%
19		19	8.6%
20		4	1.8%
21		10	4.5%
22		21	9.5%
23		6	2.7%



**LIKELIHOOD\_RATING0:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0

Type: Discrete Width: 9 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
High		61	27.6%
Low		48	21.7%
Medium		68	30.8%
Very Low		7	3.2%
Very high		37	16.7%

**LIKELIHOOD\_WEIGHTED\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0 Minimum: 1.15 Maximum: 4.8 Mean: 3.208 Standard deviation: 1.108

Type: Continuous Decimal: 2 Width: 4 Range: 1.15 - 4.8 Format: Numeric

**LIKELIHOOD\_WEIGHTED\_RATING0:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0

Type: Discrete Width: 9 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
High		44	19.9%
Low		62	28.1%
Medium		49	22.2%
Very Low		34	15.4%
Very high		32	14.5%

**IMMEDIATE\_COMMUNITY:****Data file: mining-2807460-supplementary****Overview**

Valid: 221    Invalid: 0

Type: Discrete    Width: 50    Range: -    Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
Aggeneys		2	0.9%
Alcockspruit (Ingwe, Zamokhule)		1	0.5%
Allanridge		1	0.5%
Alldays, Musina		1	0.5%
Amandelbult		3	1.4%
Badplaas		1	0.5%
Barberton		4	1.8%
Belfast		2	0.9%
Bethal		1	0.5%
Bethal, Emzinoni		1	0.5%
Bethanie		1	0.5%
Brits		6	2.7%
Bronkhorstspuit		2	0.9%
Burgersfort		8	3.6%
Cooke Mine		1	0.5%
Cullinan		2	0.9%
Dannhauser, Newcastle		1	0.5%
Delmas		4	1.8%
Delmas, Botleng		5	2.3%
Doornfontein, Khutsong, Welverdiend, Carletonville		1	0.5%
Doornkop		1	0.5%
Driefontein villages		4	1.8%
Dundee, Sibongile		1	0.5%
Elandsridge, Elandsrand, Deelkraal		1	0.5%
Elsburg Gold Mine, Seberuberung		1	0.5%
Ermelo		1	0.5%
Ermelo, Wesselton		1	0.5%
Evander		2	0.9%
GaPhasha, GaMampa, Jibeng		1	0.5%
Glencoe, Sithembile		1	0.5%

Gravelotte		1	0.5%
Hopefield		1	0.5%
Hotazel		13	5.9%
Kathu		2	0.9%
Kimberley		1	0.5%
Klerksdorp, Orkney		2	0.9%
Koffiefontein		1	0.5%
Komati		3	1.4%
Kroonstad		1	0.5%
Kuruman		1	0.5%
Lephalale, Marapong		1	0.5%
Lime Acres		1	0.5%
Lutzville		2	0.9%
Lydenburg		2	0.9%
Mahikeng, Mareetsane		1	0.5%
Marikana		6	2.7%
Middelburg, Mhluzi		13	5.9%
Mokopane, Kekane		1	0.5%
Mokopane, Mapela, Kekane, GaPila		1	0.5%
Mooiooi		2	0.9%
Mtunzini		1	0.5%
Musina		1	0.5%
Newcastle		1	0.5%
Newcastle, Utrecht		1	0.5%
Ngema Tribal Trust, Piet Retief		2	0.9%
Northam		2	0.9%
Nuwerus		1	0.5%
Odendaalsrus, Welkom		2	0.9%
Ogies, Phola		7	3.2%
Orkney		1	0.5%
Phalaborwa		2	0.9%
Pilanesberg Pt village cluster		1	0.5%
Port Nolloth, Alexander Bay		1	0.5%
Postmasburg		8	3.6%
Rasimone		4	1.8%
Reedstream Park, Blesboklaagte		1	0.5%
Richards Bay		1	0.5%
Richards Bay, Mbonambi		1	0.5%
Ruighoek, Mabeleleng		3	1.4%

