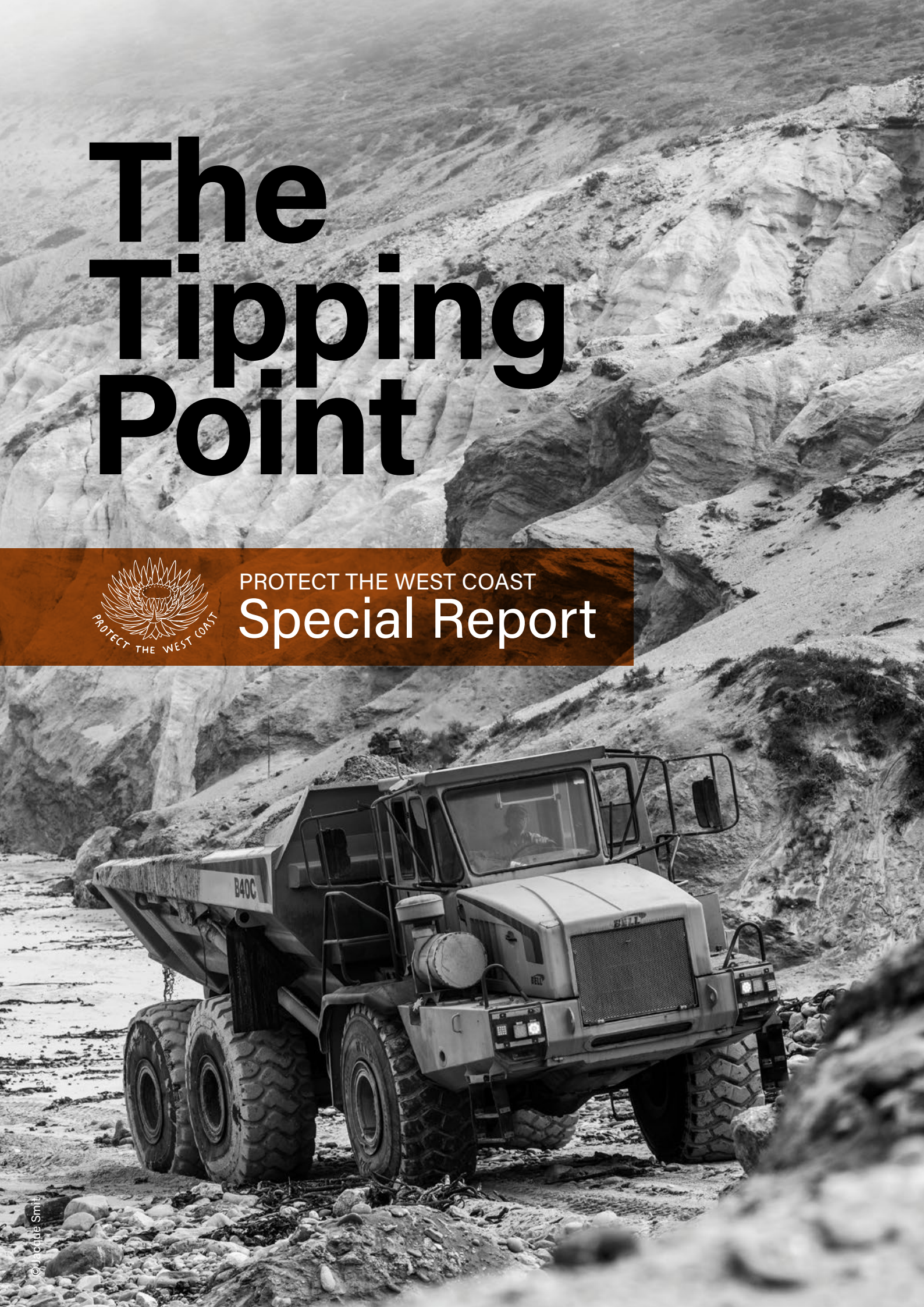
The Tipping Point

PROTECT THE WEST COAST

Special Report



Published by Protect the West Coast
(A South African Public Benefit Organisation 930072349)
2 Sea Cottage Drive
Crofters Valley
Noordhoek
7979
Cape Town
Western Cape

Editor-in-Chief: Steve Pike
Managing Editor: Miles Masterson
Legal Consultant: Patrick Forbes

Contributing Editors: Merle Sowman, Allen Lyons,
Tiaan Engelbrecht, Michael Yaman

Design and Photography: Jacque Smit

www.protectthewestcoast.org

Contents

CHAPTER 1

PTWC MD Mike Schlebach walks past the MSR Tormin mine in 2020. The site is now derelict. *Photo Xavier Briel*

Introduction

The South African West Coast is under immense pressure from the mining industry.

The regulatory framework (including those who oversee it) that governs heavy mineral and diamond mining on the West Coast of South Africa does not provide adequate social and environmental protection as required under the National Environmental Management Act 107 of 1998 (NEMA). Neither does it ensure that development is fair, equitable and sustainable, a legal requirement.

This Protect the West Coast (PTWC) Special Report outlines the many factors that have led to significant environmental degradation and loss of biodiversity on the West Coast – particularly along the Northern Cape coast and parts of the Western Cape coastline north of Doringbaai.

Heavy mineral and diamond mining – coupled with a lack of rehabilitation, and a deluge of new applications to prospect or mine – is one of the main causes of this degradation and loss. This directly impacts the wellbeing of communities who live off the land and ocean.

The granting of individual mining and prospecting rights does not sufficiently consider their cumulative impacts. As we will see, a more strategic approach is urgently needed to assess these impacts, and developments in general, in order to provide long-term jobs and sustainable development that protects social, environmental and cultural resources.

Mining is extractive and short term. Ideally, a moratorium on new approvals for mining and prospecting permits should be implemented so that a scientific study can assess their true impact. This will enable a realignment with principles of environmental sustainability and social justice in South Africa's Constitution – and international treaties to which we are signatories.

The South African government launched Operation Phakisa ('hurry up' in Sesotho) in 2014 to fast-track the implementation of the National Development Plan (NDP) to unlock the economic potential of the country's oceans. However, Phakisa faces criticism because it prioritises

rapid, large-scale industrial growth over the long-term principles of social justice and environmental sustainability.

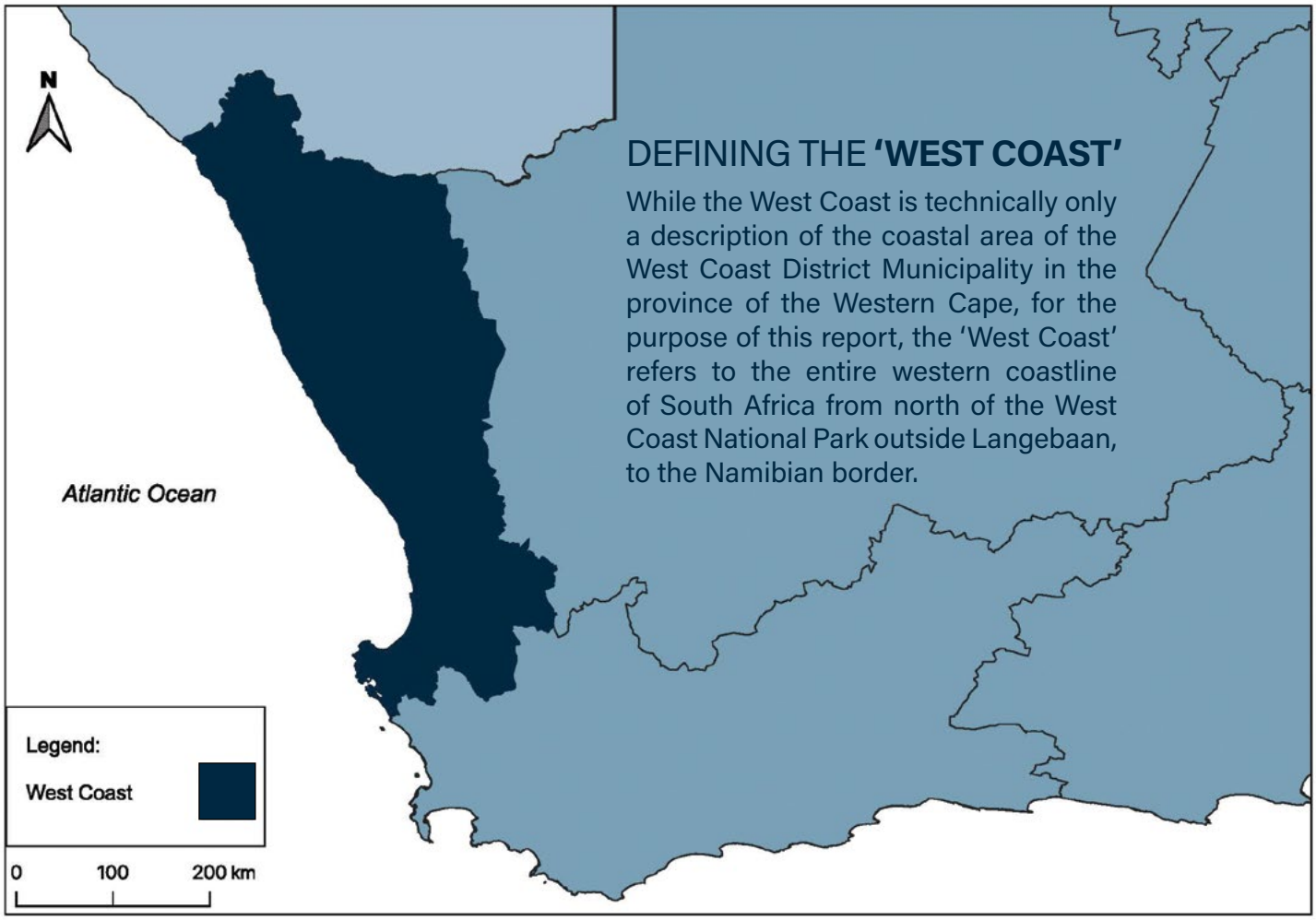
Furthermore, there are concerns that the 'competent authority' governing mining, the Department of Mineral and Petroleum Resources (DMPR), has a legislatively embedded conflict of interest. It has the power to issue Environmental Authorisations (EAs) for mining when its core mandate is to promote mining, as well as play the oversight role.

As the authority responsible for safeguarding the environment, this mandate should belong to the Department of Forestry, Fisheries and the Environment (DFFE), not the DMPR.

South Africa is fortunate to have robust regulatory tools in the National Environmental Management Act of 1998 (NEMA); Biodiversity Act of 2004; Integrated Coastal Management Act of 2008; and Marine Spatial Planning Act of 2017 to safeguard the environment. Guiding principles emerging from this legislation, read together with international agreements such as the 2015 Paris Agreement and the 2012 Gaborone Declaration for Sustainability in Africa, provide the foundation for long-term stewardship of the West Coast and the equitable extraction of natural resources, so that mining contributes in a net positive way to the South African fiscus.

Nevertheless, it is PTWC's position that the situation has reached a Tipping Point which needs to be urgently addressed, hence the title of this Special Report.

However, rather than being 'anti-mining' per se, this report outlines suggested strategies and alternative sustainable development opportunities that could bring positive long-term outcomes for the environment and communities of the West Coast, rather than short-term economic gains with a negative outcome.



DEFINING THE **'WEST COAST'**

While the West Coast is technically only a description of the coastal area of the West Coast District Municipality in the province of the Western Cape, for the purpose of this report, the 'West Coast' refers to the entire western coastline of South Africa from north of the West Coast National Park outside Langebaan, to the Namibian border.

CHAPTER 2

The West Coast: **An Overview**

© Jacque Smit

Natural Environment

The Western Cape's western coast has a cool-temperate climate, where hot, dry summers contrast with mild, wet winters. The region is characterised by the Fynbos Biome, which gradually transitions into the more arid Succulent Karoo Biome in the Northern Cape, where rainfall is lower and the region is more reliant on moisture from coastal fogs.

The West Coast is part of the Benguela Marine Ecosystem – a productive, biodiverse system shaped by dynamic interaction between the terrestrial and marine environment. This biodiversity is largely sustained by the cold, north-flowing Benguela Current, one of five wind-driven upwelling systems on the planet.[1]

As a result, the region is world renowned for beautiful landscapes and unique species of fauna and flora, characterised by a high level of endemism. In the West Coast National Park and Namaqua National Park alone, there are almost 4,000 plant species, of which almost a third are endemic.

This remarkable flora supports a huge diversity of fauna. Some are extremely rare, such as the tiny, speckled dwarf tortoise (*Chersobius signatus*) or Van Zyl's golden mole (*Cryptochloris zyli*). Others, such as the black harrier (*Circus maurus*), a rare endemic raptor, face severe threats from human encroachment. Habitat loss has led to significant population declines – fewer than 800 mature individuals remain.[2]

The Benguela Marine Ecosystem is recognised as one of the most biologically-rich ocean systems in the world. The upwelling of cold, nutrient-rich deep waters sustain exceptionally high rates of phytoplankton production.

This marine biodiversity hotspot is 30 to 65 times more productive per unit area than the global average, and it sustains small-scale and commercial fishers.[1] Species such as sardines, pilchards, anchovies and horse mackerel support larger predatory pelagic fish, sea birds and marine mammals.

4,000 plant species in West Coast National Park.

Fewer than 800 adult black harrier remain.

