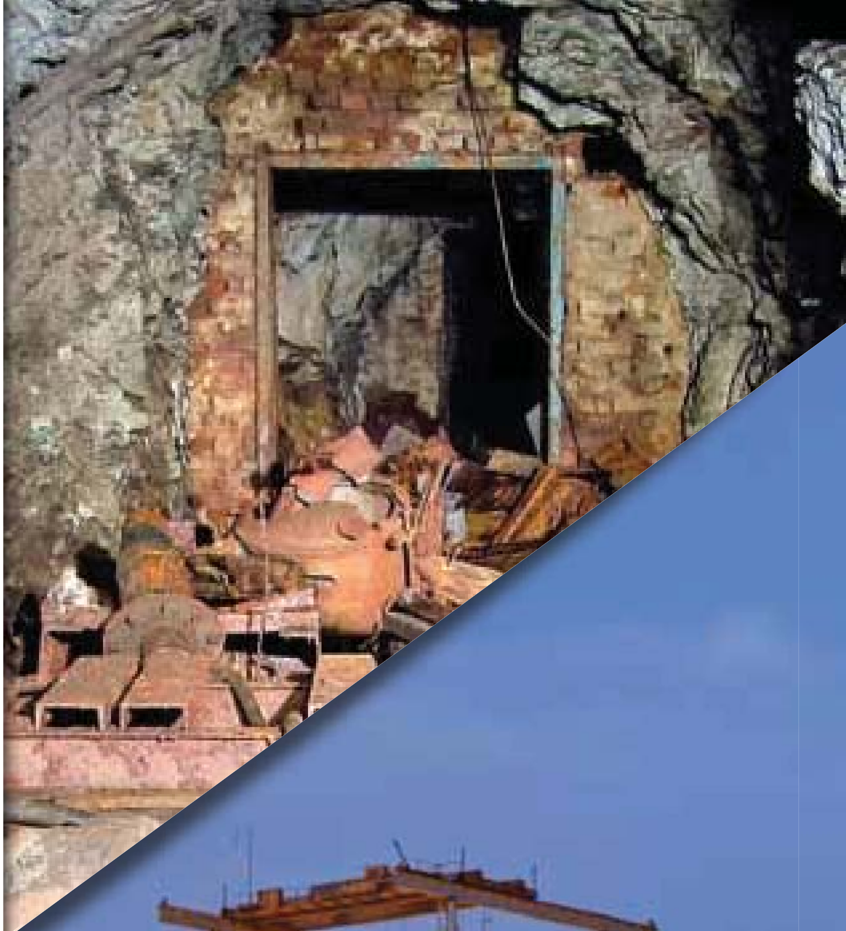
Sunset or SUNRISE FOR MINING IN SOUTH AFRICA?

Anthea Jeffery



IRR
South African Institute of Race Relations
The power of ideas

IRR

South African Institute of Race Relations

The power of ideas

June 2018

Published by the South African Institute of Race Relations (IRR)
2 Clamart Road, Richmond
Johannesburg, 2092 South Africa
P O Box 291722, Melville, Johannesburg, 2109 South Africa
Telephone: (011) 482–7221

ISSN: 2311-7591

Editor-in-chief: Frans Cronje

Author: Anthea Jeffery

Typesetter: Martin Matsokotere

Cover design and photographs by InkDesign

TABLE OF CONTENTS

RECENT IRR ANALYSES OF MINING IN SOUTH AFRICA

These mining scenarios draw on the IRR's recent analyses of the mining sector and the challenges confronting it, as set out in the list below:

Research Paper

Frans Cronje, John Kane-Berman, Lerato Moloi (Eds), *Digging for Development: The mining industry in South Africa and its role in socio-economic development,* IRR, Johannesburg, 2014

@Liberty articles

Anthea Jeffery, 'Re-imagining the mining industry', *@Liberty*, Issue 26, IRR, Johannesburg, 16 August 2016

Anthea Jeffery, 'Back to the drawing board on mining law', *@Liberty*, Issue 28, 4 October 2016

John Kane-Berman, 'Diamonds and all that', *@Liberty*, Issue 30, 15 February 2017

Anthea Jeffery, 'EED is for real empowerment, whereas BEE has failed', *@Liberty*, Issue 31, April 2017

Anthea Jeffery, 'A new approach to empowerment in mining', *@Liberty*, Issue 33, September 2017

Anthea Jeffery, 'Deep and Dangerous: health and safety in our mines', *@Liberty*, Issue 35, December 2017

John Kane-Berman, 'Mining and People: the impact of mining on the South African economy and living standards', *@Liberty*, Issue 37, February 2018

Anthea Jeffery, 'Grounding growth: Finding the right balance between mining and the environment', *@Liberty*, Issue 38, April 2018

2028 MINING SCENARIOS

Introduction

Does mining in South Africa have a future? This may seem an astonishing question to ask when the country has virtually unparalleled mineral riches. In 2010 a Citibank survey estimated the value of the country's non-oil resources at $2.5 trillion, putting it far ahead of both Australia and Russia, each with resources of some $1.6 trillion. More specifically, South Africa has the third largest gold reserves in the world, some 80% of known platinum resources, more than 50% of platinum group metals, an unusually high concentration of diamond-iferous kimberlites, and very large reserves of chromium, iron ore, manganese and other industrial metals. Though its coal reserves are relatively small (at a mere 3.5% of the global total), they are large enough to supply the country's needs for another 100 years at current production rates.[1]

However, a rich geological heritage is not enough in itself for a thriving mining industry. To begin with, the minerals must not only be present but must also be accessible. Yet much of the easily mined gold and platinum has already been extracted, making it more difficult to reach what remains. The Witwatersrand goldfields, for example, still have vast quantities of unmined gold. But these resources lie at great depths of three kilometres or more below the surface, where temperatures are high, vertical rock pressures are enormous, seismicity is a constant risk, and employee safety is difficult to secure.[2]

Similar factors apply to some of the country's platinum resources, with the deepest platinum mine already reaching more than 2 kilometres below the surface of the earth. Moreover, because platinum is found in igneous (rather than sedimentary) rock, mine temperatures can rise as high as 70˚C, which is some 30˚C higher than gold mines at equivalent depths. Other minerals, particularly manganese and coal, are close to the surface and much easier to exploit, often through mechanised open-cast mining. However, it is the gold and platinum sectors – where the geological challenges are the greatest – that are particularly important in terms of jobs, export earnings, and other contributions to South Africa's economy.[3]

> *Remaining Witwatersrand gold is three kilometres or more below the surface, where temperatures are high, vertical rock pressures are enormous, seismicity is a constant risk, and employee safety is difficult to secure.*

Input costs – particularly the costs of labour, electricity, and transport – are also vital to mining's viability. In South Africa, these costs have risen rapidly over the past decade, while commodity prices have often failed to keep up. The rand:dollar exchange rate has also been highly volatile, making it difficult to predict whether the rand value of various mineral products will suffice to cover rising costs. In the gold and platinum sectors, in particular, a significant imbalance between input costs and commodity prices is now putting great pressure on the sustainability of many mines.

South Africa's gold mining costs are now the highest in the world. In 2017, according to the London-based metals consultancy GFMS, the all-in sustaining cost of gold production in the country was $1 187 an ounce, against a global average of $878 an ounce. The situation has since worsened, it seems, with AngloGold Ashanti putting its all-in costs of gold production in South Africa in the first quarter of 2018 at $1 361. Production costs were thus higher than the average gold price in the same period, which was $1 330 an ounce. The upshot is that 'more than 50% of gold mining in South Africa is loss making at present gold prices', according to Roger Baxter, chief executive of the Minerals Council South Africa, formerly the Chamber of Mines.[4]

Similar cost/price challenges confront the platinum industry. In May 2018 a report by Johnson Matthey, a consultancy specialising in research and development (R&D) in mining and elsewhere, said the global platinum market still faced a significant surplus and reduced demand. In addition, rand strength since December 2017 had reduced rand-denominated prices and placed many mines 'under intense financial pressure'. This assessment echoed an April 2018 warning by JPMorgan Cazenove, an investment bank, that 'about 60% (2.6-million ounces) of South African platinum mines were cash-flow negative' at prevailing prices.[5]

Mining policy also has a vital bearing on the competitiveness and sustainability of the industry. According to the annual *Mining Survey* compiled by the Fraser Institute, a Canadian think tank, decisions by mining companies on where to undertake mining exploration are guided 60% by geological attractiveness and 40% by the content of mining policies. Prospective investors take careful note of policy differences between countries and tend (as the *Mining Survey* notes) to 'shift...exploration investment away from jurisdictions with unattractive policies'. How South Africa fares on the Fraser *Mining Survey* is thus also vital to the sustainability of its mining industry.

In probing investor views on policy issues, the *Mining Survey* covers some 15 factors with a particular relevance to investment decisions. These include uncertainty in the administration of existing regulations, the content of environmental regulations, the extent of regulatory duplication, the functioning of the taxation regime, the extent of community development obligations, the impact of labour regulations, the availability of necessary skills, and the quality of infrastructure.[7] All these factors feed into the *Mining Survey's* overall 'policy perception index'.

> *According to the annual* Mining Survey *compiled by the Fraser Institute, a Canadian think tank, decisions by mining companies on where to undertake mining exploration are guided 60% by geological attractiveness and 40% by the content of mining policies.*

South Africa does particularly badly on this index. In 2017 it scored 42.66, which was well down on the (already comparatively low) score of 56.85 it had attained in 2013. By contrast, its neighbours in Botswana and Namibia had scores in 2017 of 82.84 and 71.11 respectively. Only two other countries on the continent did worse than South Africa. These were the conflict-ridden Democratic Republic of the Congo, with a score of 35.03, and economically-crippled Zimbabwe, with a score of 29.54.[8]

Elsewhere in the world, the only mining countries with scores below South Africa's in 2017 were Indonesia (39.92), the Philippines (38.29), Bolivia (40.45), Ecuador (42.18), Guatemala (29.89), China (37.46), and Venezuela (0.00). By contrast, the country with the best overall score on the policy perception index (100 points) was Ireland. Mining jurisdictions in the United States, Europe, and Australia generally far outstripped South Africa, with several achieving scores exceeding 80 and some notching up scores of 90 or more.[9]

Comments by mining executives regarding South Africa's policy environment are often damning. Examples include:

- 'In South Africa, the entire process of the administration of, and applying for, and awarding of, exploration rights is protracted, corrupt, arbitrary, inconsistent, and a nightmare' (2011);[10]
- 'Government has suggested restrictions on exports of commodities and an imposed price structure' (2015); and[11]
- 'the Department of Mineral Resources is corrupt and incapable of administering licences in an efficient manner. Politically connected people receive special treatment on a regular basis' (2017).[12]

Much of the damage to South Africa's reputation stems from the Mineral and Petroleum Resources Development Act (MPRDA) of 2002, which took effect in 2004. This is so vaguely phrased that officials can easily interpret the rules in different ways at different times, so as to help some mining companies and hobble others. Corruption is also a key factor in the statute's flawed implementation, as mining minister Gwede Mantashe has recently acknowledged.[13]

In 2012 the National Development Plan – which is supposed to be the ruling party's overarching policy blueprint – recommended that the MPRDA be reformed to give South Africa the benefits of 'a predictable, competitive and stable regulatory framework'. However, this has yet to be achieved. Instead, proposed changes to the MPRDA and its accompanying mining charter will significantly increase the discretionary powers of mining officials. They will also add so greatly to the BEE burden as to make the mining industry 'uninvestable', as the Minerals Council has cautioned. At the same time, onerous policies in environmental and other spheres have increased the regulatory burden and contributed to a sharp decline in new investment. (Many of the policy and other challenges confronting the mining industry have previously been analysed by the IRR, in the publications listed on page 3.)