Rust de Winter		2	0.9%
Rustenburg		12	5.4%
Sasolburg		1	0.5%
Secunda, Embalehlehle		4	1.8%
Springs		1	0.5%
Standerton, sAkhile		1	0.5%
Steelpoort		8	3.6%
Stilfontein		1	0.5%
Swartklip		3	1.4%
Swartruggens		1	0.5%
Thabazimbi		2	0.9%
Theunissen, Virginia		1	0.5%
Thubelihle, Kriel		6	2.7%
Ulundi, Emakhalathini		1	0.5%
Viljoensdrif, Vereeniging		1	0.5%
Virginia, Meloding		2	0.9%
Welkom		1	0.5%
Western Deep villages, Carletonville		1	0.5%
Westonaria		4	1.8%
Wilge		2	0.9%
Wolvekrans		1	0.5%
Zeerust		1	0.5%
eMalahleni		5	2.3%

## POPULATION\_IN\_2011:

Data file: mining-2807460-supplementary

### Overview

Valid: 221    Invalid: 0    Minimum: 105    Maximum: 568792    Mean: 104845.919    Standard deviation: 145825.512

Type: Continuous    Decimal: 0    Width: 6    Range: 105 - 568792    Format: Numeric

## WELL\_BEING\_SCORE:

Data file: mining-2807460-supplementary

### Overview

Valid: 221    Invalid: 0    Minimum: 2.2    Maximum: 8.3    Mean: 6.353    Standard deviation: 1.075

Type: Continuous    Decimal: 2    Width: 4    Range: 2.2 - 8.3    Format: Numeric

**LOCAL\_MUNICIPALITY\_LM\_:****Data file: mining-2807460-supplementary****Overview**

Valid: 221 Invalid: 0

Type: Discrete Width: 26 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
Albert Luthuli		1	0.5%
Ba-Phalaborwa		3	1.4%
Bela Bela		2	0.9%
City of Johannesburg		1	0.5%
City of Matlosana		4	1.8%
City of Mbombela		1	0.5%
City of Tshwane		3	1.4%
Dannhauser		1	0.5%
Ekhuruleni		1	0.5%
Elias Motsoaledi		2	0.9%
Emakhazeni		1	0.5%
Emalahleni		23	10.4%
Endumeni		2	0.9%
Fetakgomo Tubatse		2	0.9%
Ga-Segonyana		1	0.5%
Gamagara		9	4.1%
Govan Mbeki		8	3.6%
Greater Tubatse		15	6.8%
Joe Morolong		11	5%
Kgatelopele		1	0.5%
Kgetlengrivier		1	0.5%
Khāṭi-Ma		2	0.9%
Lekwa		1	0.5%
Lephalale		1	0.5%
Letsemeng		1	0.5%
Madibeng		8	3.6%
Mahikeng		1	0.5%
Masilonyana		1	0.5%
Matjhabeng		4	1.8%
Matzikama		3	1.4%

Merafong City		7	3.2%
Metsimaholo		4	1.8%
Mkhondo		2	0.9%
Mogalakwena		2	0.9%
Moghaka		1	0.5%
Moses Kotana		4	1.8%
Msukaligwa		2	0.9%
Musina		2	0.9%
Newcastle		2	0.9%
Ramotshere Moiloa		1	0.5%
Rand West City		6	2.7%
Richtersveld		1	0.5%
Rustenburg		17	7.7%
Rustenburg & Madibeng		6	2.7%
Saldanha Bay		1	0.5%
Sol Plaatjie		1	0.5%
Steve Tshwete		14	6.3%
Thabazimbi		10	4.5%
Thembisile		1	0.5%
Tsantsabane		3	1.4%
Ulundi		1	0.5%
Umjindi - City of Mbombela		3	1.4%
Victor Khanye		10	4.5%
eMakhazeni		1	0.5%
uMhlatuze		2	0.9%
uMlalazi		2	0.9%

**LM\_MINING\_JOBS:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221   Invalid: 0   Minimum: 16   Maximum: 73909   Mean: 17806.602   Standard deviation: 21792.239  
 Type: Continuous   Decimal: 0   Width: 5   Range: 16 - 73909   Format: Numeric

**LM\_DEPENDENCY\_RATIO:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221   Invalid: 0   Minimum: 42   Maximum: 83.7   Mean: 54.648   Standard deviation: 10.762