[1] NASA Earth Observatory (2010) Phytoplankton Bloom off Namibia.
[2] Cervantes H, Martins M, Simmons RE (2022) Population viability assessment of an endangered raptor using detection/non-detection data reveals susceptibility to anthropogenic impacts. Royal Society Open Science 9: 220043. https://doi.org/10.1098/rsos.220043.

Species of Concern


© Winfried Bruenken

Conophytum Genus - There are 190 plant species from the group *Conophytums*, a range of dwarf succulents endemic to the Succulent Karoo Biome, Southern Africa, of which 85% are listed as endangered or critically endangered.[3]


© G. Rathbun

Van Zyl's Golden Mole - Critically endangered and endemic to South Africa, this tiny 80mm mole, which twitches in its sleep to regulate temperature, survives only at a location near Lambert's Bay on the West Coast. Mining threatens its habitat.


© Alex Rebelo

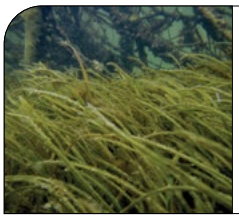
Orange-tailed Sandveld Lizard - A reptile of conservation concern, this sandveld specialist occurs only in remnant coastal dune and sandveld. Its orange-tinged tail and secretive behaviour belie its ecological value as an indicator of intact sand ecosystems.


© Turtle Conservancy

Speckled Dwarf Tortoise - The world's smallest tortoise, endemic to South Africa's arid West Coast and Succulent Karoo Biome, has unusually high water efficiency for its size, absorbing moisture from morning dew and fog through specialised behaviours and subtle postures.


© Jacque Smit

Black Harrier - This rare raptor (Birdlife SA Bird of the Year 2026) is endemic to the fynbos and Karoo of the Western and Eastern Cape. It breeds in winter, laying more eggs in wetter years. Coastal individuals anchor its future as inland populations shrink due to habitat loss.


© Ricky Taylor

Zostera capensis (seagrass) - This vital seagrass - found exclusively in the Langebaan Lagoon, and Berg and Olifants River Estuaries - provides species habitat and supports estuarine health through water purification and ecosystem regulation.


© Christoph Moning

African Penguin - The only penguin species that breeds in Africa, charismatic 'jackass penguins' can roam up to 1,800 km at sea, yet return to fragile coastal colonies that are increasingly threatened.

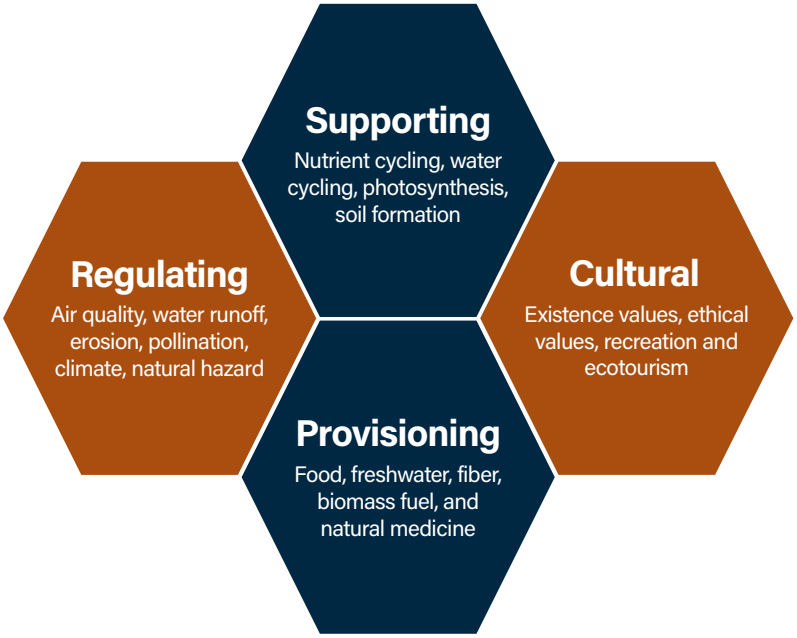

© Jacque Smit

Sanderling - This small, long-distance Arctic migrant is key to West Coast sandy shore ecosystems, foraging energetically in the intertidal zone. It reflects healthy invertebrate species and coastal processes.

[3] Matimele H, Darbyshire I, Parbhoo S (2023) 2022 report of the Southern African Plant Specialist Group. In: Nassar JM, García L, Mendoza L, Andrade ND, Bezeng S, Birkhoff J, Bohm M, Canteiro C, Geschke J, Henriques S, Ivande S, Mileham K, Ramos M, Rodríguez A, Rodríguez JP, Street B, Yerena E (eds) 2022 report of the IUCN Species Survival Commission and Secretariat. International Union for Conservation of Nature, pp 1–6.

Human Presence

The Northern Cape is considered mostly 'Karoo' (from 'Karusa' or 'dry'), but has much to offer human survival. The First Nations people of the Khoekhoe and Nama have roamed this coast for millennia, leaving a rich cultural legacy. They have conquered the harsh terrain to sustain their livelihoods as subsistence farmers or fishers. *See Ecosystem Services to Humans diagram, right.*



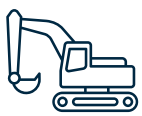
Population and migration from the south and from inland has led to larger coastal communities, particularly in the West Coast District in the Western Cape Province. Agriculture, fishing and tourism are some of the main economic drivers and providers of employment, as well as transport, retail manufacturing and services.[4]

Despite improvements in basic service delivery, the region faces social challenges, with high unemployment, poverty, and crime, exacerbated by an inconsistency in public service delivery, including failures in clean water supply, electricity, sanitation, refuse removal, and housing.

The Northern Cape economy contributes up to 2.3 % of national gross domestic product (GDP), dominated by mining, which accounts for around one-fifth of output, alongside agriculture, manufacturing, and construction.[5]

But unemployment (up to 40%) remains high, especially among the youth, which exacerbates poverty, crime, skills deficits, and socioeconomic exclusion.

Poor infrastructure, education and employment amplify these challenges, especially along the sparsely-populated Northern Cape coastline.



Mining = **one-fifth of Northern Cape GDP.**

© Jacque Smit

Runners in the annual Run West trail run work their way towards Doringbaai.

Recreational Paradise

The entire West Coast is more than just a place of residence for its inhabitants; for most it represents a unique way of life punctuated by wide open spaces and a closeness to, if not dependence on, nature. The region's natural beauty also attracts visitors from around the world, particularly for recreational activities.

It is internationally recognized as a premier birding destination, and is home to three wetlands of global significance that are designated as Ramsar sites (a wetland site designated as of international importance under the Ramsar Convention): the Langebaan Lagoon within the West Coast National Park, the Berg River estuary, and the Verlorenvlei estuary in Elands Bay.

These wetlands provide critical habitats and migratory stopovers for diverse bird species and contribute substantially to the ecological integrity and conservation value of the region.

In terms of officially protected areas, only roughly 10% of the West Coast coastline is protected, in the form of two national parks. The Namaqua National Park in the Northern Cape and the West Coast National Park in the Western Cape attract thousands of tourists in spring when the wildflowers bloom. Overall, the vast landscapes, wide open spaces, sparse populations and sense of serenity draw many people for outdoor adventure activities, such as recreational fishing, diving, surfing and camping, although lack of access across prohibited mining areas and across private or state land can sometimes present a challenge for residents and visitors.

Only 10% of the West Coast is officially protected.

[4] West Coast District Municipality (2022) Integrated development plan 2022–2027 (final amended). West Coast District Municipality, May 2022.
[5] Statistics South Africa (2024) Provincial gross domestic product, 2024. Statistical release P0441.2. Statistics South Africa, Pretoria.

CHAPTER 3

West Coast Mining: A Short History

Diamond boats moored at Port Nolloth.

Diamonds

Diamonds, the hardest material known to humans, were formed over billions of years, forged by immense heat and pressure deep in the earth. Volcanic eruptions – the last about 30 million years ago – pushed the rock towards the surface in carrot-shaped funnels known as kimberlite pipes.

Alluvial diamonds released from weathered kimberlites were transported to the coast by ancient rivers draining the Karoo and Kalahari basins.[1]

Diamonds were first discovered along the West Coast of Southern Africa in 1906 near Lüderitz Bay. The ensuing diamond rush was cut short with the outbreak of World War I. After the war, prospecting activities moved southwards, eventually leading to the discovery of diamonds near Port Nolloth in 1925.

This discovery sparked a rush of prospectors. By 1928, the government had intervened to control the rush by consolidating the diamond fields between Port Nolloth and Alexander Bay into the State Alluvial Diggings (SAD), fencing off the richest areas and regulating mining activity.

Eighty kilometres of the Namaqualand coast was brought under tight government control, which lasted well into the apartheid era, when this was a prohibited, militarised zone.

The diamond deposits around Kleinzee were discovered in 1927. Cape Coast Exploration Company, a company chaired by Sir Ernest Oppenheimer, tied up all the land between Port Nolloth and Hondeklipbaai. This company was incorporated into De Beers by 1941. De Beers started full scale mining in 1942 at Kleinzee.

Production peaked in the late 20th century. Since the late 2000s, diamond production has been declining due to dwindling diamond reserves.

Alluvial diamond mining has been undertaken along the West Coast for almost 100 years. Where mining activities have been concentrated, the landscape has been utterly transformed. Deep mining pits, high 'overburden' dumps, intermittent prospecting trenches and heavy vehicle tracks have transformed much of the Namaqualand coastline into the unrehabilitated, mine dump-lined, pockmarked moonscape seen there today.

[1] de Wit MCJ (2024) Diamonds delivered to the West Coast of southern African from erosion of Kaapvaal based kimberlites and lamproites. 12th International Kimberlite Conference Extended Abstract No. 12IKC-019, 2024.

Red patches on a West Coast beach denote heavy minerals.

Heavy Mineral Sands

Heavy mineral sands are beach and coastal sand deposits containing high concentrations of heavy minerals such as ilmenite, rutile, zircon, monazite, garnet and magnetite. Heavy minerals are an important source of industrial minerals and metals used in pigments, ceramics, electronics and aerospace materials.

After World War II, growth in demand for titanium drove global interest in heavy mineral sands. Exploration in South Africa led to the discovery of the Richards Bay deposit in the 1970s and the Namakwa Sands deposit of the West Coast in the 1980s.

The Namakwa Sands deposit is a world-class heavy mineral deposit developed by Anglo American Corporation, with full production from 1995. Now operated by Tronox, it is the second largest producer of heavy minerals in South Africa after Richards Bay Minerals and is an internationally leading supplier of titania slag, pig iron, premium ceramics grade zircon and rutile concentrate to several export markets.[2] It is estimated that this mine will be in production until 2047.[3]

Zircon is used as a strong metallic element in ceramics, or processed into zirconium chemicals and metal. South Africa's share of world zircon production was 25% in 2020, equivalent to 311,800 metric tonnes.[4]

Tronox alone accounts for 60% of that production (180,000 metric tonnes) of which approximately 40% is derived from their Namakwa Sands operation at Brand se Baai.

South Africa's share of world zircon production was **25% in 2020**, equivalent to 311,800 metric tonnes.

Mineral Sands Resources (Pty) Ltd (MSR) started mining the Tormin beach deposit early 2014 and the inland palaeo-placer late 2020. MSR was already under financial stress by the time it started mining the inland strand deposit. The company eventually went into business rescue in 2024 without fulfilling its rehabilitation obligations.

[2] Rozendaal A, Philande, C, Carelse C (2009) Characteristics, recovery and provenance of rutile from the Namakwa Sands heavy mineral deposit, South Africa. The 7th International Heavy Minerals Conference 'What next', The Southern African Institute of Mining and Metallurgy.
[3] SRK Consulting (2025) Closure Cost Assessment for Namakwa Sands West Mine Residue Storage Facility 7.
[4] Pedersen C (2023) The sands worth billions: how mining companies are reshaping South Africa's West Coast. Transnational Institute, Amsterdam.

Members of the Richtersveld community after another poorly attended public meeting. *Photo Gary van Wyk*

Culture and Colonisation

The indigenous people of the West Coast have known diamonds for thousands of years. Nama elders speak of learning to count with diamonds, a mysterious stone that is woven into their mythology. However, these massive concentrations of diamonds and heavy mineral sands went undiscovered by Europeans for 200 years after the colonists arrived in the Cape in 1652.

Due to the remoteness of the Northern Cape and Richtersveld, and the pastoral, nomadic nature of the inhabitants, European settlers in the Cape to the south mostly ignored the area – until copper was discovered in 1837, although the Khoekhoe people had used copper for centuries.

By 1854, the Great Copper Rush was on. Alexander Bay, at the mouth of the Orange River, was the export point. This infrastructure would later be useful when the government and later state-owned Alexkor took control of diamond mining between Port Nolloth and Alexander Bay.