In 2015 Bernard Swanepoel, a former chief executive of Harmony Gold, warned that most of South Africa's mineral deposits were likely to remain below the ground because there was no new money coming into the mining industry. Local and foreign investors were being kept away by government policies, regulatory uncertainty, and a hostile labour regime.[14]

In 2015 Bernard Swanepoel, a former chief executive of Harmony Gold, warned that most of South Africa's mineral deposits were likely to remain below the ground because there was no new money coming into the mining industry.

Effective reforms could, however, dramatically change this situation. In 2017 the Chamber of Mines (as it was then called) conducted a survey among its members to see what would encourage them to step up mining investment. The 16 companies that responded said they were already planning some R145bn in capital spending over the next four years. Most of this fixed investment was of the 'stay-in-business' kind, and was not aimed at expansion. However, said these companies, if South Africa's mining policy environment were to be substantially improved, then their capital spending over the next three years could increase by another R122bn.[15]

Commented Henk Langenhoven, the Chamber's chief economist: 'This means capital expenditure on mining projects could be 84% higher than R145bn. The positive effect on employment creation, according to the survey results, would be nearly 48 000 people.' These jobs would be direct jobs in the mining industry itself. If indirect jobs were added, the total number of new jobs would be higher still, at some 150 000.[16]

New mining investment of this kind would have many other positive spin-offs. Though the industry no longer dominates the economy, mining still adds significantly to growth, investment, employment, and tax revenues. It also contributes 60% to export earnings, if beneficiated products are added to raw mineral exports.

Figures for 2017 demonstrate the value of its contribution. In that year alone, the mining industry contributed R312bn to GDP, or some 7% of the total. It employed roughly 465 000 people, to whom it paid R126bn in wages. It also contributed R93bn to fixed investment, sold R424bn's worth of minerals, and paid R16bn in taxes and another R5.8bn in royalties. In addition, it attracted some 16% of the foreign direct investment (FDI) coming into the country, and allocated roughly R1bn to R&D. In 2015 it also spent some R250bn on a variety of goods and services, thereby generating another two jobs for every direct mining job. According to the Minerals Council, the mining industry thus accounts for a total of some 1.5 million jobs and helps support about 15 million people.[17]

The future of the mining industry is thus vital to the future of South Africa. There are also two ways of looking at the sector. The first is to see it as a sunset industry beset by rising costs, technical challenges, adverse policies, and political hostility. The second is to see it as an industry able to transcend its current difficulties – and to take on a whole new lease of life with the help of the country's enormous mineral wealth.[18]

What does the future hold for mining in South Africa?

Nobody can predict how the future of the mining industry will play out over the next ten years. But scenario planning helps us to identify the forces or trends that are shaping the sector's future and are likely to have the greatest impact during the next decade. We can also draw on these key driving forces to sketch the two most likely scenarios for the industry. Each of these describes a plausible future for mining in 2028. This is ten years from now – and posits a time when the 2029 general election in South Africa is only some 12 months away.

From the IRR's earlier reports on the sector, 16 key driving forces emerge. Each of these is likely to have a major impact on the future of mining in South Africa. On each, the industry's performance could follow one particular path, or it could take the opposite direction. One possible trajectory will help build sustainability and prosperity in the mining industry, for the benefit of all South Africans. The other possible trajectory will have the converse effect.

> *Nobody can predict how the future of the mining industry will play out over the next ten years. But scenario planning helps us to identify the forces or trends that are shaping the sector's future and are likely to have the greatest impact during the next decade.*

These 16 driving forces and the choices they raise are briefly as follows:

1) whether the *Mineral and Petroleum Resources Development Act (MPRDA)* of 2002 will be reformed to give South Africa the benefit of a stable, predictable, and competitive regulatory regime, or whether it will continue on its current trajectory and be made worse by the adoption of a substantially unchanged mining bill?
2) whether the *2017 mining charter* will evolve in a way that brings economic inclusion to most South Africans, or will continue to enrich a small elite while deterring the investments needed for success?
3) whether the African National Congress (ANC) will push ahead with *expropriation without compensation (EWC)*, through amendments to the Expropriation Bill, the Constitution, or to both, or whether it will start upholding and protecting property rights in the mining industry and more broadly?
4) whether the *state mining company* will be given more preferences over private sector players, or whether the playing field will be levelled for all?
5) whether *environmental regulations* will continue to place unnecessarily damaging demands on mining, or whether they will be reformed to strike a better balance between environmental protection and industry sustainability?
6) whether the implementation of *health and safety rules* will continue to threaten the sustainability of the industry, or be significantly improved for the benefit of all?
7) whether fractious *labour relations*, marked by unrealistic wage demands, poor productivity, and damaging strikes, will persist, or whether various constructive changes will instead be achieved?
8) whether *relationships between mines and nearby communities* will continue to deteriorate, or more constructive interactions can be achieved?

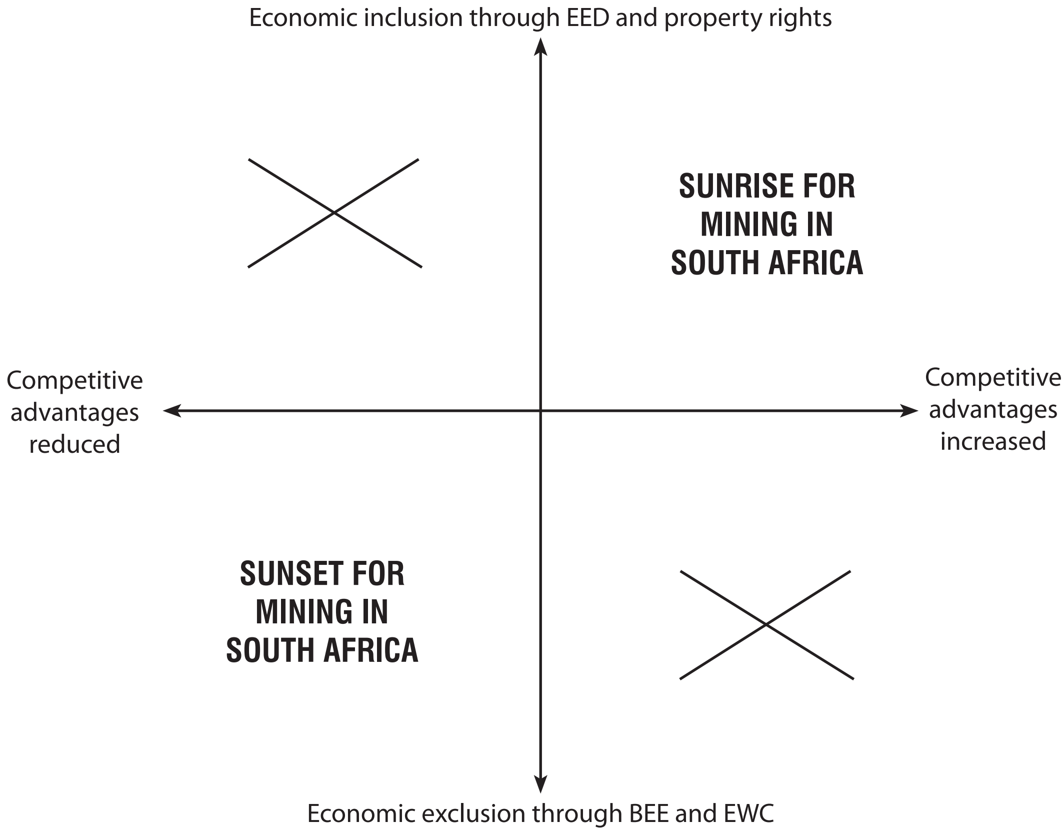
9) whether current problems in the provision of *essential infrastructure* (particularly electricity, freight rail, and ports) will continue, or can be overcome?
10) whether state pressures for uncompetitive local *beneficiation* will persist, or whether the mining industry will be permitted to focus rather on market-based opportunities for successful domestic value addition?
11) whether the *tax burden* on mining will increase in ways that threaten its sustainability, or whether a more suitable and more stable fiscal regime will be achieved?
12) whether *mechanisation* in deep level mines proves unattainable, or whether it succeeds and helps unlock untapped mineral wealth?
13) whether *illegal mining* continues to grow unchecked, or is effectively curtailed?
14) whether the damaging stigmatisation of mining companies persists, or whether the private sector's important contributions are instead acknowledged?
15) whether the wider *economic environment* continues to deteriorate, or whether a stable high-growth economy can be achieved?
16) whether *the ANC* will continue to be driven by a damaging ideology which hobbles the economy, fuels factionalism and corruption, and reduces its electoral support, or whether it will update its thinking, reverse its current policy thrust, deepen its popularity, and avoid being voted out of power in the 2029 election?

> *The way in which 'transformation' policies are likely to evolve is the most uncertain of the key driving factors, so this becomes the vertical axis of the scenario matrix.*

Having identified these 16 key factors, the next step in building the scenario matrix is to rank them on the basis of their relative uncertainty and their potential impact. We believe that the way in which 'transformation' policies – particularly in the form of the MPRDA, the mining charter, the EWC proposal, and the preferential treatment of the state mining company – are likely to evolve is the *most uncertain* of the key driving factors, so this becomes the vertical axis of the scenario matrix. The government is currently pushing down the path of ever greater state control, ostensibly to help give all South Africans the chance to benefit from the country's unparalleled mineral wealth. But the National Development Plan has long stressed the need for a more competitive and stable regulatory regime if the mining industry is to fulfil its great potential. Hence, some senior figures in the ruling party are also concerned about pressing ahead with transformation measures that could turn mining into a sunset industry. Transformation policies in mining might thus end up by being very differently framed. They could prove highly effective in boosting growth and expanding prosperity for all South Africans, both in the mining sector and throughout the rest of the economy.

The factor with the *greatest impact* on the future of the mining industry is whether or not it succeeds in maintaining or increasing its regional and global competitiveness. This therefore becomes the horizontal axis of the matrix. If the mining industry expands its competitiveness in various spheres, this success – especially when combined with the country's vast untapped mineral resources – could turn South Africa into one of the most attractive mining jurisdictions on the continent and across the world. This would help the country to attract more FDI, raise the growth rate, expand employment, increase export earnings, garner more tax revenues, reduce public debt, and regain its earlier investment grade ratings. Conversely, South Africa could take various steps that would deprive its mining industry of much of the comparative advantage it now enjoys. If this is the path it chooses, then the sun will set on the mining industry as investment shrinks, jobs are lost, and illegal mining activities increasingly crowd out what remains of the formal industry. The resulting damage to the environment, health and safety standards, mine communities, and the wider South African society will then be acute.

The graphic below shows how the scenario matrix would look:



The four quadrants of the matrix reflect four possible futures for the mining industry in South Africa, based on how the most important and uncertain factors play out over the next decade. However, the possible future in the top left quadrant must be excluded from further consideration, as it will not be possible for the mining industry to achieve high levels of economic inclusion if it has little regional or global competitive advantage. The possible future in the bottom right quadrant must also be discarded, as the economic exclusion of the majority under damaging transformation laws will prevent the industry from retaining or improving its comparative advantage in the continent or across the world.