Type: Continuous    Decimal: 2    Width: 5    Range: 42 - 83.7    Format: Numeric

## REMOTENESS\_DIRECT\_KM\_TO\_NEAREST:

Data file: mining-2807460-supplementary

### Overview

Valid: 219    Invalid: 2    Minimum: 0    Maximum: 610    Mean: 78.096    Standard deviation: 91.013  
 Type: Continuous    Decimal: 0    Width: 3    Range: 0 - 610    Format: Numeric

## LM\_AUDIT\_2021:

Data file: mining-2807460-supplementary

### Overview

Valid: 221    Invalid: 0  
 Type: Discrete    Width: 13    Range: -    Format: character

### Questions and instructions

#### CATEGORIES

Value	Category	Cases	
Adverse		9	4.1%
Clean		21	9.5%
Disclaimed		16	7.2%
Not finalised		14	6.3%
Qualified		116	52.5%
Unqualified		45	20.4%

## POPULATION\_RATING:

Data file: mining-2807460-supplementary

### Overview

Valid: 221    Invalid: 0    Minimum: 1    Maximum: 5    Mean: 3.213    Standard deviation: 1.249  
 Type: Discrete    Decimal: 0    Width: 1    Range: 1 - 5    Format: Numeric

### Questions and instructions

#### CATEGORIES

Value	Category	Cases	
1		4	1.8%
2		81	36.7%
3		60	27.1%

4		16	7.2%
5		60	27.1%

**WELLBEING\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221   Invalid: 0   Minimum: 1   Maximum: 5   Mean: 3.118   Standard deviation: 1.34  
 Type: Discrete   Decimal: 0   Width: 1   Range: 1 - 5   Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		27	12.2%
2		58	26.2%
3		45	20.4%
4		44	19.9%
5		47	21.3%

**JOBS\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221   Invalid: 0   Minimum: 1   Maximum: 5   Mean: 2.968   Standard deviation: 1.428  
 Type: Discrete   Decimal: 0   Width: 1   Range: 1 - 5   Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		47	21.3%
2		33	14.9%
3		75	33.9%
4		12	5.4%
5		54	24.4%

**DEPENDENCY\_RATING:****Data file:** mining-2807460-supplementary



**Overview**

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 5 Mean: 2.887 Standard deviation: 1.462  
 Type: Discrete Decimal: 0 Width: 1 Range: 1 - 5 Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		47	21.3%
2		63	28.5%
3		24	10.9%
4		42	19%
5		45	20.4%

**REMOTENESS\_RATING:**

Data file: mining-2807460-supplementary

**Overview**

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 5 Mean: 2.692 Standard deviation: 1.497  
 Type: Discrete Decimal: 0 Width: 1 Range: 1 - 5 Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		65	29.4%
2		52	23.5%
3		34	15.4%
4		26	11.8%
5		44	19.9%

**LM\_AUDIT\_RATING:**

Data file: mining-2807460-supplementary

**Overview**

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 5 Mean: 2.919 Standard deviation: 1.08  
 Type: Discrete Decimal: 0 Width: 1 Range: 1 - 5 Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		21	9.5%
2		45	20.4%
3		116	52.5%
4		9	4.1%
5		30	13.6%

## SOCIAL\_RATING:

Data file: mining-2807460-supplementary

### Overview

Valid: 221    Invalid: 0    Minimum: 11    Maximum: 26    Mean: 17.796    Standard deviation: 2.903  
 Type: Discrete    Decimal: 0    Width: 2    Range: 11 - 26    Format: Numeric

### Questions and instructions

#### CATEGORIES

Value	Category	Cases	
11		1	0.5%
13		11	5%
14		22	10%
15		15	6.8%
16		27	12.2%
17		28	12.7%
18		36	16.3%
19		17	7.7%
20		29	13.1%
21		14	6.3%
22		4	1.8%
23		8	3.6%
24		6	2.7%
25		1	0.5%
26		2	0.9%

## SOCIAL\_RATING0:

Data file: mining-2807460-supplementary

### Overview

Valid: 221    Invalid: 0  
 Type: Discrete    Width: 9    Range: -    Format: character