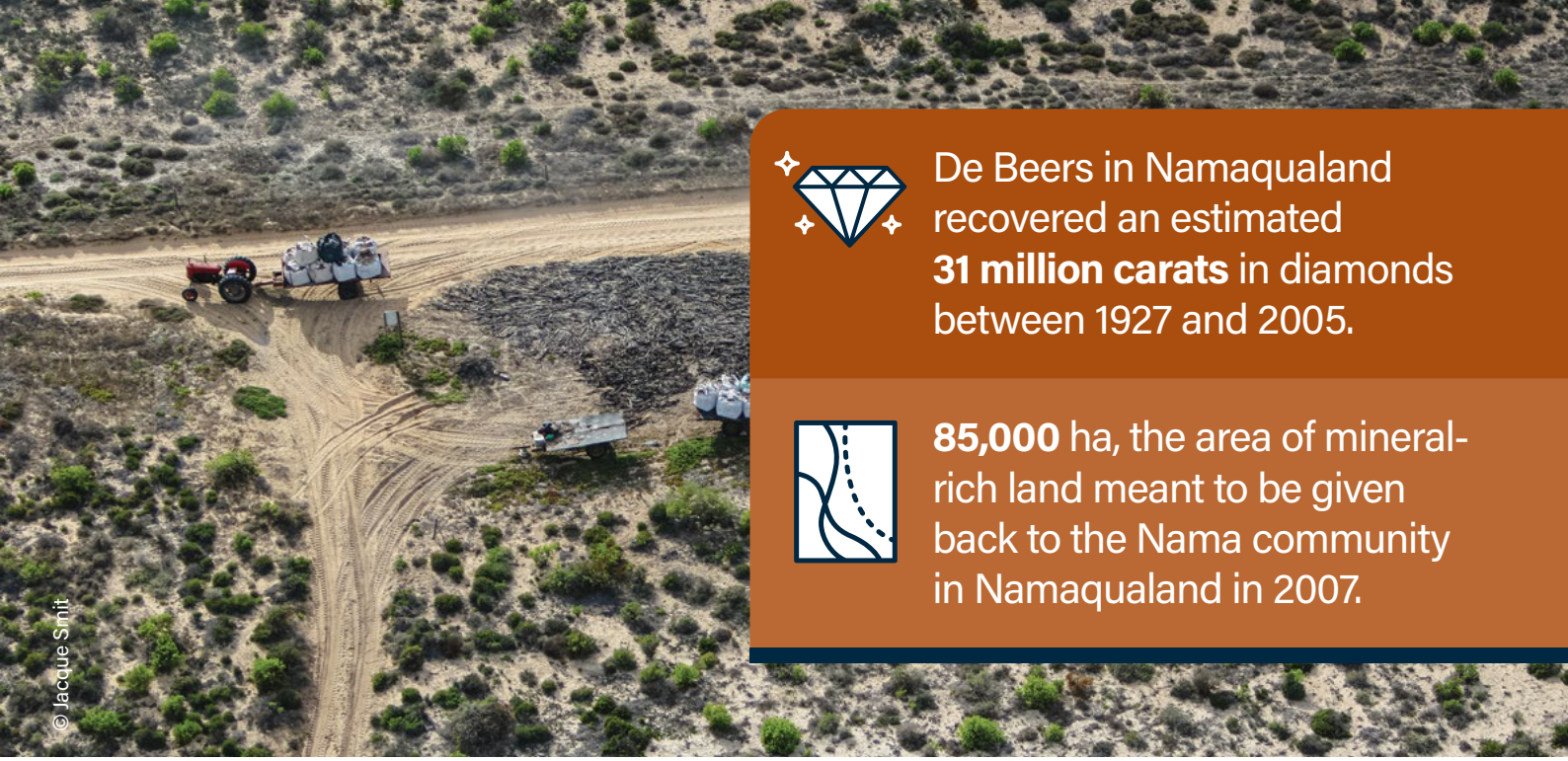
Long before the copper and diamond rushes, small clans of pastoral Khoekhoe and San people lived along the West Coast. The main group was the Nama, centered around Alexander Bay. The Khoekhoe and Nama were semi-nomadic herders of goat, cattle and sheep, but they had a deep spiritual connection to nature predicated on a profound and life-giving knowledge of ocean and terrestrial ecosystems that sustained them.

However, these First Nations people did not fare well when the colonists arrived. They were decimated by smallpox, dispossessed of land and enslaved. They watched while their ancestral land was systematically stripped, trenched and dredged for minerals.

It is notoriously difficult to gauge the total value of diamond extraction in Namaqualand compared to its cost due to illegal mining, opaque pricing structures, and increasing operational costs as resources become less accessible.

While the region was historically famous for rich, high-quality diamonds, the economic viability of large-scale operations has declined, making it hard to measure the true economic benefit against the environmental and social costs.[5]

Based on historical mining data, De Beers in Namaqualand recovered an estimated 31 million carats between 1927 and 2005. The total value of this, excluding the costs of production and taxes, runs into tens of billions



De Beers in Namaqualand recovered an estimated **31 million carats** in diamonds between 1927 and 2005.

85,000 ha, the area of mineral-rich land meant to be given back to the Nama community in Namaqualand in 2007.

of rand. With heavy mineral mining on the West Coast, the total value is potentially vast, although it is not easy to find comprehensive or accurate data. However, as an example, in 2021, Tronox, owner of the Namakwa Sands mine, generated USD478 million (about ZAR8.5 billion) in revenue from sales of zircon, accounting for 13% of its total revenue.

If one excludes the profits this mining may have had for shareholders and the national fiscus, few benefits have accrued to local communities from a century of mining. Not least after the debacle that ensued after the Richtersveld land claim (finalised in a 2007 settlement), when 85,000 hectares of diamond-rich land in the Northern Cape was meant to be given back to 4,000 members of the Nama community, along with compensation and rehabilitation funds from Alexkor.

The landmark case, initiated in 1998, was upheld by the Constitutional Court in 2003, recognising indigenous, communal ownership rights over territory and a share of mineral rights.[6]

However, a combination of state capture, mismanaged funds, dysfunctional governance, failed joint ventures, and rapidly declining mineral resources has led to widespread poverty after the community lost its majority share in the deal.[7]

Three hundred years after Europeans arrived, all the indigenous people of the West Coast – the Nama, Cochoqua and other tribes – must fight not only a harsh landscape, exacerbated by climate change, but their right to exist under the supposed protection and oversight of their government.

Increasing pressure from mining is a threat to their way of life, livelihood and natural surroundings, with which they share a deep spiritual connection. The West Coast is a stark illustration of extremes: immense geological wealth in the ground juxtaposed with extraordinary poverty among the people on the ground, a situation that is morally unjustifiable and economically unsustainable.

[5] Morris N, Baartjes NL (2010) The social impact of diamond mining – is it time to revisit the scorecard? In: Diamonds – Source to Use 2010. The Southern African Institute of Mining and Metallurgy (SAIMM), pp 293–302.
[6] Alexkor Ltd and Another v Richtersveld Community and Others (CCT19/03) [2003] ZACC 18; 2004 (5) SA 460 (CC); 2003 (12) BCLR 1301 (CC) (14 October 2003). Available at: https://www.saflii.org/za/cases/ZACC/2003/18.html (accessed 19 February 2026).
[7] Dommerholt T (2020) The Kaalgat millionaires of the Richtersveld: indigenous outcasts of modernity. MSc thesis, Wageningen University & Research, Wageningen.

Cliff collapses can be seen along a heavily mined section of beach at the Tormin mine.

© Jacque Smit

CHAPTER 4

The Present: **A Broken System**

Past and Present

The remote, sparsely populated coast of the Northern Cape and northern Western Cape has suffered a large degree of environmental degradation, and its people have endured a large measure of cumulative hardship from colonisation and exploitation by the mining industry for more than a century.

The racial segregation and economic subordination created by apartheid were the ideal mechanism for mining, particularly after the Mines and Works Act of 1911, which relegated black and coloured communities to menial roles, while reserving skilled work for whites.

Despite the transition to democracy in South Africa, and attempts made to redress inequalities through legislation, such as the requirement for Social and Labour Plans (SLPs) under the Mineral and Petroleum Resources Development Act (MPRDA) of 2002, the often short-term, extractive profit-driven priorities of the mining houses, and more latterly state-owned Alexkor, are at odds with the values of long-term stewardship, community wellbeing and environmental accountability espoused by the country.

Alexkor was intended to serve as a model for transformation, but instead faced repeated allegations of mismanagement[1], and a failure to uphold the 2003 land restitution rights of the Richtersveld community.[2]

The destructive legacy of mining can be seen all over Namaqualand and south into the Western Cape. Abandoned mines dot the landscape, alongside empty worker hostels, hollowed-out clinics, and broken-down schools – ostensibly the result of the failure to fulfil obligations required by Mine Closure Plans by mining companies, worsened by chronic lack of oversight.

This dereliction has systematically eroded the cultural fabric of the Nama and Khoekhoe people, for whom land is inseparable from identity, memory and continuity – and yet they are rarely consulted. As landscapes are destroyed and access is restricted, cultural practices are disrupted, accelerating the loss of language and traditions, social breakdown, and intergenerational trauma. This cycle then repeats, deepening the crises.

In just one area, inland from Hondeklipbaai and to the south, the landscape resembles a moonscape. An old Trans Hex mine – buildings in disrepair – abuts large holes in the ground, while north of Koingnaas you will find the longer-term legacy of De Beers: mega-trenches, several rugby fields long and wide, scarring the landscape.

Thousands of hectares lie barren here. In the updated Environmental Management Programme for the De Beers Koingnaas operation (2011), Golder and Associates estimated the mined area near Hondeklipbaai to cover 5,000 hectares (ha) – an extent of about 7,500 standard soccer fields placed end to end. Some tailing dumps are so huge, permanent structures such as radio masts have been erected on them.

When first excavated, in most cases, the crucial top soil needed for later rehabilitation – only required by legislation from 1991 in South Africa (the Minerals Act, No. 50) – was dumped and eroded away. As a result, several endemic flora species have become extinct, such as the 'knopie' *Conophytum semivestitum*.[3]

The Fynbos and Succulent Karoo Biomes of the Western and Northern Cape are under significant threat from mining, and are being degraded from habitat loss, which is largely attributed to expanding mining footprints and the failure to rehabilitate.[4]

Loss to specialist habitats threatens the survival of entire populations of birds. Two examples are the coastal Damara tern (Endangered) and inland Red Lark (Vulnerable). The tern is found on a small stretch of the Namibian and Northern Cape coastline,[5] while the endemic Red Lark has a small distribution confined to red dune habitat.[6]

Along the shoreline, beach mining, cofferdams and mining infrastructure have resulted in cliff collapses, damage to dunes, and altered sediment, disrupting coastal ecosystems that once buffered storms, sustained fisheries and supported communities.

This damage is the predictable outcome of regulatory failure, inadequate environmental oversight, and an extractive model at odds with modern scientific understanding and sustainable mining methodologies.

The environment in South Africa is guarded by a suite of progressive and robust environmental laws. However, in the case of mining, these laws fall short of this mandate.

7,500 soccer fields

The extent of the area disturbed by mining near Hondeklipbaai in the Northern Cape (±5,000 hectares).


© Jacque Smit

[1] Parliamentary Monitoring Group (PMG) (2025.) Tabled committee report 6184. Parliamentary Monitoring Group website. Accessed 20 Feb 2026. https://pmg.org.za/tabled-committee-report/6184/.
[2] Parliament of the Republic of South Africa (2025) Media statement: Select Committee on Land Reform to conduct oversight at Alexkor, Alexander Bay. Parliament of the Republic of South Africa website. Accessed 20 Feb 2026. https://www.parliament.gov.za/press-releases/media-statement-select-committee-land-reform-conduct-oversight-alexkor-alexander-bay.
[3] Young AJ, von Staden L (2021) *Conophytum semivestitum* L.Bolus. National assessment: Red List of South African plants, version 2024.1. Available at: (SANBI Red List platform) (accessed 13 February 2026)
[4] Monyeki MS, Skowno AL (2026) Ecosystem threat status: terrestrial realm. In: National Biodiversity Assessment 2025. South African National Biodiversity Institute, Pretoria. Available at: http://nba.sanbi.org.za/ (accessed 19 February 2026).
[5] Hockey PAR, Dean WRJ, Ryan PG (2005) Roberts birds of southern Africa, 7th edn. The Trustees of the John Voelcker Bird Book Fund, Cape Town.
[6] Colyn R, Lee ATK (2025) Red lark. In: Lee ATK, Rose S, Banda S, Bezeng SB, Maphalala MI, Maphisa DH, Smit-Robinson H (eds) The 2025 red data book of birds of South Africa, Lesotho and Eswatini. BirdLife South Africa, Johannesburg. Available at: https://www.birdlife.org.za/red-list/red-lark/ (accessed 19 February 2026).

The Tronox Namakwa Sands mine. *Photo Jacque Smit*

The Legal Framework

Mining in South Africa is primarily governed by the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA), which vests custodianship of all mineral and petroleum resources in the State, declaring these resources the "common heritage of all the people of South Africa".

As the 'competent authority', the Department of Mineral and Petroleum Resources (DMPR) administers this regime. No person may prospect or mine without a right granted by the DMPR.

A prospecting right permits exploration through geological surveys, trenching, drilling and bulk sampling for up to five years and may be renewed. A mining right authorises commercial extraction for up to 30 years, also subject to renewal.

Applicants must submit detailed technical and financial documentation, including a Prospecting Work Programme (PWP) or Mining Work Programme (MWP), outlining the nature, scale and duration of operations.

30 Years - The duration of a mining right in South Africa, subject to renewal.

Applications must also include a Social and Labour Plan (SLP), intended to promote local social, economic development and employment as a stipulation of the allocation of a mining right.

Applicants must demonstrate and make adequate financial provision for rehabilitation and closure to ensure that the inevitable environmental damage is rehabilitated and the State does not then inherit abandoned mines with no provision made to rehabilitate them.

While the MPRDA establishes the framework for mineral extraction, mining also falls under what is referred to as the 'One Environmental System' governed by South Africa's environmental regulatory regime.