That leaves two possible futures for the mining industry that could emerge over the next ten years. The top right quadrant represents a mining industry in which both economic inclusion (under very different transformation policies) and increased regional and global competitiveness have been achieved. This scenario is the *Sunrise* one. The bottom left quadrant represents an industry with little remaining regional or comparative advantage and in which negative transformation policies have left most South Africans locked out of an industry that has largely collapsed. We call this the *Sunset* scenario.

Against this background, let us now step into our time machine, set the controls to give us a bird's eye view of South Africa's mining industry in 2028, and emerge to see how the sector's possible futures have played out.

The SUNSET scenario

It is 2028 and the delays and corruption in the granting of prospecting and mining rights under the amended ***MPRDA*** have grown worse. In 2018 Gwede Mantashe, the new mining minister appointed as part of President Cyril Ramaphosa's short-lived 'new dawn', had warned that it was taking six years or more for some applications to be decided. The delays are now much worse, with ten-year waiting periods increasingly common. The longer the delays continue, the more officials in the Department of Mineral Resources (DMR) can solicit 'inducements' to speed up the process. The MPRDA's vague rules also make it easy for these officials to delay the granting of rights on the basis, for example, that communities have not been adequately consulted, or that the mining company's capacity to fund post-closure environmental rehabilitation has not sufficiently been shown.

The increased factionalism within the ANC reaches into the DMR as well, so many of the delays stem from the fact that officials are trying to help their favoured BEE 'investors' get ahead. This has also worsened the corruption that Mr Mantashe had criticised a decade ago as perhaps being 'at the heart of the logjam' then evident, for 'the word in the corridors' had even then been that 'applications from "paying" applicants were prioritised'.

By 2028 many listed mining companies have disinvested from South Africa. Many mining operations are small-scale and illegal, and make no attempt at all to comply with the MPRDA's labyrinthine rules. The syndicates behind illegal mining are particularly scornful of the price and export controls that were included in the MPRDA soon after the 2019 election – for they run lucrative smuggling operations into China, South East Asia, and many other African countries, where they sell their illicit mineral products at whatever prices they can command.

> *The increased factionalism within the ANC reaches into the DMR as well, so many of the delays stem from the fact that officials are trying to help their favoured BEE 'investors' get ahead. This has also worsened the corruption that mining minister Gwede Mantashe had criticised a decade ago.*

The ***2017 mining charter*** that in 2018 had been forced in largely unchanged terms on a reluctant mining industry now has little practical significance. Most listed mining companies initially tried hard to comply with it, but the costs of the additional deals needed to meet the 30% ownership target for mining rights and the 51% target for prospecting ones proved prohibitive. It was also difficult for many struggling mining companies to make the necessary preferential distributions to their BEE 'investors' (at 1% of annual turnover), while simultaneously meeting their costly skills development and community upliftment obligations. Many companies either failed to attain 100% scores on these charter obligations, or had to shutter shafts and retrench mine workers to meet the costs of doing so.

In either case, the DMR generally responded by terminating their mining rights and re-allocating them to the state mining company. This pushed many smaller mining companies out of business. However, when the BEE ownership requirement was raised to 51% in the mid 2020s, many listed companies decided to cut their losses and disinvest. The DMR now sees little point in imposing charter obligations on the state mining company, while illegal miners simply ignore what the document says.

The ***expropriation without compensation (EWC)*** provisions that were introduced into the Expropriation Bill of 2019 have not worked out as the government anticipated. These provisions were, of course, soon supplemented by a constitutional amendment deleting the right to 'just and equitable' compensation under Section 25, but this too has had many unexpected consequences.

Both the Expropriation Bill and the Constitution have retained their wide definitions of 'property', making it clear that the property subject to EWC is 'not limited to land'. After the Expropriation Bill is changed, the state begins by taking custodianship of all land, including mining land, as the Economic Freedom Fighters

(EFF) have long been urging. One mining company tries to claim compensation under the Constitution, but the amendment to Section 25 puts paid to that case. Mining companies then have to lease their land from the government, while the rentals they pay initially provide useful additional revenue for a cash-strapped government. However, these rental payments, coming on top of charter obligations and the price and export controls now placed on many minerals, put further financial pressure on platinum, gold, and coal mines, in particular. This leads to a number of shaft and mine closures, and a diminution in the rentals paid.

When many listed companies disinvest from South Africa (after the 51% BEE ownership target for mining rights is introduced), most of their mining rights and other assets go to the state mining company, now called Azania Minerals. However, there is little to be gained from forcing the state mining company to pay rent on its expanded mining land, so this source of revenue largely falls away.

The Expropriation Bill's EWC provisions provide a green light for the price and export controls the ANC has long been wanting to introduce. But many mining companies then start claiming compensation for their resulting losses, arguing that EWC is supposed to provide redress for land dispossession, not reduce the prices at which minerals may be sold. These claims also help trigger the subsequent constitutional amendment, which is effective in terminating this litigation.

However, the price and export controls have various adverse consequences. Production of 'designated' and 'strategic' minerals – which are soon identified by the mining minister as including gold, platinum, diamonds, coal, manganese, chrome, and iron ore – drops sharply as mines cannot afford to extract them at the prices allowed. Export earnings decrease too, making it harder to finance South Africa's twin deficits and triggering further ratings downgrades. The value of the rand decreases too. Previously, this would have helped the mining industry, but now it has no impact on the domestic mineral prices set by the state. The rand's decline thus does nothing to boost mining production. It does, however, add greatly to the costs of imported fuel and other essentials, to the detriment of both the industry and the wider population.

> *The state mining company is supposed to be a key beneficiary of all the government's transformation policies, from the MPRDA and the mining charter to EWC. Again, however, outcomes are different from those anticipated.*

The decrease in coal production proves particularly serious, as Eskom finds it increasingly difficult to source the millions of tons of coal it needs for its coal-fired power stations. Renewable sources cannot meet the gap (as the storage problem has not been adequately resolved) and load-shedding begins again. This damages the mining sector itself, as well as the manufacturing industry the government is trying to promote. Many manufacturing companies cut production or relocate, retrenching some or all of their staff. Steel production is particularly badly affected, as are a number of sintering, smelting, and refining operations.

The ***state mining company*** is supposed to be a key beneficiary of all the government's transformation policies, from the MPRDA and the mining charter to EWC. Again, however, outcomes are different from those anticipated.

The mining land, mining rights, and other mining assets under the control of the state mining company increase substantially as listed companies disinvest, but the expected economic benefits fail to transpire. Working capital, especially the major sums needed for mine development and expansion, prove exceptionally difficult to raise on the bond market – and the government itself cannot help as it is struggling with falling revenues and rising debt. The export quotas which apply to private companies are lifted for Azania Minerals, but much of the foreign currency thus earned is either siphoned off by a small group within the ANC (see below), or is used to take on staff and increase salaries.

The state mining company starts by retaining all the mineworkers the disinvesting companies had previously employed. It also takes on many additional staff, especially in senior and management posts. Mine wages are increased at rates significantly above inflation for several years, showing that Azania Minerals cares much more about the welfare of its workers than profiteering private companies had earlier done. But its employees do not seem to work any harder as a result. Often, in fact, they seem less efficient – especially after experienced mine managers are replaced by ANC cadres noted for their revolutionary zeal rather than their mining experience. Production goes down. So too do export earnings and tax revenues. In time, major retrenchments begin and mine salaries have to be reduced.

Procurement costs increase too, for many of the new managers are determined to divert contracts away from companies that are foreign or still 'too white'. Most of these contracts go to BEE suppliers, some of them with links to the relatives or business associates of the new managers. However, the quality of the goods and services provided often goes down. At times, in fact, nothing is delivered in return for the payments made. Maintenance of essential machinery and other equipment deteriorates. Safety standards also slip, and mine fatalities and injuries rise sharply once again.

> *Julius Malema had repeatedly claimed that a state mining company would swell production, jobs, earnings, and tax revenues for the benefit of all. The reality is different, however, for the state mining company is increasingly inefficient, corrupt, and dedicated to serving the narrow self-interest of a tiny political elite.*

The people who benefit the most from the rapid expansion of Azania Minerals are the president and the ministers within his 'kitchen' cabinet. These individuals, all core members of the ANC national working committee or 'politburo' (as some of them still call it), decide which cadres should be deployed to which posts within Azania Minerals and are often handsomely rewarded for their interventions. Many procurement contracts go to firms in which these politicians have financial interests. Some of the hard currency raised from the exporting of minerals is paid into their personal bank accounts, either in South Africa or abroad. This greatly helps to expand their fortunes – and especially so when hard currencies are converted into depreciating rands. (These ANC leaders are also the principal beneficiaries of the black market in rands that soon develops, for they have regular access to hard currency and can easily arrange to sell it on the streets, rather than at the official conversion rate.) In time, much of the hard currency earned from mineral sales abroad is no longer repatriated to South Africa at all. Instead, it is immediately diverted into the personal overseas bank accounts of this elite group.

From the start of the Jacob Zuma presidency in 2009, Julius Malema and others had repeatedly claimed that private mining companies with their emphasis on 'profits before people' should be replaced by a state mining company committed to serving the nation as a whole. This, they said, would swell production, jobs, earnings, and tax revenues for the benefit of all, finally allowing poor black South Africans to gain from the country's great mineral wealth. The reality is different, however, for the state mining company is increasingly inefficient, corrupt, and dedicated to serving the narrow self-interest of a tiny political elite.

As regards ***environmental regulation***, many in the ANC proclaim a great victory when the 2015 financial provisioning regulations take effect (largely unchanged) in 2019. Many mines have to scramble to provide the ten years' financial provision that must now be paid into a bank account controlled by the DMR. ANC leaders celebrate still more when an activist environmental organisation (having notified the National Prosecuting Authority of its intentions and failed to hear back from the NPA within 28 days) brings a private prosecution against a major listed company, as the National Environmental Management Act (NEMA) of 1998 entitles it to do. The company is charged with having failed to provide sufficiently accurate information about the post-closure environmental rehabilitation costs it expects to incur in 25 years' time. On its conviction, some of its directors are sentenced to prison terms, while a proportion of the heavy fine imposed on it is allocated to the activist organisation that successfully brought the prosecution, again as NEMA allows.

Many more criminal cases against other mining companies are then launched. But exploration and new investment largely stop, while capital spending of the stay-in-business kind also goes sharply down. Many mines seem to be intent on stripping out the most valuable ores as quickly as possible, rather than on trying to sustain their operations far into the future.

When mounting regulatory costs help push a large platinum mine into bankruptcy and it closes without meeting its environmental obligations, activists confidently predict that a well-funded DMR will now step into the breach. Instead, it becomes apparent that much of the financial provisioning money in the DMR's bank account can no longer be traced. Moreover, the contractors appointed by the DMR to do the decommissioning and rehabilitation job are later found to have over-charged and under-performed, leaving the most intractable environmental problems still unresolved.

After most listed companies disinvest in the mid 2020s, Azania Minerals lacks the skills, experience, and funds to maintain rehabilitation initiatives at the same levels. Acid mine water is no longer treated to industrial or potable standards, as listed companies had achieved in the past. Leaks from tailings dams become more common and other mine waste is poorly managed. The vegetating of mine dumps largely ceases and dust emissions grow. The DMR can no longer afford to employ its own 'green scorpions' and is reluctant, in any event, to deploy them against the state mining company. Environmental activists shift their focus to other sectors, where there are more listed companies to pursue for putting profits before environmental needs.