## Questions and instructions

### CATEGORIES

Value	Category	Cases	
High		33	14.9%
Low		49	22.2%
Medium		137	62%
Very high		2	0.9%

### **SOCIAL\_WEIGHTED\_RATING:**

Data file: mining-2807460-supplementary

#### Overview

Valid: 221 Invalid: 0 Minimum: 1.8 Maximum: 4.6 Mean: 2.981 Standard deviation: 0.68  
 Type: Continuous Decimal: 2 Width: 4 Range: 1.8 - 4.6 Format: Numeric

### **SOCIAL\_WEIGHTED\_RATING0:**

Data file: mining-2807460-supplementary

#### Overview

Valid: 221 Invalid: 0  
 Type: Discrete Width: 9 Range: - Format: character

## Questions and instructions

### CATEGORIES

Value	Category	Cases	
High		45	20.4%
Low		46	20.8%
Medium		48	21.7%
Very Low		37	16.7%
Very high		45	20.4%

### **DISTANCE\_TO\_PROTECTED\_AREA\_OR\_CO:**

Data file: mining-2807460-supplementary

#### Overview

Valid: 221 Invalid: 0 Minimum: 0 Maximum: 55.23 Mean: 13.699 Standard deviation: 13.33  
 Type: Continuous Decimal: 2 Width: 5 Range: 0 - 55.230230808 Format: Numeric

**TERRESTRIAL\_ECOSYSTEM\_THREAT:****Data file:** mining-2807460-supplementary**Overview**

Valid: 220 Invalid: 0

Type: Discrete Width: 2 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
EN		40	18.2%
LC		115	52.3%
VU		65	29.5%

**DISTANCE\_TO\_SWSA\_KM\_:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0 Minimum: 0 Maximum: 131.652 Mean: 18.296 Standard deviation: 20.144

Type: Continuous Decimal: 2 Width: 6 Range: 0 - 131.65164 Format: Numeric

**DURATION\_OF\_MINING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 148 Mean: 43 Standard deviation: 35.357

Type: Continuous Decimal: 0 Width: 3 Range: 1 - 148 Format: Numeric

**LAND\_CAPABILITY:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0

Type: Discrete Width: 4 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
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II		39	17.6%
III		81	36.7%
IV		33	14.9%
V		8	3.6%
VI		17	7.7%
VII		28	12.7%
VIII		15	6.8%

## MINE\_WATER\_THREAT\_GROUNDWATER\_OP:

Data file: mining-2807460-supplementary

### Overview

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 4 Mean: 2.814 Standard deviation: 0.867  
 Type: Discrete Decimal: 0 Width: 1 Range: 1 - 4 Format: Numeric

### Questions and instructions

#### CATEGORIES

Value	Category	Cases	
1		11	5%
2		74	33.5%
3		81	36.7%
4		55	24.9%

## MINE\_WATER\_THREAT\_GROUNDWATER\_UN:

Data file: mining-2807460-supplementary

### Overview

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 4 Mean: 2.638 Standard deviation: 0.887  
 Type: Discrete Decimal: 0 Width: 1 Range: 1 - 4 Format: Numeric

### Questions and instructions

#### CATEGORIES

Value	Category	Cases	
1		22	10%
2		75	33.9%
3		85	38.5%
4		39	17.6%

**MINE\_WATER\_THREAT\_SURFACE\_WATER:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221    Invalid: 0    Minimum: 1    Maximum: 5    Mean: 3.611    Standard deviation: 1.211  
 Type: Discrete    Decimal: 0    Width: 1    Range: 1 - 5    Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		22	10%
2		5	2.3%
3		74	33.5%
4		56	25.3%
5		64	29%

**TOTAL\_MINE\_WATER\_THREAT:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221    Invalid: 0    Minimum: 3    Maximum: 13    Mean: 9.054    Standard deviation: 2.364  
 Type: Discrete    Decimal: 0    Width: 2    Range: 3 - 13    Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
3		1	0.5%
5		18	8.1%
6		12	5.4%
7		19	8.6%
8		42	19%
9		57	25.8%
10		11	5%
11		18	8.1%
12		13	5.9%
13		30	13.6%