The Environmental Framework

Section 24 of the Constitution of the Republic of South Africa, 1996, guarantees everyone the right to an environment that is not harmful to their health or wellbeing.

The Constitution requires the State to protect the environment for present and future generations through reasonable legislative and other measures to prevent pollution and ecological degradation, to promote conservation, and secure ecologically sustainable development, while promoting justifiable economic and social development.

The National Environmental Management Act 107 of 1998 (NEMA) gives effect to this right. NEMA establishes binding environmental management principles on all organs of state, including sustainable development, the precautionary approach principle, transparency, intergenerational equity and meaningful public participation.

Under NEMA, certain listed activities that impact the environment may not commence without prior environmental authorisation, which includes a Public Participation Process (PPP). Impacts must be identified, assessed and reported before decisions are taken.

Mining is therefore regulated by the DMPR at the intersection of the MPRDA and NEMA.

However, as we shall see, the reality often falls short of the ideal.

The Grey Tit is a species of bird in the family *Paridae*, found in scrubby fynbos along Tormin's beach mines.
Photo Jacque Smit

The One Environmental System (OES)

In 2014, Parliament introduced the One Environmental System (OES) to align mining authorisations and activities ancillary to mining under the MPRDA with environmental authorisation processes under NEMA – streamlining what was a fragmented and onerous process of environmental and mining authorisation into a single, fast-track decision-making process.[7]

However, the reform did more than streamline paperwork. It shifted responsibility for environmental approvals in the mining sector to the same department tasked with promoting mining, the DMPR, a change that has drawn sustained criticism from scholars and civil society.[8]

Before the OES, an applicant had to make an application to the DMPR for authorisation to mine and and a separate application to environmental authorities, at either a national or provincial level for certain environmental authorisations. However, under the OES, this was consolidated and responsibility was given to the DMPR to grant authorisations for mining, under the Environmental Impact Assessment (EIA) Regulations.[9]

Environmental Authorisations (EAs) issued by the DMPR must conform to the environmental framework of NEMA and its Environmental Impact Assessment (EIA) Regulations. Appeals against EAs are then submitted to the Department of Fisheries, Forestry and the Environment (DFFE) Minister, who may uphold or overturn a DMPR decision.

Depending on the scale and nature of the activity, applicants must conduct either a Basic Assessment Report (BAR) or a Scoping Report (SR) and Environmental Impact Report (EIR). These processes are supposed to evaluate environmental, social and economic impacts, consider alternatives, and identify mitigation measures.

An Environmental Management Programme (EMPr) must also be approved by the DMPR. The EMPr functions as the legally binding blueprint for environmental management during the life of the project, including obligations to rehabilitate and monitor. Financial provisioning for rehabilitation is regulated under the Financial Provisioning Regulations, GNR 1147 of 20 November 2015 under NEMA, which requires applicants to determine, secure and maintain adequate financial provision for rehabilitation, closure and post-closure management.

Where water resources are affected, a Water Use Licence (WUL) is required under the National Water Act 36 of 1998. Mining in

coastal areas must also comply with the Integrated Coastal Management Act 24 of 2008 (ICMA), which recognises the coast as public property held in trust by the State and requires its protection and enshrines equitable access.

In principle, this integrated framework is designed to ensure that mining proceeds in a constitutionally compliant, environmentally responsible and socially equitable manner.

Shortcomings of the OES

The OES was introduced more than a decade ago in a bid to harmonise environmental management and strengthen enforcement, but there is no evidence to suggest that it has.

Environmental degradation and destruction on the West Coast and elsewhere in South Africa continues. If anything, it has got worse. This includes increasing loss of critical biodiversity, declining access to coastal resources and areas, mounting pressure on already scarce water systems, and growing social disintegration.[10, 11, 12]

Opposition from civil society groups, including indigenous and local communities, and an increasing number of appeals and legal challenges against EAs indicate that the system is not fulfilling its objectives to ensure sustainable use and management of the West Coast environment.

Weakness in the current system is structural as well as operational and is being exploited to the detriment of socioeconomic conditions and the environment.

[7] Humby TL (2015) 'One Environmental System': aligning the laws on the environmental management of mining in South Africa. Journal of Energy & Natural Resources Law 33: 110–130. https://doi.org/10.1080/02646811.2015.1022432.
[8] Sowman M, Sunde J (2024) Integrating environmental sustainability and social justice principles into South Africa's blue economy initiative: re-imagining the political economy of our ocean. Frontiers in Ocean Sustainability 2: 1459496. https://doi.org/10.3389/focsu.2024.1459496
Alexkor Ltd and Another v Richtersveld Community and Others (CCT19/03) [2003] ZACC 18; 2004 (5) SA 460 (CC); 2003 (12) BCLR 1301 (CC) (14 October 2003). Available at: https://www.saflii.org/za/cases/ZACC/2003/18.html (accessed 19 February 2026).
[9] Environmental Impact Assessment Regulations, 2014, GNR. 982 in GG 38282 of 4 December 2014, as amended.
[10] Blair I (2011) In the wake of diamond mining: a critical assessment of environmental governance and corporate social responsibility in the Namaqualand coastal region. University of Cape Town, Cape Town.
[11] EHarris LR, Besseling N, Sink KJ, Skowno AL, Van Niekerk L (2026) Ecosystem threat status (coastal zone). National Biodiversity Assessment 2025. South African National Biodiversity Institute, Pretoria. Available at: https://nba.sanbi.org.za/content/coast/cst_ets.html (accessed 19 February 2026).
[12] Skowno AL, Jewitt D, Slingsby JA (2021) Rates and patterns of habitat loss across South Africa's vegetation biomes. South African Journal of Science 117: 1–5. https://doi.org/10.17159/sajs.2021/8182.

Problems with the Mineral Resources Development Bill

The legal provisions in the proposed Mineral Resources Development Bill, 2025, are meant to modernise South Africa's mining regulatory framework in order to boost investor confidence, increase economic growth and accelerate transformation.

Arguably, it will do none of these. As new legislation, it undermines constitutional rights and environmental safeguards by centralising power and eroding public participation.

For a start, by narrowing the definition of "community" and using ambiguous "Interested and Affected Party" terminology, the Bill proposes excluding coastal users, NGOs, and those without formal land tenure, from the decision-making process.

This approach explicitly rejects the constitutional principle of Free, Prior and Informed Consent (FPIC), reducing meaningful engagement to mere information-sharing exercises that strip communities of the power to reject harmful projects.

The Bill also fosters significant conflict of interest by centralising authority under the Minister of Mineral and Petroleum Resources, who is tasked with simultaneously promoting mining, adjudicating appeals, and appointing review committees.

The removal of regional oversight is compounded by an authorisation process where mining rights are granted *before* environmental permissions are made. Such procedural momentum pressures regulators to approve licenses for projects already in the system.

Finally, the framework weakens the oversight of mine closures and Social and Labour Plans (SLPs) while failing to provide any meaningful penalties for non-compliance or mechanisms for community-led accountability.

Institutional Conflict of Interest

A central concern is the role of the DMPR to promote mineral resource development while at the same time regulate its environmental impact.

The same authority that grants prospecting and mining rights also issues environmental authorisations, approves EMPrs, and is supposed to oversee rehabilitation and enforce compliance.

This dual role creates an inherent tension between the ostensible economic driver of promoting mining, against that of social and environmental protection.

This increases the risk that short-term development imperatives can and do override long-term socioeconomic and ecological safeguards.


© Jacque Smit

Failure to Assess Cumulative Impacts

Although NEMA requires comprehensive impact assessment, decision-making frequently remains reactive and site-specific. Applications are assessed on a project-by-project basis without sufficient consideration of regional context or cumulative effects.

Strategic Environmental Assessments (SEAs) and regional environmental planning tools are seldom used to guide mining decisions along the West Coast. However, without adopting a more strategic approach, the impacts associated with individually-assessed approvals will accumulate over time, resulting in significant and, in some cases, irreversible environmental degradation.

A current example is the dual offshore mining application by Trans Hex Heavy Minerals Mining (Pty) Ltd and prospecting right application by Trans Hex Operations. The cumulative impact discussions in their EIAs remain largely generic and they conclude "low significance" based partly on assumptions such as relatively low incidence/frequency and simultaneous mining/exploration activity being "unlikely".[13, 14]

As we shall see, a proper cumulative impact assessment requires moving beyond the direct effects of an individual application toward a broader evaluation of the combined long-term environmental, social and economic effects in the region as a whole.[15]

[13] SRK Consulting (South Africa) (Pty) Ltd (2025) Multi-commodity prospecting activities in marine concessions 11A, 12A, 13A, 11B, 12B and 13B, West Coast, South Africa: environmental impact assessment report. Report prepared for Trans Hex Heavy Minerals Mining (Pty) Ltd. SRK report no. 602978/05.
[14] SRK Consulting (South Africa) (Pty) Ltd (2025) Diamond mining activities in marine concessions 11B and 13B, West Coast, South Africa: environmental impact assessment report. Report prepared for Trans Hex Operations (Pty) Ltd. SRK report no. 602978/06.
[15] DEAT (2004) Cumulative Effects Assessment, Integrated Environmental Management, Information Series 7, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

Administrative and Procedural Failures

The administrative functioning of the mining application system is frequently deficient. The DMPR, despite promising the roll out of a mining cadastre, a digital platform to improve transparency, efficiency and accuracy for mineral rights management, for more than four years, is yet to do so.

Historical documentation is hard to obtain, and is often incomplete and lacks proper dates, signatures or author credentials. Environmental applications, reports and rehabilitation plans are for the most part prepared by qualified consultants. However, in some cases, their expertise and qualifications are unclear or insufficient. Even the most qualified have been known to downplay data that indicates significant environmental impact.[16]

Required audits of EMPrs and SLPs are not always submitted, or rigorously reviewed. There are persistent failures in oversight and enforcement that perpetuates an atmosphere of impunity. Rehabilitation budgets are based on underestimated disturbance footprints and not properly budgeted for.

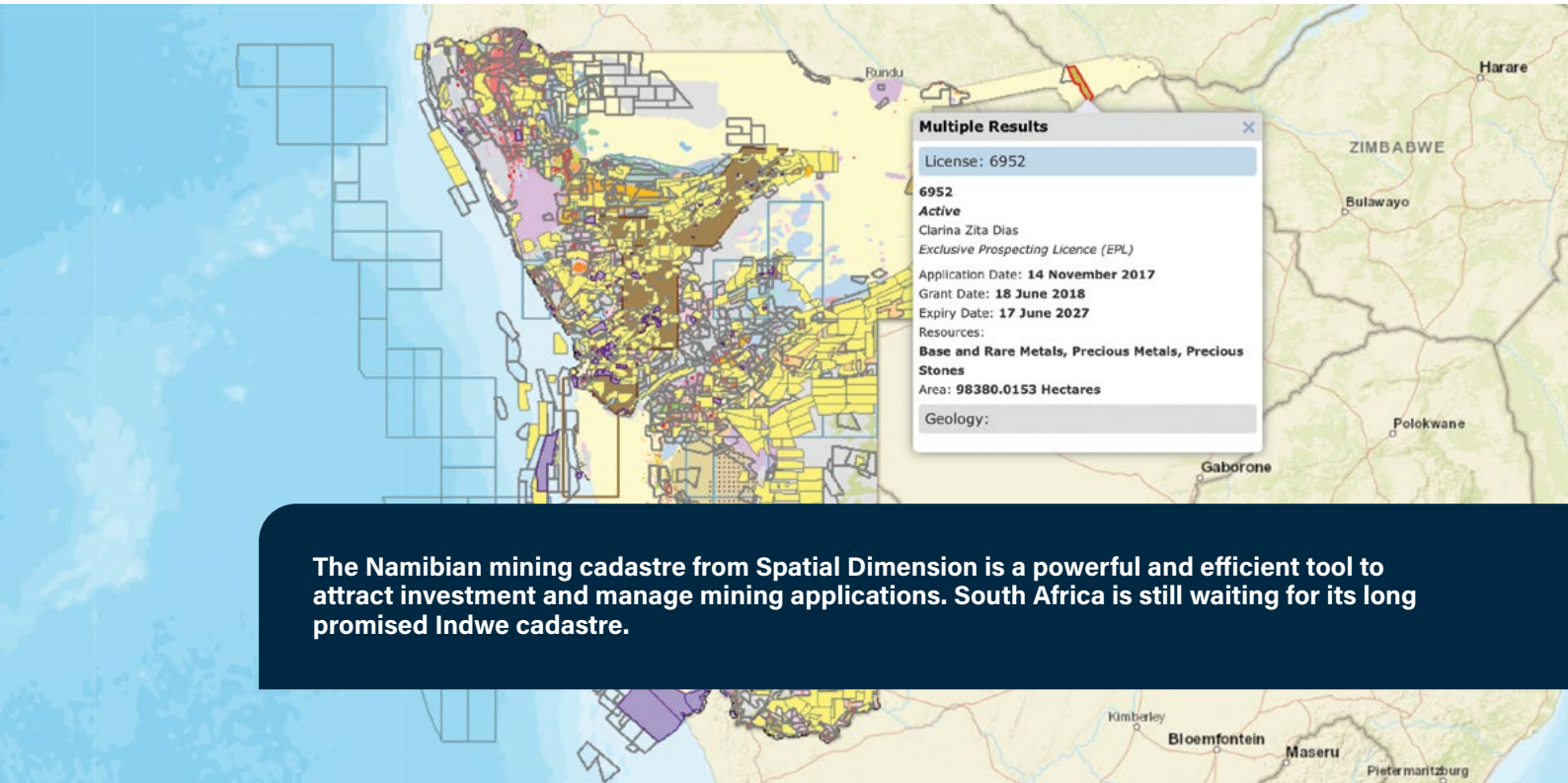
Actual closure certificates are almost never issued. Mining rights are transferred, or renewed, without adequate verification of compliance with the obligations actually imposed on the prior holder of those rights.