> *Azania Minerals lacks the skills, experience, and funds to maintain rehabilitation initiatives at the same levels. Acid mine water is no longer treated to industrial or potable standards. Leaks from tailings dams become more common and other mine waste is poorly managed.*

What happens in the ***safety and health*** spheres is similar. When mine fatalities continue into 2021, despite the 'zero harm' target that was set for 2020, the Section 54 safety stoppages ordered for minor infractions of the Mine Health and Safety Act of 1996 reach record levels. The costs of lost production, coupled with the heavy expenses involved in restarting operations, put great financial pressures on affected mines. A legal challenge brought by one company against a stoppage of this kind is initially successful, but ultimately fails before the Constitutional Court. This court rules that the common law doctrine of what is 'reasonably practical' can no longer apply, as mining companies in South Africa have long been far too careless about the safety of their black mineworkers. Increasingly, mining companies find, as AngloGold Ashanti had done back in 2016, that they can no longer forecast their likely annual production as stoppages are so frequent. This gives added impetus to the disinvestment decisions made by many listed companies in the mid 2020s (after the BEE ownership target is raised to 51% for mining rights).

Thereafter, however, safety standards begin to slip. The state mining company cannot easily uphold them, as it lacks the necessary human and financial resources. In addition, DMR officials are reluctant to order Section 54 stoppages against a fellow state entity.

A similar pattern is evident in the health field. Buoyed by the success of their silicosis and TB class action against many gold mines, activist lawyers bring similar cases against Sasol and other coal-mining companies for the 'black-lung disease' (similar to silicosis) that many coal miners have contracted. In time, they also sue all the mining companies which were still using migrant labour in the 1980s for contributing to the spread of HIV/AIDS and TB. Mining companies are reluctant to contest these cases, preferring to settle to avoid still greater reputational damage. But the legal and other costs of these class actions are high, putting further pressure on the industry.

After the disinvestments of the mid-2020s, however, the litigation stops as public interest lawyers do not want to hold the state mining company accountable for the failures of the private sector. Dust controls at gold and coal mines become less effective as the inexperienced managers at Azania Minerals take control of mining operations. The increasingly cash-strapped company also finds it difficult to maintain the comprehensive AIDS testing and treatment programmes that most big mining companies earlier provided. The incidence of silicosis, TB, and HIV/AIDS begins to rise once again.

Labour relations on the mines deteriorate, despite the statutory amendment introduced in 2018 which requires trade unions to provide for secret strike ballots in their constitutions. With EWC in place – and unemployment and inflation now on the increase – the two main rival trade unions on the mines seem intent on outdoing each other in demanding double-digit wage increases and backing up their demands with lengthy strikes. Both unions claim to have fulfilled the secret ballot requirements. A shop steward who disputes this is shot dead outside his home – and an intended court challenge has to be abandoned as other witnesses now fear for their lives. After some months, the affected mines capitulate in order to get production going again. But the increases prove unaffordable, especially given the many other financial pressures the mines now confront. Hence, many companies have little choice but to retrench. Soon, well over 150 000 mining jobs are lost.

> *Labour relations on the mines deteriorate, despite the statutory amendment introduced in 2018 which requires trade unions to provide for secret strike ballots in their constitutions. Wage increases prove unaffordable, and many companies have little choice but to retrench. Soon, well over 150 000 mining jobs are lost.*

When many listed companies disinvest in the mid 2020s and most of their mining rights and other assets pass to the state mining company, it seems at first that a golden age for mine labour has arrived. The state mining company takes on many more people (especially at senior levels) and greatly increases mine wages. But the new jobs are still far fewer than those which have been lost, and the benefits go mainly to ANC cadres at the supervisory and management levels. In addition, the higher wages achieved prove short-lived. As production slips and more of Azania Mineral's earnings are siphoned off into the personal bank accounts of the ANC's politburo, the company embarks on massive retrenchments, far exceeding those made by the private sector in the past. It also slashes salaries for its remaining employees.

In 2018 the mining industry in South Africa had supported some 1.5 million people. By 2028 it supports less than a quarter of this total. Many retrenched mine employees now work in small illegal operations. Here, wages and working conditions are atrocious, but little can be done to enforce the country's comprehensive labour regulations against the shadowy syndicates which run these operations from behind the scenes.

Mine communities initially seem to chalk up some important gains. The Constitutional Court's 2020 judgment in the *Xolobeni* case makes it clear that those with informal land use rights under customary law must provide their informed consent before the DMR may grant companies mining rights over the land they occupy. To avoid being prescriptive, the court declines to say how proof of that consent should be provided, or whether a simple majority in favour of a proposed mining operation will suffice.

These soon prove to be damaging omissions. Even if a large percentage of community members cast valid votes in favour of mining, there are always some who oppose it and can argue that adequate consent has not been given. Many years can easily pass while such disputes are resolved, which is part of the reason for lengthening delays in the granting of mining rights. Moreover, even if officials decide that adequate community consent has indeed been given, this assessment is often contested through internal appeals to the mining minister and subsequent applications for judicial review.

Mine communities respond to the unexpected economic fall-out from EWC in agriculture, mining, and other sectors by staging ever more violent protests to buttress their demands for local jobs and local contracts from mining companies. Costly mine equipment is often torched, buses carrying mineworkers are repeatedly attacked, and access roads to mines are commonly barricaded and closed. A number of mineworkers are assaulted and some are killed, prompting both mine security guards and the police to take more robust counter measures. But the risk of deaths or injuries from security action (reminiscent in some way of the Marikana massacre of 2012, when police shot dead 34 striking miners outside Lonmin's platinum mine) is always present, putting great stress on mine management. No mining company wants to give in to demands backed by intimidation and violence, while few companies can afford the extra local jobs and contracts in issue. But all mining companies are anxious to avoid the reputational damage that strong security measures are likely to generate. Nor can community demands easily be deflected when mines are often the only sources of possible income within a growing sea of poverty and hunger.

In time, moreover, local communities find themselves sidelined. A new Constitutional Court judgment overtakes and reverses the *Xolobeni* decision, holding (as the DMR had previously argued) that valuable mineral resources cannot be sterilised while fragmented communities decide whether or not to give their consent to mining. Increasingly, the best that community members can hope for is to try to find jobs in illegal mining operations, where the work is dirty and dangerous and the pay is poor.

> *Mine communities respond to the fall-out from EWC by staging ever more violent protests to buttress their demands for local jobs and local contracts from mining companies. Costly mine equipment is often torched, buses carrying mineworkers are repeatedly attacked, and access roads to mines are commonly barricaded and closed.*

Essential infrastructure remains a major challenge. By constantly raising electricity tariffs – to the great detriment of intensive energy users in mining and elsewhere – Eskom manages for some years to stave off a debt default without cutting its bloated workforce. This changes, however, after the further credit rating downgrades that follow the implementation of EWC. In the mid 2020s, Eskom's over-manning and its grossly inflated wage bill are finally brought down to more acceptable levels. But the voluntary retrenchments first used to reduce staff numbers strip the parastatal of even more of its scarce engineering and technical skills. This prompts a surge in unplanned maintenance, triggering long bouts of load shedding made worse by coal shortages. Maintenance of the national grid and local distribution networks deteriorates too. Black-outs intensify, forcing mines to expand their own electricity generation, since they cannot risk electricity cut-offs to hoists, pumps, and other machinery. Bigger companies can more easily afford this, but increasingly begin to question what comparative advantage mining in South Africa still holds.

When many listed companies disinvest, the state mining company takes over most of their assets but often lacks the skills and funds needed to keep generating its own electricity. Mine stoppages become more common, limiting production, increasing safety hazards, and exacerbating dewatering and other challenges. A vicious circle ensues, in which lost production makes it harder for Azania Minerals to afford the cost of generating the electricity it needs, while the blackouts that result then further reduce its production.

Rail transport remains vital to the mining industry, but Transnet becomes more costly and inefficient as scarce skills are lost and cannot be replaced. The derailments of which Kumba Iron Ore had complained back in 2018 – when it first invoked force majeure against its failure to deliver promised ore – become more frequent. Electricity black-outs often also prevent trains from running, so Transnet abandons any attempt at scheduling. Its freight trains leave when locomotives have power and freight cars are full, and no one can predict when that might be. This soon becomes the greatest impediment to the mineral exports that are still allowed (after local benefication needs have been met). The mines can generate their own electricity, but they cannot replace the rail network or compel Transnet to increase its efficiency. Prospective buyers prefer to deal with other countries, where promised delivery dates to ports are known and generally fulfilled. Transnet's revenues dwindle and many of its staff are retrenched.

Ports operated by the Transnet Port Terminals parastatal have long been notorious for their high costs and poor efficiency. As mineral exports diminish (and agricultural ones too, in the wake of EWC), they try to compensate for lost revenues by raising their tariffs. However, this makes them even more costly than the efficient port services now on offer at both Windhoek (Namibia) and Maputo (Mozambique). In addition, South Africa's high port tariffs negatively affect all imports and exports, adding to domestic inflation and making mineral (and other) exports even less competitive.

The ***beneficiation*** which price and export controls on 'designated' and 'strategic' minerals was supposed to foster fails to take off. Mineral prices are only one among many other input costs, and these latter costs remain high. In fact, labour, electricity, and rail/port prices all go up significantly, which further reduces South Africa's ability to compete with manufacturing behemoths in China and South East Asia. Price controls often also result in diminished minerals production, restricting supply. In addition, beneficiation in all its stages, from primary processing to the manufacturing of finished products, requires significant skills and capital which the country lacks, as the National Development Plan had stressed back in 2012. When EWC triggers a major flight of capital and skills, this further undermines the country's capacity for successful beneficiation.

> *Mineral prices are only one among many other input costs, and these latter costs remain high. In fact, labour, electricity, and rail/port prices all go up significantly, which further reduces South Africa's ability to compete with manufacturing behemoths in China and South East Asia.*

From the mid 2020s, Eskom's extensive load shedding hits intensive users especially hard, making it even more difficult to sustain primary processing operations, in particular. Back in 2018, Daphne Mashile-Nkosi of Kalagadi Manganese had warned that it was far cheaper for South African miners to smelt minerals in Malaysia, but now the price differential is even wider. That Eskom's black-outs are so common is even more of an obstacle to local beneficiation, for neither the mining nor manufacturing sectors can cope with constant interruptions to electricity supply. The mines are tied to where the minerals are, but the manufacturing industry is not. Many processing plants and other factories relocate to countries where infrastructure is reliable and regulation is light.

The ***tax burden*** continues to increase. Mining companies are intensive users of electricity generated from coal, making them particularly vulnerable to the carbon tax which kicks in during 2020. Offsets at first reduce the burden substantially, but these are soon phased out as the government steps up its efforts to reduce the country's carbon footprint. The price and export controls imposed on designated and strategic minerals under the MPRDA are accompanied by onerous export levies, which are commonly set at 10% or more for all strategic minerals. The royalties payable on strategic minerals are increased as well, so that the South Africa can benefit more fully from its mineral wealth. In time, mining companies are also expected to pay rent on the mining land they earlier owned, but which has now been vested in the custodianship of the state.

Even more damaging, however, is the national wealth tax introduced in the mid 2020s. Though this is set at what the government describes as low rates (ranging from 0.5% to 1% of the market capitalisation of listed mining companies), it is particularly difficult for mining companies to fund these taxes – which take no account of mining expenses – out of annual revenues.

The state's mining revenues initially rise significantly as these new imposts kick in. Hefty tax penalties are also imposed on some platinum and silver companies for their alleged role under-invoicing their exports by $24bn, as Unctad had claimed back in 2016. However, the situation changes substantially when many listed mining companies disinvest. All the revenue they used to provide – from corporate income tax, to VAT, customs duties, royalties, municipal rates, and PAYE on the salaries of mine employees – now comes to an end as well.