**DISTANCE\_TO\_PA\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221    Invalid: 0    Minimum: 1    Maximum: 5    Mean: 3.348    Standard deviation: 1.199  
 Type: Discrete    Decimal: 0    Width: 1    Range: 1 - 5    Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
1		18	8.1%
2		40	18.1%
3		49	22.2%
4		75	33.9%
5		39	17.6%

**TERRESTRIAL\_THREAT\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221    Invalid: 0    Minimum: 0    Maximum: 4    Mean: 1.833    Standard deviation: 1.114  
 Type: Discrete    Decimal: 0    Width: 1    Range: 0 - 4    Format: Numeric

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
0		1	0.5%
1		115	52%
2		65	29.4%
4		40	18.1%

**DISTANCE\_TO\_SWSA\_RATING:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221    Invalid: 0    Minimum: 1    Maximum: 5    Mean: 3.163    Standard deviation: 1.362  
 Type: Discrete    Decimal: 0    Width: 1    Range: 1 - 5    Format: Numeric

## Questions and instructions

### CATEGORIES

Value	Category	Cases	
1		27	12.2%
2		56	25.3%
3		44	19.9%
4		42	19%
5		52	23.5%

### DURATION\_OF\_MINING\_RATING:

Data file: mining-2807460-supplementary

#### Overview

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 5 Mean: 2.226 Standard deviation: 1.23  
 Type: Discrete Decimal: 0 Width: 1 Range: 1 - 5 Format: Numeric

## Questions and instructions

### CATEGORIES

Value	Category	Cases	
1		76	34.4%
2		75	33.9%
3		29	13.1%
4		26	11.8%
5		15	6.8%

### LAND\_CAPABILITY\_RATING:

Data file: mining-2807460-supplementary

#### Overview

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 5 Mean: 3.344 Standard deviation: 1.213  
 Type: Discrete Decimal: 0 Width: 1 Range: 1 - 5 Format: Numeric

## Questions and instructions

### CATEGORIES

Value	Category	Cases	
1		15	6.8%
2		53	24%



3		33	14.9%
4		81	36.7%
5		39	17.6%

## MINE\_WATER\_THREAT\_RATING:

Data file: mining-2807460-supplementary

### Overview

Valid: 221 Invalid: 0 Minimum: 1 Maximum: 4 Mean: 2.692 Standard deviation: 0.882  
Type: Discrete Decimal: 0 Width: 1 Range: 1 - 4 Format: Numeric

### Questions and instructions

#### CATEGORIES

Value	Category	Cases	
1		19	8.6%
2		73	33%
3		86	38.9%
4		43	19.5%

## ENVIRO\_RATING:

Data file: mining-2807460-supplementary

### Overview

Valid: 221 Invalid: 0 Minimum: 10 Maximum: 24 Mean: 16.606 Standard deviation: 2.982  
Type: Discrete Decimal: 0 Width: 2 Range: 10 - 24 Format: Numeric

### Questions and instructions

#### CATEGORIES

Value	Category	Cases	
10		2	0.9%
11		10	4.5%
12		4	1.8%
13		22	10%
14		13	5.9%
15		28	12.7%
16		32	14.5%
17		31	14%
18		21	9.5%

19		17	7.7%
20		16	7.2%
21		13	5.9%
22		6	2.7%
23		5	2.3%
24		1	0.5%

**ENVIRO\_RATING0:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0

Type: Discrete Width: 8 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
High		25	11.3%
Low		77	34.8%
Medium		117	52.9%
Very Low		2	0.9%

**ENVIRO\_RATING1:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0 Minimum: 1.5 Maximum: 3.7 Mean: 2.717 Standard deviation: 0.491

Type: Continuous Decimal: 2 Width: 4 Range: 1.5 - 3.7 Format: Numeric

**ENVIRO\_RATING2:****Data file:** mining-2807460-supplementary**Overview**

Valid: 221 Invalid: 0

Type: Discrete Width: 9 Range: - Format: character

**Questions and instructions**

## CATEGORIES

Value	Category	Cases	
High		35	15.8%
Low		61	27.6%
Medium		54	24.4%
Very Low		29	13.1%
Very high		42	19%