These procedural weaknesses undermine decisions, accountability and compromise the integrity of the entire authorisation process.

Moreover, although financial provision for rehabilitation is legally required, oversight is often inadequate. Closure liabilities may be underestimated, and financial guarantees may prove insufficient when companies enter business rescue or liquidation, as several have.

Where enforcement is weak, environmental liabilities accumulate over time, leaving degraded landscapes and insufficiently funded rehabilitation burdens.

4 - The number of years the DMPR has been promising a mining cadastre, with no results or certainty of when it might materialise.



The Namibian mining cadastre from Spatial Dimension is a powerful and efficient tool to attract investment and manage mining applications. South Africa is still waiting for its long promised Indwe cadastre.

Monitoring, Transparency and Participation

Monitoring capacity within the DMPR is limited, and enforcement inconsistent or absent entirely. Where non-compliance occurs, corrective action may be delayed or absent, which allows environmental harm to persist. Rehabilitation is often grossly inadequate, as evidenced by numerous abandoned mines and unrestored areas, some decades old.

Transparency is also constrained. Communities and civil society organisations frequently encounter obstacles in accessing documentation and decisions, even where such information should be publicly available, forcing them to invoke the Promotion of Access to Information Act (PAIA), which is often drawn out and sometimes unsuccessful.

Although public participation is required under NEMA and the EIA Regulations, meaningful engagement is often compromised by limited notice, inaccessible documentation, limited public meetings, and poorly facilitated processes, casting doubt on decisions and eroding public trust.

The Bottom Line

The OES was introduced to streamline decision-making and align mining and environmental governance. However, on the West Coast its implementation reveals systemic weaknesses: institutional conflicts of interest, inadequate consideration of cumulative impacts and strategic assessment, administrative deficiencies, weak monitoring and enforcement and limited transparency.

The OES fails in practice to uphold the principles of ecological integrity, social equity, and sustainable coastal development, which undermines the intent of the legislation, weakens the effectiveness of environmental governance and ultimately leaves the West Coast poorer for it.

The result is not a lack of law, but a failure of design, implementation and oversight. A framework that could be constitutionally robust on paper has proven incapable of preventing environmental degradation and social harm in practice and must be improved or replaced.

[16] Protect the West Coast (PTWC) (2025) PPP Part 3: The vital roles of EAPs and I&APs in the public participation process. Protect the West Coast website. Accessed 25 Feb 2026. (protectthewestcoast.org) https://protectthewestcoast.org/post/ppp-part-3-the-vital-roles-of-eaps-and-iaps-in-the-public-participation-process/.

The MSR Tormin mine was accused of causing several cliff collapses along the coast. Hundreds of jobs have been lost and Tormin now stands derelict.

Mineral Sands Resources - A Case Study

The provisional liquidation of West Coast mining company Mineral Sands Resources (MSR) – the South African arm of Australian Mineral Commodities Limited (MRC) – in early 2025 was the final chapter in the chequered history of MSR and a prime example of how coastal mining can fail, leaving undesirable outcomes and a wake of devastation.

Long before the collapse of the beleaguered heavy minerals Tormin Mine north of Lutzville, controversy stalked the company. In 2009, a court stopped its subsidiary, Transworld Energy and Mineral Resources, from mining for heavy minerals at Xolobeni on the Wild Coast in the Eastern Cape. The Amadiba Crisis Committee, representing local residents, opposed the project. This led to protracted court cases and disputes that led to violent clashes and the death of a local activist, Bazooka Radebe.[17]

Controversy on the West Coast began in 2014, with accusations that MSR used illegal operating methods at Tormin, inadequate mining management, and fell short of environmental requirements, including cliff collapses from 2015. MSR claimed these were caused by "high wave energy and tidal action as well as climatic conditions and storm water run-off". [18]

The Centre for Environmental Rights (CER), with others, accused MSR of breaching the original environmental plan by "expanding the mine without authorisation under NEMA"; "mining in conservation areas"; "and pumping raw sewage into the sea". [19]

In early 2019, the DMPR granted MSR an Integrated environmental authorisation that permitted it to expand its 120-hectare Tormin mine to 188 hectares along 10 beaches north of the existing operations at the time, on a 46 km stretch of coast, under questionable legal conditions.

MSR also obtained approval to extend operations inland in a designated Critical Biodiversity Area (CBA). In 2020, after its appeal received little official response, the CER launched judicial review proceedings against then-DFFE Minister Barbara Creecy, the DMPR, and MSR, to challenge the dismissal of the appeal.

Questions about the legality of the approval of the 10 Beach Extension and inland strandline mining area in a CBA, as well as questions regarding mining methods and production volumes at Tormin, led to an agreement with the CER in 2022, that MSR would appoint consultants to prepare a Biodiversity Management Framework Plan to mitigate its environmental impact as well as request the Minister to commission a Strategic Environmental Assessment.

Mining in these extension areas began in earnest in 2020.[20] However, CEOs came and went and the operation went into business rescue in 2024, and was liquidated in 2025. Hundreds of jobs have been lost and the mine now stands derelict and unrehabilitated and the promises of productive ore bodies made at the outset have faded.

188 hectares - The expansion area of the Tormin Mine '10 Beach Extension' granted in 2019.

[17] Ashton G (2016) From Xolobeni to Marikana we see consequences of impunity. GroundUp (Opinion), 1 April 2016. Available at: https://groundup.org.za/article/xolobeni-marikana-we-see-consequences-impunity/ (accessed 19 February 2026).
[18] Yeld J (2018) More sea cliffs collapse at West Coast mine. GroundUp (News), 3 December 2018. Available at: https://groundup.org.za/article/more-sea-cliffs-collapse-west-coast-mine/ (accessed 19 February 2026).
[19] State accused of letting Tormin damage West Coast. amaBhungane (investigation), 14 December 2015. Available at: https://amabhungane.org/state-accused-of-letting-tormin-damage-west-coast/ (accessed 19 February 2026).
[20] Centre for Environmental Rights v Minister of Environment & 7 Others (Case No: 13446/2020).

© Gary van Wyk

Poor Public Participation

The Public Participation Process (PPP) is required by EIA regulations for prospecting and mining applications. Submissions should undergo public scrutiny and feedback before approval. However, although robust on paper, the PPP contains flaws that undermine effectiveness.

Most applications are for prospecting rights rather than mining rights. Prospecting applications can rely on pre-existing geological data in the form of desktop studies. These applications can lack on-the-ground scientific or technical verification that is required to properly assess the potential ecological damage to the proposed location.

Documents shared with the public are often poorly researched, incomplete, voluminous, technically flawed, and not translated into regional languages. Insufficient notification to communities, landowners and Interested and Affected Parties (I&APs) leaves little time for people to comment or object. All these are important deficiencies in the PPP, which should be inclusive.

Under GNR 1147 (the Financial Provisioning Regulations of 2015) rehabilitation and mine closure plans must be drawn up by suitably qualified 'specialists' or 'registered professionals'.[21] 'Specialist' and 'registered professional' are interpreted to mean professional scientist or professional engineer.

Often rehabilitation and mine closure plans are drawn up by Environmental Assessment Practitioners (EAPs) without the necessary scientific, technical, engineering or financial expertise. EAPs commonly underestimate the area to be disturbed by exploration and mining activities. This can lead to an under-estimation of the costs of rehabilitation. Consequently, financial guarantees lodged with the government fall short of actual rehabilitation and decommissioning costs.

Moreover, the Mining Work Programme and Rehabilitation Plan are key documents in which the work programme, rehabilitation and projected costs are discussed in detail. Applicants often seem reluctant to make these two documents public. Without these documents it is impossible to undertake a

Key PPP Problems

- The public participation process often falls short of proper public scrutiny of mining applications – a legal requirement.
- Applications often lack on-the-ground science or technical information.
- Public documents are often badly researched, incomplete, too technical, convoluted or not in regional languages.
- Communities, landowners and I&APs are sometimes inadequately notified, leaving little time to comment or object.
- Key documents can be withheld, preventing proper evaluation of environmental risk.
- Public meetings may be poorly advertised, inaccessible, overly technical or held online, excluding remote communities.
- EAPs appointed by mining companies create perceived conflicts of interest that may favour industry and government over public and environmental interests.

meaningful evaluation of the environmental risks associated with the proposed mining activities as summarised in the BAR and EMPr.

While EIA regulations are clear that special attention must be given to ensure disadvantaged people can participate meaningfully, few public processes meet this requirement. The time and venue of public meetings are often poorly advertised, held in hard-to-access locations, methods of engagement are not appropriate for the audience, and presenters use technical language, while some give inadequate time to address community concerns.

Furthermore, meetings have been cancelled without adequate notice, or are held online, which excludes community members without access to the internet. Facilitators often arrive unprepared to address community concerns.

In some cases, stakeholder enquiries are ignored, applications postponed without explanation, and correspondence from EAPs, when it occurs, is unsigned or anonymous.

This is compounded by undisclosed consultant changes, document reissues without notification, and unauthorised property access, all of which erode public trust and violate principles of transparent, inclusive consultation.

Mining companies appoint and pay large fees to EAPs and others managing the PPP, expecting an approval in return, which leads to a system that arguably favours mining over public and environmental wellbeing.

Approvals by the DMPR are made with little to no overview of cumulative impacts. Appeals against approvals go to the DFFE. If dismissed, the only available option is judicial review, which is very costly – an often insurmountable obstacle to the only substantive remedy that can reverse decisions.

[21] GNR1147 Overview: Financial Provisioning Regulations, 2015, Mining Weekly, 2023, Available: https://shorturl.at/XKVK0 (accessed 2 March 2026).

The Importance of Managing Natural Capital

A critical but often overlooked issue is that standalone mining approvals frequently disregard South Africa's international commitments to economic sustainability, such as those contained in the Paris Agreement of 2015 and the Gaborone Declaration for Sustainability in Africa (2012).

Distinguished Professor of Sociology at the University of Johannesburg, Patrick Bond, highlighted how this failure manifested on the West Coast in his appeal against a double application in late 2025 by Trans Hex Minerals to prospect and mine for diamonds and heavy minerals in a 80 km concession along the West Coast.[22]

Professor Bond raised the alarm about the net negative effect this would have on the inter-generational wealth of South Africans, arguing that Trans Hex failed to disclose how the non-renewable commodity resources extracted and depleted would be compensated for, using scientific methods and with accountability systems, as mandated in the May 2012 Gaborone Declaration and the NEMA.[23]

The Gaborone Declaration for Sustainability in Africa was signed by several African countries, including by the South African Environment Minister at the time, Edna Molewa, who agreed to ensure that the contributions of natural capital (the sum of all natural resources) would be quantified and integrated into the development and business practice, to ensure sustainable growth, maintenance and improvement of social capital and human wellbeing.[24]

Prof Bond pointed out that the Gaborone Declaration recognised the limitations of gross domestic product (GDP) as a measure of wellbeing and sustainable growth.

As a measure of economic impact, GDP ignores the depletion of wealth, which was why Minister Molewa and signatories committed to "integrate the value of natural capital into national accounting and corporate planning".

Natural Capital is a key term that defines South Africa's vast but finite and non-renewable mineral resources, including metals and fossil fuels, that underpin economic growth.

Mining as a single-use extractive activity is misleadingly touted as a beneficial economic activity over the long term. However, if one looks at the broader context, the end result is a net deficit considering the enormous value of the resources taken out of the ground compared to the actual economic benefit to sovereign wealth, which belongs to all citizens of the country.

Prof Bond sees a connection between future societal health and wealth, and environmental health. The broader perspective is that the physical destruction of the West Coast is ruining it for all people, not just the communities who live there, because it impinges on the future of all South Africans and the benefit extracted does not match the impacts inflicted.

80 km - The length of the coastline covered by a double prospecting application by Trans Hex in 2025.

[22] SRK Consulting (South Africa) (Pty) Ltd (2025) Issues and Responses Summary: Trans Hex Heavy Minerals Mining Multi-Commodity Prospecting EIA, West Coast South Africa: Impact Assessment Phase DMRE Reference Number: WC30/5/1/1/2/10474PR SRK Consulting:602978: Trans Hex Multi-Commodity Prospecting EIA.

[23] Patrick Bond (2025) Patrick Bond's Letter to Department of Mineral and Petroleum Resources, Trans Hex and SRK. ZNetwork, 17 Jul 2025. Accessed 25 Feb 2026. (https://znetwork.org/znetarticle/patrick-bonds-letter-to-department-of-mineral-and-petroleum-resources-trans-hex-and-srk/).

[24] Convention on Biological Diversity (CBD) (2012) The Gaborone Declaration. Summit for Sustainability in Africa, Gaborone, Botswana (24–25 May 2012). Secretariat of the Convention on Biological Diversity.

Mining as a single-use extractive activity, is misleadingly touted as a beneficial economic activity over the long term.