The ***mechanisation*** challenge proves impossible to overcome. Despite successes already evident in 2018 in deploying ultra-low profile (ULP) machines to previously inaccessible areas, modernisation goals become increasingly difficult to meet. The Mineral Council's aim back in 2018 was to develop remotely controlled mobile equipment capable of breaking, loading, and hauling ore on a 24/7 basis. Breaking would need to be explosives free, while machines would need, as much as possible, to be capable of self-correction. But such innovations require enormous capital investments which mining companies are increasingly loath to make.

> *The case for pouring major resources into mechanisation in South Africa grows weaker, especially when various other African countries start providing attractive incentives to miners to invest there instead. That little progress can be made with mechanisation in deep-level mines becomes another reason for many listed companies to withdraw from South Africa in the mid 2020s.*

This is particularly the case after EWC erodes the security of mining titles and other property rights. The government's other transformation interventions also push up costs, while electricity and transport are increasingly expensive and unreliable. Repeated and unwarranted safety stoppages further limit the resources that can be put into the mechanisation drive. So too does the flight of capital and skills that follows the gradual spread of EWC across the economy. The case for pouring major resources into mechanisation in South Africa grows weaker, especially when various other African countries start providing attractive incentives to miners to invest there instead. That little progress can be made with mechanisation in deep-level mines becomes another reason for many listed companies to withdraw from South Africa in the mid 2020s, after the 51% BEE ownership requirement is introduced.

With the departure of the mining majors, any hope of achieving mechanisation is lost. The state mining company lacks the resources to tackle the challenge, and the illegal mining syndicates see no reason to do so.

For the 150 000 and more mineworkers who have been retrenched, ***illegal mining*** offers the only hope of earning a living. Gauteng alone has more than 6 000 abandoned and derelict mines which can be picked over for the gold and other minerals they still contain. Working conditions are harsh, however, for illegal miners are paid a pittance, while many are expected to stay underground for weeks or even months. The food and water supplies they can take with them are meagre, while the labour they perform is exceptionally hard. Often, they must not only dig out tons of rock but also haul it manually to far distant hoists. If this is not feasible, they must try to crush the rock in cramped conditions underground and then treat it to extract the minerals. Out-dated (often scrap) machinery is sometimes available to help, but often there is no electricity with which to run these machines.

Illegal mining accelerates after the withdrawal of most listed companies in the mid 2020s. In the deepest gold mines, which the state mining company finds difficult to work and where illegal mining now predominates, cooling systems break down and the water sprays that used to wet down drilled rock to reduce silica dust no longer work. Mining operations are hotter, dustier, and dirtier than they used to be, while safety infrastructure and procedures are no longer maintained. Emulsion explosives are no longer available, safety netting against rock falls is not supplied, and remote sensors on remaining underground trains often fail, contributing to dangerous collisions. Seismic events are more frequent (now that older explosive methods are being used again), while the monitoring system that used to help warn against them has collapsed. The only rescue teams now available when major rock falls occur and people are killed or injured are the makeshift groups the illegal mineworkers can assemble for themselves.

The easiest pickings are to be found in above-ground tailings dams and residue dumps, which are repeatedly scoured for any remaining mineral deposits. The listed companies which used to extract minerals from this waste material worked hard to limit any resulting environmental damage, taking care to contain radio-active materials and other pollutants and to vegetate the sides of tailings dams to reduce dust emissions. But the syndicates for which illegal miners work care little about the environment, so neighbouring communities suffer many adverse consequences from increased pollution of land, air, and water.

Stigmatisation of listed companies, and especially of the mining majors, continues for many years. Irrespective of what costly efforts they make to comply with shifting BEE requirements, onerous environmental regulations and the government's local beneficiation demands, these mining companies are constantly pilloried for putting 'profits before people' and failing to 'transform'. The damage from mining operations to the well-being and livelihoods of mine communities is often exaggerated, while attempts to obtain community consent to mining (in the aftermath of the *Xolobeni* Constitutional Court ruling) are frequently frustrated as groups splinter and new leaders denounce agreements previously reached. Frequent denigration of mining companies turns public opinion against them and helps create a hostile atmosphere in which ever more intrusive regulation seems not only justified but necessary to curb the misbehaviour of the mines.

The only rescue teams now available when major rock falls occur and people are killed or injured are the makeshift groups the illegal mineworkers can assemble for themselves.

It is only after many listed entities have disinvested and the state mining company has taken over most of their assets that this hostile commentary ends. Azania Minerals is now fulsomely praised for expanding mining jobs, increasing salaries, and showing a 'genuine' concern for environmental, safety, and health needs, unlike the profit-maximising private companies of the past. It is only some time later when retrenchments are increasing, mine fatalities are sharply up, and acid mine drainage is no longer being countered that some commentators begin to regret the loss of the contributions that the private sector used to make.

The wider ***economic environment*** continues to deteriorate. The economic growth rate remains positive for some years, but is far below the rates being achieved in other emerging markets and even in developed economies. But South Africa's economic performance deteriorates in the early 2020s, when the state takes custodianship of all land without compensation and uncompensated regulatory expropriations (mainly in the form of price controls on many sectors) begin to accelerate. The stability of the banking sector comes into question, accelerating the exodus of capital that had begun during the second Zuma administration. Business confidence plummets, sharply curtailing fixed investment by the private sector. Consumer confidence drops too – as does the consumer spending which has long contributed more than 60% to GDP. With uncompensated expropriations proceeding, the regulatory burden increasing, and business autonomy still further reduced, many mining and other listed companies decide in the mid 2020s to cut their losses and disinvest. The economy begins to contract – and the negative impact on all South Africans is considerable.

Unemployment increases sharply as mining and other jobs are lost. With tax revenues declining, the ratio of public debt to GDP (excluding government guarantees to parastatals) rises to close on 70%, triggering further ratings downgrades. The value of the rand deteriorates further and inflation shoots up, driven mostly by imported oil and food. Mining and agricultural production decrease sharply, widening the trade deficit and making it more difficult to finance the imports needed. The government tries to stem inflation by pegging the exchange rate of the rand to major currencies at artificially low rates. The differential between the official and black market exchange rates grows steadily, helping the elite to prosper. Bu the poor confront worsening shortages of food and other essentials and ever rising prices.

Consumer spending slows further in response to higher inflation, interest, and unemployment rates. This in turn sets off yet more retrenchments and greater economic contraction. Some economists began to warn that South Africa may soon find itself on the same economic trajectory as Venezuela. In this South American state, land expropriations and the nationalisation of some oil and other companies had resulted over time in massive economic contraction and hyper-inflation at staggering levels (14 000% a year by 2018, according to some calculations).

The ***ANC*** now faces a general election in a year's time. Though it had won the 2019 election, its majority had dropped for the first time since 1994 to less than 60%. This decline had been fuelled by growing concerns about pervasive unemployment, high food prices, dismal living conditions in backyard shacks and informal settlements, and the ruinous corruption in state-owned enterprise (SOEs), which the Zondo commission of inquiry into 'state capture' had begun to uncover. The growth rate, down to 1% of GDP in 2018 despite Mr Ramaphosa's promise of a 'new dawn', had not been nearly high enough to overcome the unemployment crisis, which had gradually grown worse after the introduction of the national minimum wage. Moreover, though the Expropriation Bill had been changed early in 2019 to allow EWC and shore up the ANC's waning electoral support, the press had carried many articles warning of a potential flight of capital and skills. This had undermined belief in ANC's pro-EWC utterances.

In 2028, with one year left before the next election, the ANC's position is far worse. With the economy tanking and job losses growing, the party's popularity is in sharp decline. The EFF has disbanded and is no longer available to draw the public's anger over the damage caused by EWC.

The 2024 election is even worse for the ANC, for its share of the vote drops below 55%. With the damage from EWC increasingly apparent, and many black owners stripped of title to their homes under the land custodianship provision, the EFF's vote is cut in half from the 7% it had gained in 2019. This means that the ANC can no longer count on bringing the EFF back 'home' and so retaining its majority in Parliament, should this prove necessary. By then, moreover, public debt is higher still, the economy is slipping into recession, many jobs in the mining industry and the wider private sector are being lost, and the government's capacity to afford the heavy public service wage bill and sustain social assistance seems increasingly doubtful.

In 2028, with one year left before the next election, the ANC's position is far worse. With the economy tanking and job losses growing, even in the public service and the parastatals, the ruling party's popularity is in sharp decline. The EFF has disbanded and is no longer available to draw the public's anger over the damage caused by EWC. The ANC has lost the fight for 'unity' which Mr Ramaphosa had tried to lead in his five-year term as president, and is increasingly racked by factionalism and internal division – much of it fuelled by violent squabbles (often involving targeted assassinations) over the diminishing spoils of office.

Massive protest marches have repeatedly been held through the streets of all the metropoles and also in most other towns. Many of the ANC's local councillors have had their homes and businesses burnt down.

Municipal offices in numerous towns have also been set ablaze. Only in the many towns and cities won by the Democratic Alliance (DA) in the 2026 local government elections has housing provision accelerated (with the help of the party's housing vouchers) and law-and-order been restored by well-trained municipal police. The ANC keeps harking back to the glory days of its liberation struggle, but that ended almost 35 years ago and is irrelevant to most South Africans today. The organisation's tired rhetoric around transformation and the need to end capitalist exploitation no longer convinces anyone. The DA's emphasis on growth, jobs and property rights for all resonates strongly with the electorate, and ANC is well on the way to being ignominiously defeated in the 2029 election.

The SUNRISE scenario

By 2028 the ***MPRDA*** has been substantially reformed to give South Africa the benefits of stable, predictable and competitive mining regulation, as the National Development Plan had urged back in 2012. The country has taken a leaf out of neighbouring Botswana's book, for the granting of mineral rights now depends solely on the applicant having the necessary financial and technical capacity to mine efficiently. An effective empowerment system has been introduced in place of the earlier mining charter, while failed attempts to force local beneficiation through price and export controls on 'designated' and 'strategic' minerals have been abandoned (see below).

> *The country has taken a leaf out of neighbouring Botswana's book, for the granting of mineral rights now depends solely on the applicant having the necessary financial and technical capacity to mine efficiently. An effective empowerment system has also been introduced in place of the earlier mining charter.*

An efficient electronic cadastre system has been established, which provides up-to-date information on all new mineral discoveries, the mining and prospecting rights already granted, and the status of all rights applications. An independent, expert, and efficient agency has been established to adjudicate on all applications for mining and prospecting rights. The MPRDA's declared deadlines for decision-making (two months for prospecting rights and six months for mining rights) are strictly followed. The huge backlogs in decision-making, which had arisen in the period when adjudication could take six or more years, have been cleared. Since the criteria for the granting of rights are certain and objective, the agency's officials have no power to try and steer either prospecting or mining rights to their 'preferred' applicants. A zero tolerance approach to corruption is also evident, with complaints of malfeasance swiftly investigated and, if confirmed, harshly punished.

South Africa, which used to be seen as unbearably inefficient and corrupt in its handling of mineral rights applications, is now widely commended for the objectivity and efficiency of its processing system. Praise which used to be reserved for Botswana is now accorded to South Africa, with mining executives telling the Fraser Institute, in the comments section of its annual *Mining Survey*, for example:

- South Africa's mining policies are 'so clearly defined' that 'obtaining all necessary mining permits is quicker and more straightforward than in most countries worldwide';
- South Africa stands out for 'reasonably quick decision-making' and for the fact that there is 'no corruption at all' in the granting of mining rights; and
- South Africa is 'a beacon of light' across both the region and the world for the way in which it 'encourages and assists' the expansion and development of mines. 'It is the jurisdiction that all other African countries should strive to copy.'