© Jacque Smit

CHAPTER 5

The **Impacts**

Social and Environmental Impacts

The damage to the natural environment through extractive mining is inevitable and sometimes irreversible. Beach mining for heavy minerals and diamonds creates a vast footprint to attain a small – albeit valuable – amount of material compared to what has been trenched, dredged or dug up. Thousands of tonnes of sand are excavated to ensure economically viable minerals deposits can be retrieved.

Prospecting has a significantly lower footprint, but its impacts are also not insignificant and can be equally destructive, such as the digging of trenches and pits, use of drones in sensitive bird habitats, installation of access roads and processing platforms, and other invasive activities and infrastructure.

A critical obstacle to better regulation is the lack of research and data regarding the long-term effects of mining on West Coast ecosystems. The Western Cape Provincial Department of Environmental Affairs and Development Planning (DEADP) has acknowledged this by stating the need for a strategic approach to assessment and decision-making.[1]

Significantly, with limited data on the impacts of mining, including its cumulative effects, the application and decision-making processes fail to adequately assess the full extent of these impacts.

The West Coast hosts unique and extraordinary biodiversity on land and in the sea. Many species are found nowhere else in the world, with ecosystems ranked among the most distinctive on the planet.[2] Some have small distribution ranges, and many are specifically adapted to survive a challenging environment of climatic extremes. For example, Namaqualand is home to the richest bulb flora of any arid region in the world.[3]

In recent years, mining and prospecting applications have surged, with many extending across the land-sea interface. There are growing concerns about the cumulative impacts of mining, although the potential long-term effects are unclear.[4] For example, expansion of mining on the West Coast can lead to habitat loss and fragmentation as well as species loss and alterations in their distributional ranges.[5]

Mining impacts are also deeply social, with costs borne by local communities long after mining-related short-term jobs and investment have moved on. Once operations scale down or close, communities are left with degraded land and lost livelihoods, which harms the potential for future growth in key sectors such as agriculture, fishing and tourism.

[1] Western Cape Government Department of Environmental Affairs and Development Planning (2021) Request for a strategic approach to be taken for the consideration of mining and prospecting applications received in terms of the National Environmental Management Act, 1998 ("NEMA") along the West Coast of the Western Cape. Submission to Working Group 7, July 2021.
[2] Harris LR, Sink KJ, Skowno AL, Van Niekerk L (2019) South African National Biodiversity Assessment 2018: Technical Report. Volume 5: Coast. South African National Biodiversity Institute, Pretoria. http://hdl.handle.net/20.500.12143/6374.
[3] South African National Parks (SANParks) Namaqua National Park. SANParks. Accessed 25 Feb 2026. (sanparks.org) (https://www.sanparks.org/parks/namaqua).
[4] Garripido-Mirapex, J (2023). The Consideration of Cumulative Impacts in the Environmental Impact Assessment Process in Coastal and Marine Mining Developments, South Africa. MSc Minor Dissertation, University of Cape Town.
[5] South African National Biodiversity Institute (SANBI). 2025. National Biodiversity Assessment 2025: The status of South Africa's biodiversity - Website. South African National Biodiversity Institute. Pretoria. https://nba.sanbi.org.za/.

Key Impacts:
1. Lack of Rehabilitation

In more than 100 years of concentrated alluvial diamond mining, many beaches have been degraded, and huge tracts of veld have been damaged or destroyed in the Northern Cape, mainly due to failures in oversight and enforcement, and inadequate rehabilitation.

The damage caused by deep mining pits, overburden dumps, slime dams, prospecting trenches and heavy vehicle tracks may never recover if the status quo is maintained.

State-owned Alexkor holds an onshore mining right of about 82,000 hectares (ha) from the Orange River Mouth southwards, of which 10,000 ha has been mined with little to no rehabilitation. That is about 13.5 times the size of New York City's Central Park, or more than 15,000 standard soccer fields. In 2019, Alexkor reported a rehabilitation backlog of ZAR203 million.[6]

De Beers, the biggest and most successful West Coast mining company, held mining rights covering about 97,000 ha. They closed their Namaqualand mines in 2008 after 66 years of production. In 2011, Golder and Associates calculated the De Beers rehabilitation backlog at ZAR435.5 million.

The biggest De Beers mine was north of Kleinzee at its Buffels Marine operation. Approximately 10,000 ha was mined by De Beers between 1941 and 2008. Since they stopped mining, it would appear from Google Earth images as determined by geologist Allen Lyons that De Beers landscaped and rehabilitated approximately 4,000 ha.

De Beers sold their Buffels Marine right to Kleinzee Holdings two years ago but little mining has taken place.

In the updated EMPr (2011) for Koingnaas – another large De Beers mine near Hondeklipbaai – it is estimated that De Beers mined approximately 5,000 hectares here, also with little to no rehabilitation. De Beers sold most of their Namaqualand mines to West Coast Resources in 2014, with relatively insignificant mining taking place since.

These are clear examples of a disregard for rehabilitation obligations being passed from one mining house to the next. Other smaller sites are also scattered across the region, from a few hectares to a few hundred hectares, which add up to many more thousands of hectares of damaged land.

A complication to the legacy of unrehabilitated mines is that prior to 1981, mining companies were under no obligation to rehabilitate. The first mention was a voluntary industry guideline, published by the Chamber of Mines in 1981. Mining rehabilitation in South Africa only became a formal legal requirement with the enactment of the Minerals Act (Act 50) of 1991, the precursor to the current legislative framework.

[6] Alexkor SOC Limited (2019) Integrated report (2019) Alexkor SOC Limited, Pretoria. Available at: https://static.pmg.org.za/1/ALexkor_SOC_LImited-Annual_Financial_Statements_31_MAr_2019.pdf (accessed 19 February 2026).

R203 million - The value of the rehabilitation backlog reported by Alexkor in 2019.

R435.5 million - De Beers' rehabilitation backlog as calculated in 2011.

10,000 hectares - The area mined by De Beers between 1941 and 2008, of which approximately 40% has been rehabilitated.

Leaching of silt from rock cofferdams built by Alexkor in the Northern Cape. *Photo Gavin Craythorn*

2. Destructive Rock Cofferdams

Along the Northern Cape coast, large rockfill cofferdams have been constructed by Alexkor in the nearshore to hold back the ocean, allowing seawater to be pumped out so that diamonds can be accessed. These structures can remain for decades, reshaping the coast and causing severe ecological damage: smothering reefs, reducing macrofaunal abundance, altering marine habitats and destroying three surf breaks to date.[7]

Cofferdams and associated mining pose a major threat when risk mitigation is lacking. Benthic (bottom dwelling) marine life is destroyed by equipment and smothering by tailings disposal.[8] A previous CSIR report raised concerns about their impact on West Coast rock lobster populations – a key source of livelihood for small-scale fishers in Port Nolloth and Hondeklipbaai.[9]

In 2022, criminal charges were laid against Alexkor for using illegal cofferdams. The legal action was aimed at protecting the livelihoods of Richtersveld fishers and to ensure environmental rehabilitation.[10] While the damage they cause is evident, broader cumulative effects on ecosystems and cultural rights remain poorly understood and have yet to be systematically assessed.

An area mined using rock cofferdams could remain ecologically scarred for decades, and full ecosystem functionality might not be regained within a human lifetime, and yet, some mining companies still include cofferdam mining in their applications.

3 Surf Breaks - Three surf breaks in Namaqualand have been destroyed by cofferdams to date.

3. Marine Habitat Loss

It is difficult to mitigate the impacts of near and offshore mining on bottom dwelling species (the benthic community) of fish, crustaceans, molluscs, echinoderms, worms, seaweed, corals/anemones, sponges, micro-organisms and meiofauna. Measures such as limiting the number of contractors operating in an area, judicious management of tailings, prohibition of blasting and removal of rocks from sub-tidal gullies, are some of the measures that can reduce impacts.[8]

Marine habitat loss can severely impact small-scale fishers.
Photo John Yeld

Natural recovery is the main measure given in most Environmental Impact Assessment Reports (EIARs) for restoring these degraded marine systems. However, there are no feasible mitigation measures for seabed excavation and tailings disposal and the effects of such mining activities are considered to be high impact, although these vary depending on the type of activity and the depth at which they take place.[11]

The rush for minerals may limit our ability to study these benthic communities. There is potential for significant lost opportunities for scientific understanding. For example, a recent study off Hondeklipbaai used environmental DNA sampling techniques to assess poorly understood species beyond 200 metres depth, and discovered previously unrecorded benthic communities.[12]

This study emphasised that deep-sea areas off the West Coast are vulnerable to mining and trawling.[13] However, identifying the exact risk of mining is difficult to assess with certainty because of limited monitoring, and a lack of scientific data. This supports the need for a risk-averse and cautious approach.

Studies are site specific, with little attention to mining rights allocated for 30 years (that can be renewed) across several beaches, nearshore and offshore areas. There is little consideration of the cumulative impacts of mining (including past, present and future planned activities) on marine habitats and species that depend on these habitats. Because mitigation measures rarely provide definitive outcomes, benthic communities and broader ecosystems remain susceptible to disturbance and lasting ecological consequences. Loss of benthic fauna and flora can have cascading effects down trophic levels, leading to permanent ecosystem disturbance and degradation.[8]

[7] Cofferdam mining destroys surf spots, article on PTWC, 2024. Available: https://shorturl.at/hr76w (Accessed 2 March 2026).
[8] Biccard A, Gihwala K, Clark BM, Mostert B, Brown E, Hutchings K, Massie V, Melidonis M (2018) Desktop study of the potential impacts of marine mining on marine ecosystems and marine biota in South Africa – final report. Report prepared by Anchor Research & Monitoring (Pty) Ltd for Council for Geoscience. Report no. 1795/1.
[9] Smith G (2006) Assessment of the cumulative effects of sediment discharges from on-shore and near-shore diamond mining activities on the BCLME (BEHP/CEA/03/03). CSIR Natural Resources and the Environment, Stellenbosch. CSIR report no. CSIR/NRE/ECO/ER/2006/0093/C.
[10] DA welcomes criminal charges against Alexkor. Polity (statement), 21 January 2022. Available at: https://www.polity.org.za/article/da-welcomes-criminal-charges-against-alexkor-2022-01-21 (accessed 19 February 2026). (polity.org.za).
[11] Penney AJ, Pulfrich A, Rogers J, Steffani N, Mabille V (2007) Project: BEHP/CEA/03/02: Data Gathering and Gap Analysis for Assessment of Cumulative Effects of Marine Diamond Mining Activities.
[12] Oosthuizen D, Seymour M, Atkinson LJ, von der Heyden S (2023) Extending deep-sea benthic biodiversity inventories with environmental DNA metabarcoding. Marine Biology 170: 60. https://doi.org/10.1007/s00227-023-04205-4.
[13] WWF South Africa. Safeguard our Seabed Coalition: Factsheets on seabed mining (n.d) Available at: www.wwf.org.za/?17721/Safeguard-our-Seabed-Coalition-Factsheets-on-seabed-mining.

4. Terrestrial Biodiversity Loss

The impacts of mining – along with climate change and drought – are known to cause biodiversity loss, but can also compromise the habitat for fauna to shelter, breed, forage, hunt and move. For example, the endemic lichen and important ecological pioneer, *Ramalina angulosa*, is extinct due to secondary degradation through sandblasting from mining related activities upwind, as well as drought. This lichen – uniquely adapted to survive the harsh Namaqualand climate – provided fauna species with food, shelter and material for nest building, as well as water and nutrient cycling.[14]

At Alexander Bay, the construction of access roads and continuous sandblasting over 20 years has led to the loss of the lichen downwind. Topsoil that could support regrowth has been irrevocably lost. Alarmingly, lichen fields have also been physically removed.

The plight of this lichen species is a clear example of why cumulative impacts need greater study. For example, consideration is rarely – if ever – given to the effects of airborne dust and sand on plant species beyond the actual footprint of the mine. Other species could follow, including the dwarf succulent *Conophytum crateriforme*, De Winton's and Van Zyl's golden mole, the orange-tailed sandveld lizard, the speckled dwarf tortoise and more.

5. Loss of Indigenous Heritage

The West Coast contains a dense concentration of indigenous and historical heritage resources that are vulnerable to disturbance. Archaeological research has documented extensive shell middens, including 'megamiddens' near Elands Bay and Lamberts Bay, formed through marine harvesting over thousands of years.[15]

These middens often contain stratified deposits of shell, charcoal, faunal remains and stone tools, providing key records of coastal subsistence, settlement patterns and environmental change.[16]

In Namaqualand, middens, stone tools, and historical human remains are found in beach dunes and gravel plains and are frequently undetectable before surface disturbance. For example, mining has exposed a 1,000 year old burial site, uncovered during diamond mining near the Orange River mouth.[17] Mining thus poses a risk to unmarked ancestral graves.

There is also a high density of historic shipwrecks[18], with nine recorded wrecks around Saldanha Bay, Langebaan Lagoon and Jutten Island, reflecting centuries of maritime traffic and hazardous coastal conditions. Many of these sites retain cultural and spiritual significance and do not receive the protection and management that is required. Prospecting for offshore mining along the West Coast puts these cultural assets at further risk.

6. Cliff Collapses

Mineral Sands Resources (MSR) began mining Tormin beach in early 2014. The first cliff collapse, widely publicised in the local press, occurred in early 2015.

Regulations required MSR to report the collapse to the DMPR, and implement a plan within 14 days to prevent future cliff collapses. However, according to a local geologist, 13 cliff collapses and slumps have occurred since 2015, with 5.6 hectares of coast irreparably damaged from alleged negligence and a lack of mitigation measures.[19]

The biggest occurred when 820 metres of the sea-facing slope collapsed, destroying 500 meters of the access ramp in front of the main processing area.

5.6 Hectares - The area of coast thought to be damaged by 13 cliff collapses and slumps in MSR's Tormin Mine.

Cliff collapses are a deeply concerning environmental problem when our coastal boundaries shrink as chunks of earth slump onto the beach, destroying fauna and flora, and undermining the structural integrity of the coastal environment.

7. Damage to Tourism and Recreation

The wild, pristine beaches of the West Coast are major natural tourism attractions. By destroying or degrading beaches and dunes, recreational potential and tourism revenue are undermined.

Moreover, mining operations often block access to the beach, which limits access to critical marine resources for small-scale fishers, stifles nature-based solutions and sustainable local enterprises like cultural and eco-tourism.

Communities lose cultural and economic opportunities as biodiversity declines and scenic value falls. The result: fewer visitors, damaged livelihoods, and a coastline increasingly unviable for low-impact recreational activities and restorative conservation.

[14] van Wyk P (2025) Botanist, personal communication, 27 November 2025.
[15] Jerardino A (2012) Large shell middens and hunter-gatherer resource intensification along the West Coast of South Africa: the Elands Bay case study. The Journal of Island and Coastal Archaeology 7: 76–101. https://doi.org/10.1080/15564894.2011.619077.
[16] Orton J, Hart T, Halkett D (2005) Shell middens in Namaqualand: two Later Stone Age sites at Rooiwalbaai, Northern Cape Province, South Africa. The South African Archaeological Bulletin 60: 24–32.
[17] Dewar G, Sealy J, Halkett D (2020) Human burials from Somnaas farm, Namaqualand, South Africa. The South African Archaeological Bulletin 75: 111–119.
[18] La Grange L, Williams BL, Gribble J, Manders MR, Derksen LF, Browers W (2024) Dutch shipwrecks in South Africa: sites, stories, and archives. South African Heritage Resources Agency, Cape Town.
[19] Lyons A (2022) Geologist, Memorandum to DMPR titled Tormin Mine (MR 162 & MR 163) 16 cliff collapses since 2015.and archives. South African Heritage Resources Agency, Cape Town.

Ecosystem Recovery

Due to a lack of comprehensive science on the rate of natural recovery post-mining and uninformed assumptions that natural systems will rehabilitate within six to 12 months post mine closure, there are conflicting views of how quickly different ecosystems recover from mining damage.

If one surveyed a mine five years after mine closure or rehabilitation efforts that are not up to standard, it might seem that the ecosystem has recovered. You might see early signs of re-vegetation and animals re-establishing. Through a finer lens however, key measures on species richness, diversity, and ecosystem functioning may not be easily detected or measured.[20]

Environmental damage in mining applications is often downplayed. Assumptions are made that beach, nearshore and offshore habitats will recover rapidly due to tidal fluctuations, ocean currents, sediment movement and wave action.

Companies assume that natural rehabilitation will occur and claim that active and mechanical rehabilitation efforts in deeper waters are logistically and financially near impossible, as seen with two recent applications by Transhex for mining and prospecting in Concessions A and B.[21, 22]

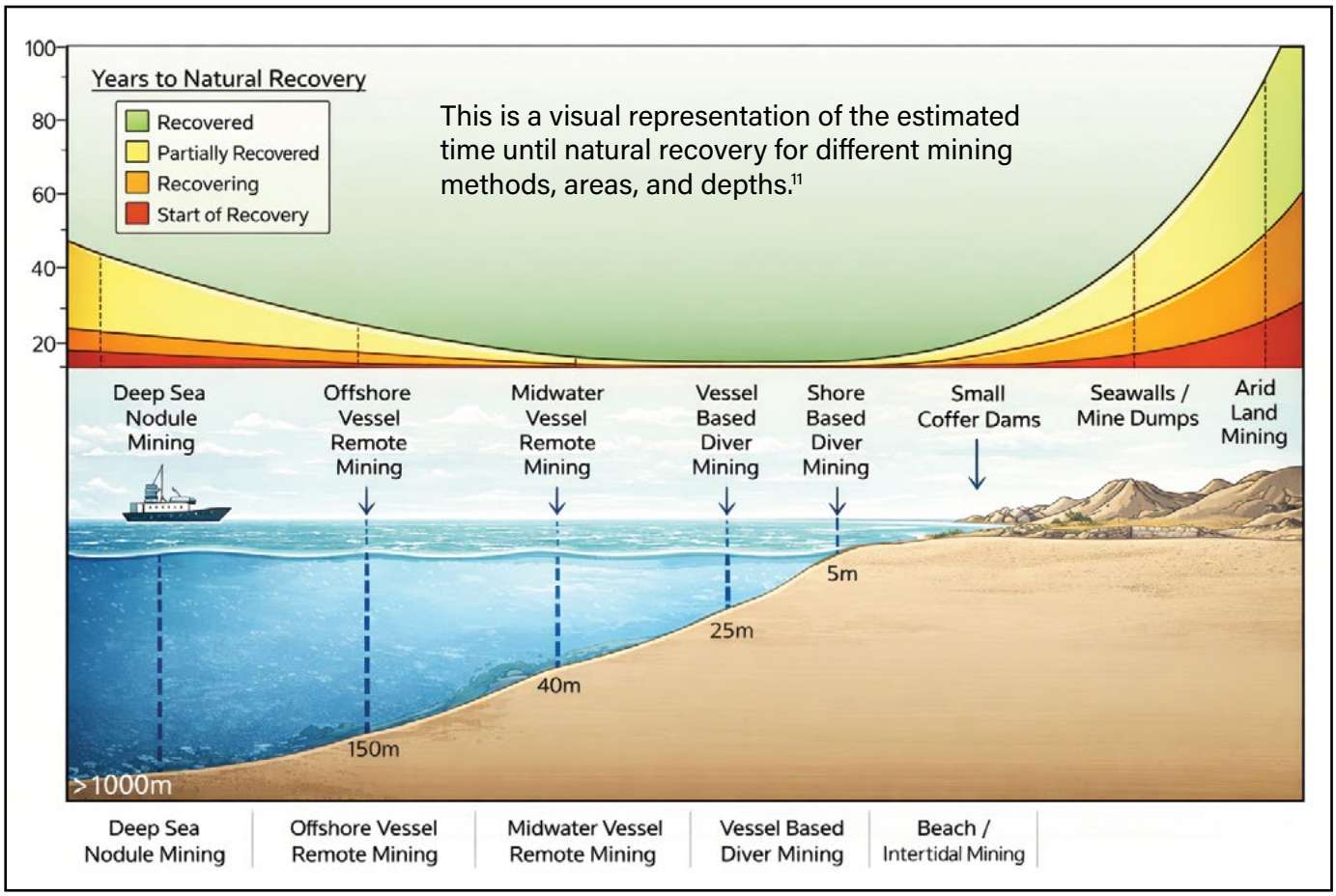
The company has since been granted an Enivironmental Authorisation for Concession 13B for diamonds off the coast of Doringbaai, Strandfontein and Papendorp, where the Oliftants River estuary meets the sea.

Research in the Benguela coastal region shows that small-scale operations – such as shore-based diving operations or small-scale shallow offshore mining – have the fastest recovery. Disturbed sites can rebound within just three years.[23, 24, 25]

This is helped by the variability and resilience of dynamic coastal ecosystems – such as rocky shores – and the limited, localised footprint of boat-based diving operations. These areas are accustomed to constant change. Once mining stops, plants and animals can return and regeneration occurs quite rapidly. Near the Orange River however, reported recovery rates were slower – between five and six years.[26]

Deeper-water offshore mining causes more prolonged disturbance. Large-scale seabed operations require about 10 to 15 years before marine life and ecological functions are substantially restored.[27]

These differences in natural recovery and rehabilitation outcomes indicate that site-specific environmental conditions strongly influence ecosystem recovery processes. Recovery rates cannot be assumed, and caution is required where EAPs rely on literature from different regions or ecological contexts to substantiate recovery claims for a proposed site,



as seen in several EIARs.[11, 19, 20] This is more so when one considers the cumulative impacts of the large number of existing mines as well as the deluge of applications being made.

The poor record of rehabilitation along the West Coast – especially the Northern Cape coast – and the current shortcomings in terms of rehabilitation efforts and financial provisioning, raise serious concerns about cumulative impacts and losses.

While certain areas may recover naturally over time, recovery will depend on various factors, including the nature and scale of mining, the extent to which mitigation measures were implemented, and the biophysical and environmental conditions, among others.

Failure to implement mitigation, failure to rehabilitate and reliance on natural recovery is totally inadequate across large sections of the Northern Cape.

[20] Herrick JE, Schuman GE, Rango A (2006) Monitoring ecological processes for restoration projects. Journal for Nature Conservation 14: 161–171. https://doi.org/10.1016/j.jnc.2006.05.001.
[21] SRK Consulting (South Africa) (Pty) Ltd (2025) Multi-commodity prospecting activities in marine concessions 11A, 12A, 13A, 11B, 12B and 13B, West Coast, South Africa: environmental impact assessment report. Report prepared for Trans Hex Heavy Minerals Mining (Pty) Ltd. SRK report no. 602978/05.
[22] SRK Consulting (South Africa) (Pty) Ltd (2025) Diamond mining activities in marine concessions 11B and 13B, West Coast, South Africa: environmental impact assessment report. Report prepared for Trans Hex Operations (Pty) Ltd. SRK report no. 602978/06.
[23] Pisces Environmental Services (2007) Project BEHP/CEA/03/04: assessment of cumulative impacts of scouring of sub-tidal areas and kelp cutting by diamond divers in near-shore areas of the BCLME region. Final report to the BCLME mining and petroleum activities task group, 156 pp.
[24] Pulfrich A (2004) Baseline survey of intertidal and subtidal rocky shore communities at Elizabeth Bay: intertidal and subtidal monitoring report – 2004. Prepared for NAMDEB Diamond Corporation (Pty) Ltd, Oranjemund, Namibia, on behalf of CSIR Environmentek, 36 pp.
[25] Pulfrich A, Parkins CA, Branch GM, Bustamante RH, Velásques CR (2003) The effects of sediment deposits from Namibian diamond mines on intertidal and subtidal reefs and rock-lobster populations. Aquatic Conservation: Marine and Freshwater Ecosystems 13: 233–255.
[26] Biccard A, Gihwala K, Clark BM, Harmer RW, Brown EA, Mostert BP, Wright AG, Masosonke A (2017) De Beers Marine Namibia environmental monitoring programme: Atlantic 1 Mining Licence Area 2016 benthic sampling campaign. Report prepared for De Beers Marine Namibia by Anchor Environmental Consultants. Report no. 1726/1.
[27] Savage C, Field JG and Warwick RM, 2001. Comparative meta-analysis of the impact of Offshore marine mining on macrobenthic communities versus organic pollution studies. Mar. Ecol. Prog. Ser., 221: 265-275.

CHAPTER 6

The Way Forward

A Change in Mindset

South Africa must calculate the socioeconomic and environmental impact of mining as part of a major change in mindset, to reimagine all development as sustainable, restorative, and equitable rather than extractive, temporary and destructive.

The growing body of evidence suggests that the social and environmental costs of mining are substantial – and far outweigh current economic benefits.[1,2]

This imbalance has a net negative impact, as suggested by Professor Bond in his appeal against the 2025 applications by Trans Hex to prospect and mine for diamonds and heavy minerals on the West Coast. Central to this argument is: economic health is impossible without ecological health.[3]

Since natural capital is a finite asset, resource extraction should only be permitted if it is sustainable and responsible, with feasible mitigation measures that are implementable and significant impacts or losses – such as biodiversity losses – that are appropriately offset over and above traditional contributions, such as taxes and wages.

Despite efforts by Statistics South Africa to measure natural capital, the nation's gross domestic product (GDP) continues to overlook long-term environmental and social harm, such as in the Northern Cape, where the degradation is so vast and severe that the legacy of neglecting rehabilitation makes restoration outcomes challenging and resource-intensive.[4]

It is an imperative for South Africa to uphold its commitment to international agreements, in particular the Gaberone Declaration that requires integrating the value of natural capital into national accounting, development planning and corporate strategies.

Transitioning to a model of strict oversight, accountability and transparency is the only way to ensure that mining serves the fiscus and the people without undermining the country's environmental assets and cultural heritage.

[1] Sowman M, Sunde J (2024) Integrating environmental sustainability and social justice principles into South Africa's blue economy initiative: re-imagining the political economy of our ocean. Frontiers in Ocean Sustainability 2: 1459496. https://doi.org/10.3389/focsu.2024.1459496.
[2] Masifundise (2024) Fishing communities resist extractive industries in South Africa. Masifundise Development Trust (The Hook), 4 December 2024. Available at: https://www.masifundise.org/fishing-communities-resist-extractive-industries-in-south-africa/ (accessed 19 February 2026).
[3] Protect the West Coast (2025) Government urged to decline Trans Hex ocean mining bid. Protect the West Coast (news post), 15 August 2025. Available at: https://protectthewestcoast.org/post/government-urged-to-decline-trans-hex-ocean-mining-bid/ (accessed 19 February 2026).
[4] Carrick PJ, Krüger R (2007) Restoring degraded landscapes in lowland Namaqualand: Lessons from the mining experience and from regional ecological dynamics, Journal of Arid Environments, Volume 70, Issue 4,Pages 767-781,ISSN 0140-1963, https://doi.org/10.1016/j.jaridenv.2006.08.006.