The ***mining charter*** – which mining minister Gwede Mantashe back in 2018 had correctly described as seeking to create a small group of 'black capitalists' – has been replaced by a far more inclusive and effective empowerment system. This new system focuses on bringing 'economic empowerment to the disadvantaged', rather than on providing costly privileges to a narrow and politically connected elite.

The EED system, as it is known, starts by acknowledging mining's vital contribution to the economy and how this helps all South Africans to get ahead. It includes a new EED scorecard in which mining companies earn EED points for attracting direct investment (both local and foreign); speeding up the growth rate; sustaining and generating jobs; adding to export earnings; contributing to tax revenues; and helping to resolve complex environmental and other problems through research and development (R&D). All these contributions help to expand opportunities in mining itself, in all the sectors with backward or forward linkages to the industry, and in the wider economy to boot. Mining's economic successes also help to keep the rand up and inflation down. They play a vital role as well in holding down the ratio of public debt to GDP, helping to finance fixed investment in vital infrastructure, and buttressing the government's capacity to spend on education and other needs.

The EED system goes beyond this too. It recognises the crucial importance of education, housing, and health care in helping people scale the economic ladder, as well as the inefficiency and corruption which has long plagued state delivery in these three spheres. Under EED, the top-down system of state-controlled provision – which for decades had left 80% of public schools dysfunctional, 80% of public clinics and hospitals unable to comply with basic health care standards, and a housing backlog that invariably exceeded 2 million units – is thus replaced by an important new delivery mechanism.

> *Instead of officials continuing to squander much of the revenue allocated each year to schooling, housing, and health care, hundreds of billions of rands now go directly to disadvantaged households in the form of education, housing, and health care vouchers.*

Instead of officials continuing to squander much of the revenue allocated each year to schooling, housing, and health care, hundreds of billions of rands now go directly to disadvantaged households in the form of education, housing, and health care vouchers. This empowers people to buy the schooling, housing, and health care of their choice, while providers must now compete for their custom. This competition stimulates innovation, while helping to keep prices down and quality up.

These vouchers are a crucial part of the EED system. Empowerment policy now reaches down to the grassroots and brings real gains to people who would never have benefited from the mining charter. Mining companies also earn extra EED points by topping up vouchers for the poorest households, or by using some of their R&D capacities to improve e-learning in schools, pioneer the 3D printing of houses in South Africa, or expand e-health provision in under-serviced areas. Essential skills are finally being generated, helping the country to become a key financial services hub for the African continent. At the same time, the housing and health hardships that so many people had suffered for so long are at last being overcome.

Any idea of amending the Constitution or other laws to allow ***expropriation without compensation*** (EWC) has been jettisoned. This follows a major public information campaign, launched by a number of business and civil society organisations, on the importance of property rights for all South Africans. Documentaries show how the uncompensated expropriation of land and other property in the Soviet Union (under Lenin and Stalin), China (under Mao Zedong), and Kampuchea (under Pol Pot) led to famine, murder, repression, and pervasive corruption. They also show the differences in the economic fortunes of divided countries, such as East and West Germany, or North and South Korea.

The documentaries demonstrate too how an incremental EWC programme in Venezuela (under Hugo Chavez and Nicolas Maduro) triggered massive shortages, unleashed hyper-inflation (already at 14 000% by 2018) and impoverished the population. They also make it clear why the application of EWC to white-owned farms in Zimbabwe caused the entire economy to implode, triggering mass migration to neighbouring states and leaving 90% of the remaining population unemployed. Other documentaries explain that the poorest 10% of people in the countries which protect property rights are ten times richer than the poorest 10% of people in the countries which embark on EWC or other forms of nationalisation. That property rights safeguard people not only from poverty, but also from pervasive corruption and political repression, is also made clear.

This public information programme is the key game changer. It prompts a surge in popular support for the DA, which promises to provide title deeds to the 8 million black people who already own their houses but often have no proof of this, as well as to the 17 million with informal land-use rights over their communal plots. All South Africans become increasingly incensed at the EFF/ANC idea of state custodianship, under which all title deeds (as the EFF puts it) will 'mean nothing' and people will at most be given 25-year 'land-use' leases which the state will be able to revoke at any time 'in the public interest'.

The ANC is initially slow to read the public mood. But when its support drops to well below 60% in the 2019 election while the DA vote goes sharply up and the EFF is decimated, the balance of power within the ruling party quickly changes. Many people shift away from the pro-EWC faction, transferring their support to the group that has come to see its dangers. All talk of amending the Constitution to allow EWC is terminated. The Expropriation Bill is amended, not to allow EWC, but rather to require a court order confirming the constitutionality of any proposed expropriation before it may proceed. This means that 'just and equitable' compensation, as decided by the courts, must always be paid. The amended Expropriation Bill adds that such compensation must reflect, not only the list of relevant factors included in Section 25 of the Constitution, but also the long-standing common-law doctrine requiring the payment of damages for all financial losses directly resulting from an expropriation.

> *Other documentaries explain that the poorest 10% of people in the countries which protect property rights are ten times richer than the poorest 10% of people in the countries which embark on EWC or other forms of nationalisation.*

The preamble to the Bill makes it clear that expropriation is a drastic step which may be used only as a last resort, while the same message now comes strongly from the ANC. A fast-track method of extending title deeds to all black South Africans lacking secure title to their homes, plots, or other land is adopted and implemented with all deliberate speed. This brings 'dead capital' to life, giving millions of people incontestable ownership of assets cumulatively worth hundreds of billions of rands – and allowing them to leverage these to their further economic advantage.

Bilateral investment treaties with the United Kingdom and 12 European countries – all of which had been unilaterally terminated by South Africa in the mid-2010s – are again concluded. South Africa signs up to the 1965 Washington Convention on the Settlement of Investment Disputes between States and Nationals of Other States, so confirming that international arbitration, on an investor-state basis, will be available to foreign direct investors aggrieved by any erosion of their property rights. At Pretoria's behest, the 2006 SADC Protocol on Trade and Investment is amended once again to delete the changes which South Africa had earlier demanded. As in the past, the Protocol now gives all direct investors in the region the right to 'prompt, adequate, and effective compensation' in the event of any expropriation, whether direct, custodial, or regulatory. The SADC tribunal, earlier disbanded at Pretoria's suggestion, is restored.

These policy shifts confirm that property rights in South Africa are now secure. This gives the economy a large lift. Direct investment in mining – always a good bellwether of business confidence because of the large sums and long lead times it inevitably requires – goes sharply up. The same phenomenon is evident in a host of other sectors. The growth rate rises, new jobs are generated, average per capita income increases, and consumer confidence soars. As the benefits of EED kick in as well, poverty diminishes further and the economy finally begins to fulfil its great potential.

Having recognised the dangers in EWC, the ANC is now wary of giving special benefits to the ***state mining company,*** Azania Minerals. Here, the mining industry embarks on its own public information campaign, using documentaries to illustrate how poorly state mining companies in other countries have fared. The negative pattern is almost always the same: fixed investment slows, experience and skills are lost, inefficiency and corruption increase, production diminishes, and a small group of political insiders often starts diverting the state company's reduced mining revenues into their personal bank accounts.

As this information spreads, South Africans recall how President Jacob Zuma and his Gupta friends were able to 'capture' Eskom, Transnet, and other key parastatals and siphon off R100bn or more from these entities into their own back pockets. Anger grows at the thought that Azania Minerals is likely to be similarly captured for the benefit of a small political elite. This too is a factor in the ANC/EFF decline in the 2019 polls and the DA's unexpected rise in popularity.

> *State mining companies in other countries fare badly, for fixed investment slows, experience and skills are lost, inefficiency and corruption increase, production diminishes, and a small group of political insiders often starts diverting mining revenues into their personal bank accounts.*

Again, the ANC reads the writing on the wall. The 2016 bill intended to establish Azania Minerals is jettisoned. So too are proposed provisions – excised from the 2017 mining charter but earlier intended for inclusion in the 2016 bill – that would have given the state mining company preferential access to all prospecting rights as well as a first option on all mining assets put up for sale. Any thought of giving the state mining company a 60% stake in all mining rights and mining operations – as the ANC's State Intervention in the Minerals Sector (SIMS) policy document of 2012 had earlier recommended – is quietly abandoned. Instead, the existing state mining company is gradually disbanded, while private companies with the requisite financial and technical capacities are invited to apply for its erstwhile mining and prospecting rights.

Environmental regulations are gradually reformed as well – and, again, it is a public information campaign that helps to make this possible. In most mining jurisdictions it is generally accepted that companies must rehabilitate as mining proceeds and clean up comprehensively before they may be issued with closure certificates, at which point their environmental liabilities end. But environmental activists in South Africa have successfully pushed for an unprecedented 'permanent' environmental liability, in terms of which mining companies can be held responsible for latent (hidden) impacts that may come to light only decades after closure. Activists also want companies to set aside in advance (preferably in a state-controlled bank account) the money that would be needed for ten to 20 years' worth of current, closure, and post-closure environmental expenditure. But this 'sterilises' significant amounts of money, preventing its use for many years and leaving fewer funds available for current rehabilitation, which is the most pressing need. Having to provide so much money so far in advance also places a heavy burden on struggling mines, helping to push some of them into shaft closures, retrenchments, or even bankruptcy.

Soon, however, comprehensive research – distilled into several compelling documentaries and widely distributed among mine communities and other stakeholders – makes it clear that permanent environmental liability and onerous financial provisioning are not required in most other mining jurisdictions. Again, in the aftermath of its 2019 election losses, the ANC starts to reform its current rules. Permanent environmental liability is scrapped, along with unduly heavy financial provisioning requirements. Instead, a 'mine rehabilitation fund' is established, into which all mining companies must each year pay 1% of their current and likely closure rehabilitation costs. They must also take out insurance cover against the risk of closing prematurely and being unable to pay for necessary rehabilitation. This gives companies incentives to rehabilitate as much as possible as mining proceeds, as this will bring down the rehabilitation costs on which both their 1% levy and their annual insurance premiums are based.

The mine rehabilitation fund – into which the government must also pay a percentage of its growing revenues in every year – is used to pay for any unmet closure needs, as well as any unexpected latent impacts which come to light after mines have closed. The fund is also used to help deal with environmental damage from the country's thousands of abandoned and derelict mines. The independent expert agency which has been established to decide on applications for mining and prospecting rights is given the responsibility for managing this fund. The agency also outsources any environmental rehabilitation that needs to be paid for out of this fund to firms with proven technical expertise. Daunting legacy problems, including acid mine drainage in the Witwatersrand Basin, are successfully tackled in this way. Concurrent rehabilitation also accelerates, making closure (and any post-closure impacts) far easier to manage.

South Africa's fragmented and overly prescriptive environmental permitting system is also reformed. In keeping with global best practice, 'goal-setting' regulations are developed and adopted by the specialist agency. These regulations set out the environmental objectives to be achieved, but allow flexibility in the methods to be used in doing so. The specialist agency also assumes responsibility for granting all the environmental permissions that are needed for mining, which range from air emission permits to waste management licences. These permissions are now granted in a timely and predictable manner – and on the basis of a single environmental impact assessment that covers all likely impacts and sets out a comprehensive environmental management programme that caters for them all.

> *The mine rehabilitation fund is used to pay for any unmet closure needs, as well as any unexpected latent impacts which come to light after mines have closed. The fund is also used to help deal with environmental damage from the country's thousands of abandoned and derelict mines.*

The NEMA rules which earlier made it easy and lucrative for activist environmental organisations to bring private prosecutions against mining (and other) companies are scrapped. Instead, the important task of assessing whether mining companies are managing their environmental impacts in reasonable and responsible ways is given to the specialist agency. These compliance assessments, coupled with necessary amendments to environmental management programmes, are generally required only once in five years, so as to reduce the administrative burden on both the specialist agency and the mining industry.

Soon South Africa is recognised (in the Fraser Institute's annual *Mining Survey* and other assessments) as a world leader on appropriate and effective mining environmental law. It is applauded for the clarity of its regulations, the expert and expeditious way in which these are implemented, and its success in achieving sound environmental outcomes without over-burdening companies with financial and administrative obligations. Increasingly, the quality of its environmental regulation helps make it one of the most attractive mining jurisdictions in the world.

Important reforms are also achieved in the ***safety and health*** spheres. When mine fatalities continue, contrary to the zero harm goal intended to be reached in 2020, DMR mine inspectors order a series of safety stoppages which companies believe to be excessive and unwarranted. A court challenge to the validity of one such stoppage ultimately goes to the Constitutional Court, which rules that an entire mine cannot be halted over a minor safety infraction in one small part of it. Confirming several earlier high court rulings, the Constitutional Court stresses that the standard of safety to be applied is one of 'reasonable practicality'. This is consistent with an employer's common law duty to provide a working environment which is 'reasonably safe'. The court adds that the administrative action involved in issuing a Section 54 notice under the Mine Health and Safety Act of 1996 must also be 'reasonable' and 'rational'. It sets aside the stoppage notice and orders that the DMR inspectors responsible for imposing it must pay a portion of the mining company's legal costs out of their own pockets.

Safety stoppages are in future confined to serious safety threats, while minor safety infractions are dealt with in more appropriate ways. Mining companies redouble their efforts to mechanise deep-level mining operations, as this is the best way to reduce the safety risk to people working sometimes 4 kilometres below the surface. In time, these initiatives bear increasingly positive fruit, as outlined below.

Increased mechanisation in gold and coal mines helps reduce the number of people exposed to silica dust, which in turn reduces the number of new silicosis infections. Comprehensive testing for HIV and TB, coupled with innovative treatment methods developed with the help of the mining industry, turn both into manageable chronic diseases. This further helps bring down the number of new infections among mineworkers and their families.

> *Confirming several earlier high court rulings, the Constitutional Court stresses that the standard of safety to be applied is one of 'reasonable practicality'. The court adds that the administrative action involved in issuing a Section 54 notice must also be 'reasonable' and 'rational'.*

Huge backlogs in the processing of silicosis and other claims under the Occupational Diseases in Mines and Works Act (Odimwa) are finally resolved with the help of the Minerals Council South Africa (previously the Chamber of Mines). Both Odimwa and its sister act, the Compensation for Occupational Injuries and Diseases Act (Coida) of 1993, are repealed and replaced by a single statute providing for the payment of compensation to all employees (including mineworkers), who become afflicted with silicosis or other specified occupational diseases, or who are injured or killed at work.

Both employers and employees pay a small percentage of employee salaries into a new fund, the management of which is outsourced to the private sector to prevent a repeat of the gross inefficiencies that had plagued both Odimwa and Coida for many years. The compensation paid out from this fund to qualifying employees is limited to specified maximum amounts, but these sums are in line with current average wages and are regularly revised to take account of wage increases. (This is very different with what happened under Odimwa, when maximum payouts in 2017 were based on assumed mine salaries of R3 000 a month when salaries had in fact already risen to well over R22 000 a month.) With the need for class actions having fallen away, much of the money that mining companies would previously have had to set aside to cover legal costs can instead be paid into the new compensation fund, for the benefit of affected mineworkers.

As progress towards mechanisation is made, the number of retrenchments that might otherwise have been necessary is reduced, causing ***labour relations*** to improve. Many gold mines that could not be sustained using traditional extraction methods now have a new lease of life. Mining of lower grade ores is now feasible, while gold resources located five kilometres or more beneath the ground seem set to become exploitable. By the mid 2020s, labour relations are sounder still, buoyed by the increased salaries for more highly skilled mine employees that companies can now afford.

Other reasons for this improvement are also easy to discern. The MPRDA has been substantially reformed, the mining charter has been replaced by the new EED scorecard, the EWC risk has been removed, and South Africa's score on the Fraser Institute's 'policy perception index' has risen sharply. Confidence is rising, and new mining investment has increased significantly. Investment in other sectors of the economy is also up sharply, so joblessness has diminished and mine employees have fewer dependents to look after.

The education, housing, and health vouchers forming part of the EED system have helped millions of South Africans to meet their key needs. The extension of the voucher system to Technical Vocational Education and Training (TVET) colleges is also having many positive effects.

From Grade 10, as basic education minister Angie Motskekga had earlier suggested, youngsters interested in the higher salaries generally available to those with technical skills are now allowed to switch to the TVET stream. There, they can then take advantage of e-learning to improve their skills and focus on the subjects needed for post-school TVET training. Since TVET colleges must now compete for the custom of voucher-bearing pupils, these institutions have strong incentives to improve their previously dismal performance.

Some of the TVET colleges work closely with mining companies to devise updated curricula and provide the practical training their students need (for which mining companies earn EED points in return). Already, sound technical skills are more readily available to the mining industry, while TVET graduates are being snapped up by expanding companies in a host of other sectors too. This is providing yet more impetus for youngsters to switch to the TVET option. It is also reducing the ANC's earlier 'massification' pressures on the universities and allowing them to provide a higher quality of tuition (in engineering and other fields) to a smaller group of better-prepared and more adequately-funded students.

> *The presumption that dismissals are unfair unless employers can prove the contrary has been repealed. Instead, dismissals and retrenchments are governed by the notice periods set out in employment contracts. Most mining companies provide for the private arbitration of labour disputes in these contracts, but these clauses are seldom invoked in practice.*

Input prices have also come down (partly because inefficient parastatals no longer have a monopoly over the supply of electricity and other essentials), so mining profits are rising. This also makes it possible for companies to pay still higher salaries to mine employees who increasingly have better skills. Trade unions have jettisoned their ideological desire to destroy the private sector, while the salaries of mine executives have come down from the extraordinary heights earlier reached. Wage agreements are thus easily and amicably reached, obviating the need for strike action.

Labour legislation has also been reformed in several important ways. The labour minister no longer has the right to extend bargaining council agreements to non-parties, which means that struggling smaller gold mines, for example, need no longer pay the wages that only bigger gold miners can afford. In addition, the presumption that dismissals are unfair unless employers can prove the contrary has been repealed. Instead, dismissals and retrenchments are governed by the notice periods set out in employment contracts, and can be implemented without the intervention of the state. Most mining companies provide for the private arbitration of labour disputes in their employment contracts, but these clauses are seldom invoked in practice.

Economic growth and rising employment also have a major impact on ***community relations.*** Since mines are no longer the only likely sources of jobs and contracts, communities have less reason to demand these. The enforcement of sound environmental rules has been vested in the specialist agency earlier described, and its rulings are swiftly handed down and readily accepted. However, many communities remain unhappy about the MPRDA provision vesting custodianship of all mineral resources in the state, for this has deprived them – and all other owners of surface land – of the right to control mining operations beneath their land.

Under the MPRDA, surface owners cannot stop mining from proceeding, but are instead entitled to 'just and equitable' compensation for the damage that mining operations may cause. In practice, difficult questions often arise as to how much compensation is needed, while some people argue that no amount of compensation can ever recompense communities for the loss of their traditional livelihoods once mining begins.

In the mid 2020s, a test case on these issues finally reaches the Constitutional Court. Here, the surface land is owned by a traditional community, whose king has agreed with the mining company on the compensation payable and has received the amount in question. Some community members object that he should have consulted them more fully before entering into this agreement, saying this is required by customary law. In protest, some community members refuse to relocate to a model village the mining company has built nearby, thereby preventing mining from beginning.

The Constitutional Court rules that the community is entitled to 'just and equitable' compensation for any damage to its land. Since the agreed compensation meets this criterion, the mining company has the right to rely on the agreement reached. Dissatisfied community members must thus relocate to allow mining to begin. They are also estopped from denying the authority of their king and cannot, even if they succeed in displacing him in the future, overturn the agreement that has already been concluded. Any other approach, says the court, would allow some community members, not necessarily even a majority, to 'sterilise' South Africa's great mineral wealth to the detriment of the country as a whole.

> *Now that mining's major economic contribution to all South Africans is so widely recognised, most people are reluctant to stand in the way of it. The EED initiatives to which mining contributes are greatly helping to improve most people's lives, while an upsurge in growth and employment is curtailing poverty and increasing prosperity.*

Some observers expect an upsurge in violent protest action in response, but again the already burgeoning economy is the key game changer. Now that mining's major economic contribution to all South Africans is so widely recognised, most people are reluctant to stand in the way of it. The EED initiatives to which mining contributes are greatly helping to improve most people's lives, while an upsurge in growth and employment is curtailing poverty and increasing prosperity. Urbanisation is proceeding apace, and most people prefer to leave subsistence farming behind them and move to the towns and cities where jobs and also houses (thanks to the housing voucher) are increasingly available.

In addition, community members generally welcome the compensation that mining companies must pay – and are increasingly insistent that traditional leaders must fully account to them for the money received. Taking a leaf from the tax-funded voucher system, some insist that the compensation paid should be transferred to them in the form of supplementary vouchers for education, housing, and health care. These top-up vouchers can then be used to increase the choices available to them and their families.

State monopolies over ***essential infrastructure*** – particularly the provision of electricity, freight rail, and ports – continue to push up input costs and make mining companies vulnerable to damaging disruptions. By the early 2020s, with load-shedding common, corruption pervasive, electricity prices still more exorbitant, and Eskom standing once again on the brink of bankruptcy, the tipping point is reached. The parastatal's coal-fired power stations are sold off to the private sector through an open and transparent bidding process that further promotes competition in electricity generation by limiting the number of power stations that any single company may buy. The national grid is transferred to a new parastatal, especially established for this purpose, but the operation of the grid is outsourced to the private sector, again through a competitive tendering process. The distribution task is outsourced too – but once again this is done in an open and competitive way that prevents private monopolies from replacing public ones. As maintenance improves and efficiencies increases, black-outs cease, prices come down, and the regular supply of electricity at much lower costs finally gives impetus to the local beneficiation the government has long wanted to achieve (see below).

The success of Eskom's privatisation soon fuels demands for an end to Transnet's freight rail and port monopolies. The rail network is transferred to a new parastatal, while its operation is outsourced to the private sector through a competitive tendering process. Locomotives and rolling stock are sold off to a number of companies, which soon stamp out corruption in procurement, put an end to derailments, lower operating costs, and achieve such high levels of efficiency that much of the freight that used to be transported by road shifts back to rail instead. The rail network is extended (and sometimes refurbished to bring abandoned tracks back into use) so as to cater for increased demand from the expanding mining, agricultural, and manufacturing sectors.

Privatisation reinvigorates the ports, helping to slash port tariffs (long amongst the highest in the world) and to speed up container handling and ship turnaround times. This adds significantly to the regional and international competitiveness of the mining industry and the country as a whole. As South Africa's reputation for efficiency grows, the country is able to establish important new industries focused on ship repairs and the servicing of oil rigs operating along the east and west coasts of Africa.

> *Locomotives and rolling stock are sold off to a number of companies, which soon stamp out corruption in procurement, put an end to derailments, lower operating costs, and achieve such high levels of efficiency that much of the freight that used to be transported by road shifts back to rail instead.*

Privatisation of Eskom and Transnet gives ***beneficiation*** a much needed lift, helping to bring down the high input costs that had long undermined the competitiveness of local processing, smelting, and manufacturing operations. Capital is also now flowing into the country, rather than draining out of it, helping to overcome another of the earlier obstacles to local beneficiation. That leaves the skills deficit as the key remaining challenge. However, thanks to EED vouchers for schooling and TVET colleges, the necessary skills are at last being generated. South Africa also finally changes its immigration policies to welcome foreign skills. This helps transfer knowledge to locals, speed up the expansion of essential infrastructure, and attract yet more investment.

There are various spheres (diamond cutting, for one) in which South Africa cannot compete with low-cost countries such as India. But there are also several spheres in which the country has important comparative advantage. At the time when South Africa's input costs were far too high, China overtook it as the principal source of ferrochrome for many countries. But South Africa has 70% of the world's chrome resources (often in deposits which are shallow and easy to reach), while China has none. With input costs now much reduced and logistics greatly improved, ferrochrome smelters are successfully established in the Steelpoort area in Limpopo, not far from Mbombela (Nelspruit) in Mpumalanga. Helped by cost-effective rail and port facilities, South Africa's ferrochrome is now globally competitive, helping it to regain and then expand its earlier market share.

Zinc refineries take off in the Northern Cape as well, while increased production of specialist 'niche' steel products in the Vaal triangle becomes cost-effective once again. The price and export controls (including export tariffs) the government had earlier used to compel local beneficiation have fallen away. Instead, private mining and other companies take full advantage of the market opportunities now opening up to expand the local processing of many minerals and the local manufacturing of a wider range of minerals-related products. The value added within the country boosts export earnings, generates more jobs, encourages more consumer spending, lifts the growth rate, and attracts additional direct investment.

The removal of export tariffs is part of a general process of lightening the ***tax burden*** on mining (and other) companies in South Africa. Personal and corporate income tax rates are significantly reduced to make the country more globally competitive. Echoing experience elsewhere, the tax revenues collected then increase as investment, growth, and employment accelerate. Royalties on minerals are now levied on profits, rather than turnover, so as to reduce the fiscal burden. Proposed wealth taxes are abandoned.

Helped by these tax reforms, mining companies wanting to exploit South Africa's still massive untapped gold resources put enormous R&D efforts into solving the obstacles obstructing ***mechanisation*** at deep levels. Based on this research, the use of horizontal raise boring is steadily expanded, as this removes the use of explosives and allows continuous operation with simultaneous rock support and materials handling. Ultrahigh-strength backfill is developed to help stabilise the underground environment and further reduce seismicity. More research is conducted into gold liberation through chemicals, thermal energy and other methods to allow hydraulic transport back to the surface. Better methods of locating gold-bearing rock through 3-D mechanisms of 'seeing through the rock' are also showing promise. More work is still needed in many different spheres, but the prospects of successful deep-level fully automated mining are becoming ever more real.

> *Personal and corporate income tax rates are significantly reduced to make the country more globally competitive. Echoing experience elsewhere, the tax revenues collected then increase as investment, growth, and employment accelerate. Royalties on minerals are now levied on profits, rather than turnover. Proposed wealth taxes are abandoned.*

The problem of ***illegal mining*** remains. By the mid 2020s, however, the shift from BEE to EED is helping to improve education, while the private sector is working closely with the police force to increase its efficiency. In this rejuvenated police force, sound intelligence and effective policing (aided by a specialist team of private experts) begins to identify and locate the 'king-pins' in the syndicates controlling illegal mining. Several key individuals are arrested and imprisoned for long periods, ending the culture of impunity which had earlier prevailed.

Some of the retrenched mineworkers who had turned to illegal mining as the only way to make ends meet are given amnesties and re-employed by expanding mining companies which need their skills. Others work with the police and the specialist team to root out illegal miners from a host of derelict and abandoned mines, where safety, health, and environmental regulations are constantly flouted and people risk their lives in return for a pittance. In time, some lawful small-scale operations are established and help to absorb some of the former zama-zamas. However, most illegal miners are glad to abandon their dangerous and poorly-paid work for better jobs in other sectors of a rapidly expanding economy.

The resulting sharp reduction in illegal mining saves lives, stops the gross exploitation of the destitute, enhances health and safety, and safeguards the environment. It also helps put an end to what had earlier been a steady drain from mining profits, export earnings, and tax revenues. At the same time, the sound solution reached reinforces South Africa's reputation as the most attractive mining jurisdiction on the Africa continent, where most other countries are still battling to contain illegal mining.

By the mid 2020s, the ***stigmatisation*** of mining companies – which had so damaged their social licence to operate and paved the way for ever more damaging laws – comes to an end. Mining's important contributions to the economy are now broadly acknowledged and applauded. Equally valued are its contributions to EED and the voucher system, which is playing an enormous role in the upward mobility of millions of people. Commentary on the mining sector is generally well informed and carefully balanced, helping to build public understanding of the complex challenges that miners often face. Significant failures in health, safety, environmental, and other spheres still draw merited criticisms, of course. But the exaggerated condemnation and ideological hostility which earlier confronted the industry – and which so bedevilled its relationships with the government, mineworkers, community residents, and other important stakeholders – is no longer apparent.

The wider ***economic environment*** is a key part of South Africa's remarkable success story. The decade to 2028 has seen economic growth rates averaging around 5% of GDP a year. Real GDP per capita has increased strongly for the past seven to eight years. Government revenues are rising and the ratio of public debt to GDP is well below the ANC's preferred 35% ceiling. The budget deficit has also come down sharply, as has the deficit on the current account. With property rights fully protected and the economy performing so well, international ratings agencies have lifted South Africa out of junk status and restored its earlier investment grade ratings. Inflation has been much reduced and interest rates are down, which has lowered the cost of capital and helped decrease the government's interest bill.

> *With property rights fully protected and the economy performing so well, international ratings agencies have lifted South Africa out of junk status and restored its earlier investment grade ratings. Inflation has been much reduced and interest rates are down.*

Business confidence is high and the ratio of fixed capital investment to GDP is coming much closer to the National Development Plan's 30% goal. Consumer confidence is at its highest in decades, and looks set to push the growth rate even higher in the years ahead. The 'new dawn' which the ANC had promised back in 2018 – but initially did so little to deliver – has undoubtedly arrived. This is filling South Africans with hope and a renewed goodwill, which is already succeeding in sweeping past racial tensions aside.

By 2028 the ***ANC*** has regained the political support it had lost in the Jacob Zuma years and had then battled to regain. In the 2019 election, the ANC had seen its support drop to well below 60%, for the economy was limping along and looked likely to start contracting once EWC began. By the 2024 election, however, the ANC's reform initiatives are well in train, helping to rebuild its popular support.

The introduction of EED has put an end to pervasive corruption in procurement, restored the merit principle in job appointments, and encouraged (though the voucher system) the sound use of the hundreds of billions of rands so often wasted on schooling, housing, and health care in the past. The public service has shrunk dramatically, as has its crippling wage bill – while most former bureaucrats have managed to find alternative employment in a rapidly expanding economy.

High quality education and health care are at last being provided, while the housing crisis is well on the way to being resolved. Public/private partnerships are increasingly being used to boost efficiency, particularly in the management of water, roads, sanitation, and other essential infrastructure. Dead capital has been brought to life by providing title deeds to the country's now 11 million home owners and the millions more who used to have only informal rights to their customary plots. The TVET vouchers now forming part of EED are being supplemented by 'top-up' vouchers, which are helping the millions of people who left school without a matric or adequate skills to retool themselves for the world of work.

Hopes of a better life have been restored, along with public confidence in the ANC's capacity to lead and rule the country. South Africa is stable and free, both politically and economically. Street demonstrations have fallen away, the courts and other key institutions have had their independence and competence restored, and the ruling party's position is secure.

These important gains have helped the ANC to overcome its earlier factional divisions. The organisation has isolated the die-hard ideologues within its ranks and united its remaining members behind its reforms. It now commands strong support right across the country. Since it no longer needs to rely on its 'struggle' credentials to increase its legitimacy, it has abandoned its focus on past ills and is concentrating instead on likely future gains.

> *The ANC now commands strong support right across the country. Since it no longer needs to rely on its 'struggle' credentials to increase its legitimacy, it has abandoned its focus on past ills and is concentrating instead on likely future gains.*

That the ANC's support has risen so strongly in recent years is contrary to the usual experience of liberation movements on the African continent: in general, they last only 20 to 30 years before being rejected and pushed out. By the end of the Zuma years, this seemed likely to be the ANC's fate as well, for its own polling at the start of 2018 showed that it was likely to lose the 2019 election. This outcome was avoided – but this was only because so many potential voters opted to punish the organisation by staying away from the polls, rather than by voting for another party. This gave the ANC the opportunity to reboot. Thereafter, ANC leaders prove astute in their willingness to learn lessons from other countries and welcome alternative ideas. Unlike other liberation movements, the ANC changes course, adapts, and survives.

References

1 The Brenthurst Foundation, 'The Zambezi Protocol: Result of a Dialogue on Natural Resource Policy in Africa', Discussion Paper 7/2016, May 2016, p7; Banzi Geotechnics, 'What opportunities does South Africa's geological endowment offer for the country's future?' paper prepared for the IRR, April 2018, pp27-34; Chamber of Mines, *Facts and Figures* 2016, p16; Chamber of Mines, *Mine SA 2017: Facts and Figures Pocket Book*, pp10-16
2 Banzi, p27; Chamber, *Mine SA 2017*, p11
3 *Miningweekly.com*, 31 March 2017; Banzi, p27, check page no; Chamber, *Mine SA 2017*, p11
4 *Business Day* 26 January, 14 May, *Business Report* 24 May, *Sunday Times* 27 May 2018
5 *Business Day* 15 May, *bdlive.co.za* 21 May 2018
6 Ashley Stedman and Kenneth P Green, Fraser Institute, *Annual Survey of Mining Companies*, 2017, p1; Taylor Jackson and Kenneth P Green, *Fraser Institute Annual Survey of Mining Companies,* 2015, pp8, 3
7 2017 *Mining Survey*, pp2-3;
8 Ibid, pp14-16
9 Ibid
10 Anthea Jeffery, *BEE: Helping or Hurting?* Tafelberg, Cape Town, p243
11 2015 *Mining Survey*, p49
12 2017 *Mining Survey*, p36
13 *Sunday Times* 16 May 2018
14 John Kane-Berman, 'Diamonds and All That: The contribution of mining to South Africa', IRR, Johannesburg, *@Liberty*, Issue 30, February 2017, p16
15 John Kane-Berman, 'Mining and People: The impact of mining on the South African economy and living standards', IRR, Johannesburg, *@Liberty*, Issue 37, February 2018, p38
16 John Kane-Berman, ibid
17 Chamber, *Mine SA 2017*; *Business Day* 29 May 2018; Kane-Berman, 'Mining and People', pp 3, 8, 18
18 Kane-Berman, 'Mining and People', p5
19 *Miningweekly.com*, 10 November 2017