© Ant Fox

The Case for a Moratorium

A moratorium on all new mining applications on the West Coast would allow for a Cumulative Impact Assessment (CIA) to be undertaken and a regional or strategic environmental assessment to be prepared to guide future mining activities on the West Coast.

This is necessary in light of the lack of critical baseline data on how mining interacts with other environmental stressors, including oil and gas extraction, the effects of climate change and other development.

As an example, proposed deep sea mining threatens benthic communities in ways that are poorly understood scientifically,[5] yet mining applications proceed across various and sometimes contiguous concession areas, with limited data, that may cause irreversible ecosystem damage.

A pause is also required to reflect and assess South Africa's other international commitments and projects assigned to enact them, most notably the 2015 Paris Agreement, Convention on Biological Diversity, and Sustainable Development Goals.

We need a more evidence-based approach to decision-making that our current fragmented approach cannot deliver. This is particularly important as we prepare and update various strategy documents to give effect to South Africa's commitment to the Kunming-Montreal Global Biodiversity Framework (GBF) in December 2022 – the current, critical, international agreement for biodiversity that represents a pivotal shift for our environmental strategy.

Rather than new legislation that further weakens environmental protections and streamlines approvals – such as the controversial proposed Mineral Resources Development Bill – authorities should focus on properly enforcing existing laws.

[5] Safeguard our Seabed Coalition (2016) Safeguard our seabed: Fact sheet 1. The looming threat of bulk marine sediment mining. Safeguard our Seabed Coalition, South Africa.

Mitigation of Cumulative Impacts

Beyond institutional shortcomings, the existing mining framework's most critical deficiency is failure to assess cumulative environmental impacts. Mining applications are evaluated in isolation, without consideration of how multiple mining rights collectively affect biodiversity, water resources, fisheries, heritage, access and community livelihoods.

On the West Coast, numerous mining and prospecting rights and applications exist in close proximity and yet no comprehensive environmental framework lies in place to guide decision-making, establish thresholds for cumulative impacts or set long-term ecological limits of such expansion.

This fragmented, individual approach to authorisations allows environmental harm to accumulate incrementally until ecosystems reach irreversible tipping points, such as cliff collapses due to continuous beach mining, loss of species, and historical trenches that weren't backfilled and rehabilitated, thus altering natural landscapes.

Agricultural land becomes unusable, dust pollution compounds respiratory issues, and biodiversity losses cascade through interconnected ecosystems.[6]

Some Environmental Impact Assessments (EIAs) claim impacts are not severe because they are viewed in isolation.

The High Courts in South Africa have increasingly been asked to intervene where communities argue that environmental and social impacts, including cumulative impacts, have not been adequately assessed in EIAs for mining applications.[7]

Communities frequently bear compounding social and economic costs, because EIA procedures and regulations do not adequately predict, assess, or mitigate against cumulative impacts over a wider region. Monitoring throughout the life of mine remains another key weakness in the system.

This regulatory framework needs to change so that constitutional and international human rights are not violated. Indigenous communities need to be treated as rights-

The Olifants River Estuary, around which PTWC secured a court ordered no-go zone from mining company Trans Hex in 2023.

holders, rather than peripheral stakeholders, which dismisses traditional ecological knowledge gained over thousands of years, in favour of technical reports that frequently undervalue the landscape.

The government should enforce the principle of Free, Prior and Informed Consent (FPIC) as enshrined in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). This needs to be done to avoid structural deficiencies that breed deep divisions, which allow mining companies to exploit vulnerable citizens by offering short-term employment that creates social rifts that last long after mines have closed.

The way forward requires the urgent development of a comprehensive strategic environmental framework, in order to identify 'no-go' areas where mining must be prohibited to protect environmental assets and cultural heritage.

Baseline studies are required to establish scientific thresholds for cumulative degradation, ensuring that no new applications exceed the region's carrying capacity. Furthermore, legislation must be strengthened to extend the protections of the Interim Protection of Informal Land Rights Act (IPILRA) to all coastal and communal lands.[8]

A formal, routine recognition of Traditional Ecological Knowledge (TEK), the rights of Indigenous Peoples and Local Communities (IP&LCs), and the principles of Free, Prior and Informed Consent (FPIC) is critical for ethical, sustainable, and legally sound consultation processes.

By moving beyond mere consultation to genuine self-determination, South Africa can ensure that local communities collectively determine their own development pathways and protect their long-term wellbeing.

[6] Centre for Environmental Rights (n.d.) The environmental and socio-economic impact of mining on communities. Centre for Environmental Rights website. Accessed 20 Feb 2026.
[7] The Green Connection NPC and Natural Justice v Minister of Forestry, Fisheries and the Environment and Others [2025] ZAWCHC 349 (13 August 2025) (Western Cape Division, Cape Town) (Mangcu-Lockwood J), Case No 5676/2024.
[8] Booi Z (2023) The Interim Protection of Informal Land Rights Act (IPILRA): How does it protect your rights to land? Land and Accountability Research Centre (LARC), Faculty of Law, University of Cape Town, Rondebosch, South Africa.

© Jacque Smit

The success of the abalone farm in Kleinzee in the Northern Cape has made a positive impact on the local economy and employment opportunities.

An Alternative Economic Future

The mining industry has long championed itself as the economic saviour of the West Coast, in an economically-challenged region with limited scope for jobs and economic stability, besides farming, fishing and a small degree of tourism.

However, various provincial and local Strategic Development Frameworks and Integrated Development Plans contradict the assertion that mining is the only meaningful employer on the West Coast. This is because of the increased focus on more sustainable economic activities, such as agriculture, fisheries, aquaculture, and eco and adventure tourism.

Despite this growing momentum to advance more sustainable and alternative approaches and economies, mining continues to expand rapidly. Mining is a growing threat because of the degradation associated with mining, which impacts beaches, water resources, land, and the aesthetic qualities of the land – all of which undermine long-term economic potential of activities based on environmental resources and attributes.

Mining is short term. It can generate enormous shareholder profits during the life of the mine, but there is little evidence that it trickles down into local economies and communities. Part of the problem when trying to find a solution is that determining the number of people employed in the mining industry along the West Coast – in what roles, for what duration, and at what level of remuneration – is almost impossible.

For example, the Kropz Elandsfontein phosphate mine that borders the West Coast National Park claims to employ 500 people and to support another 5,000.

Available employment figures for mine workers in the Western Cape (5,000) and Northern Cape (24,000) are an estimation from the end of 2023.[9] These figures cover a vast area of each province. The thin strip, that represents the West Coast, would suggest a fraction of the numbers in total.

In 2022, state owned mining company Alexkor, in the Northern Cape, employed less than 2,500 people. Most mining operations on the West Coast employ less than 500 people in their lifespan, which can be 30 years. As an example, in 2023, the Mineral Sounds Resources mine (the company has been provisionally liquidated) at Tormin mine employed about 321 skilled and unskilled workers.[10]

Anecdotally, most jobs are low-skilled and low-paid, with limited room to advance. Mining companies tend to employ skilled workers and managers from outside the mining area. While some companies do contribute to local socioeconomic development through their Social and Labour Plans (SLPs), there is limited transparency regarding the funding commitments and how funds have been allocated.

For example, the heavy mineral sands mine, Tronox, contributed funding towards development of an abalone farm in Doringbaai, where 50 people are employed.[11] However, community members claim that they have seen very few benefits from this initiative.[12]

As evidenced by the practical socioeconomic collapse of former mining towns such as Alexander Bay and Kleinzee in the Northern Cape, the extractive nature of mining is not feasible in the long or even medium term, and neither is long-term job security. Clearly, mining alone is not a permanent, widespread solution to job creation on the West Coast.

[9] Statista (2024) Number of people employed in mining in South Africa by region [Online]. Statista. Available at: https://www.statista.com/statistics/1129830/number-of-people-employed-in-mining-in-south-africa-by-region/?srsltid=AfmBOorIgXlNzGiJJ8mXUVfkaHsLFLAkRKoTANP8IDHX8XavwjV_QTRI (Accessed: 26 February 2026).
[10] MSR Annual Report, 2023. Damage to West Coast beaches, article, Engineering News, 2018. Available here: https://shorturl.at/FiPQr (Accessed 2 March 2027).
[11] Pedersen C (2023) The sands worth billions: how mining companies are reshaping South Africa's West Coast. Transnational Institute, Amsterdam.
[12] Agiotis B (2023) Mechanisms for and factors affecting benefit sharing in two South African aquaculture projects. Masters in Social Science Dissertation, University of Cape Town.

The Summary

Unlike mining, which entails temporary extraction followed by long-term degradation, sustainable development requires growing intergenerational forms of wealth so that biodiversity and cultural assets appreciate rather than diminish.

Investment in building adaptive capacity and climate resilience is needed because intact ecosystems protect coastal communities from climate-related impacts such as sea-level rise and extreme weather. Diversified job creation across tourism, science, and agriculture creates sustainable livelihoods in the long term.

To secure a sustainable and equitable future for the West Coast, South Africa needs to implement the following four broad legislative and structural reforms:

Economic Alternatives: Kelp Farming

The cold, nutrient-rich waters of South Africa's West Coast, driven by the Benguela Upwelling System, create ideal conditions for kelp farming, which offers a low-impact, nature-based economic opportunity with applications in food, fertilisers, animal feed, bioplastics and carbon-smart products. Properly sited farms can operate alongside existing fisheries while supporting coastal livelihoods and skills development.

Responsibly managed, kelp cultivation can diversify local economies, reduce pressure on wild kelp harvesting, and contribute to climate resilience through carbon uptake and habitat provision, and represents a scalable, regenerative alternative to extractive coastal industries.

1. Jurisdictional and Legislative Realignment

Restore Environmental Oversight to DFFE (NEMA Section 24)**:** Amend the National Environmental Management Act (NEMA) to give the environmental authorisation function to the Department of Forestry, Fisheries and the Environment (DFFE). This will require amendments to the 'One Environmental System' and remove the conflict of interest in the DMPR acting as mining promoter and environmental regulator. Compliance with Environmental Management Programme report (EMPr) requirements should be the responsibility of provincial environmental departments. Regulations must be strictly enforced with maximum penalties for transgressors, up to director level in mining companies.

Enforce Financial Provisioning (Section 24P)**:** Strictly apply NEMA Section 24P to ensure mining companies provide adequate, audited financial security for rehabilitation. Prohibit the renewal or transfer of any mining right until all rehabilitation commitments are fully verified and committed to.

Codify Free, Prior, and Informed Consent (FPIC)**:** Move beyond "meaningful consultation" to make it an actual legal requirement for FPIC in the context of indigenous Peoples and Local Communities. This must extend the protections of the Interim Protection of Informal Land Rights Act (IPILRA) to all communal and coastal lands, potentially granting indigenous communities the right to refuse harmful developments.

Feasibility and Rehabilitation: Apart from properly conducted field studies on impacts, each mining application should include a comprehensive assessment of the true economic feasibility of their planned mining activity and a rehabilitation budget based on an accepted modelling standard, which has moved from a basic post-mining cleanup, to a comprehensive Life of Mine (LOM) Rehabilitation Model integrated with the EMPr.

Improve the Public Participation Process (PPP)**:** Mandate a minimum 45-day participation window with all application documents available to stakeholder Interested and Affected Parties (I&APs) up to 30 days prior to that. Requirements must include timely and appropriate notification of PP opportunities, provision of all necessary documentation, including non-technical summaries in all relevant local languages, independent vetting of Environmental Assessment Practitioners (EAPs), and neutral third-party oversight of stakeholder engagements. Public meetings about mining applications should be held in appropriate and accessible spaces known to and central to the community or communities most affected. Crucial is the integration of comments into the final environmental reports.

Reduce Appeals Backlog: While appeals against EAs correctly give the DFFE independent environmental oversight over DMPR decisions (despite the 50-day appeal turnaround prescribed by the National Appeal Regulations), there is a significant backlog, with some appeals taking up to two years. If the DMPR exercised more rigorous scrutiny in first-instance decisions about mining and prospecting right applications, the volume of appeals would likely decrease, and the resulting backlog at DFFE level could be substantially reduced.[13]

[13] National Appeal Regulations, 2025. Published under the National Environmental Management Act, 1998 (Act 107 of 1998) Government Notice R. 5985, Government Gazette No. 52269, 13 March 2025.

2. Transition to a Restorative and Diversified Economy

Invest in Nature-Based Solutions (NbS): Shift industrial subsidies toward high-potential sustainable sectors, such as algae-to-biofuel plants, kelp farming, and ecologically sound seafood aquaculture. These industries provide renewable revenue streams and long-term jobs.

Large-Scale Restoration and Upskilling: Launch regional initiatives based on circular-economy projects which can employ thousands in rehabilitating mined landscapes, turning environmental liabilities into assets that support biodiversity and local livelihoods.

Expansion of Protected Areas: Increase the extent of formally protected terrestrial and marine areas with full involvement of Indigenous Peoples and Local Communities. This expansion of the protected area network must include a mandate to hire and train full-time local staff to manage, protect, and maintain these ecosystems, creating permanent, "green" public-sector jobs.

Strategic Growth of Ecotourism: Develop a comprehensive West Coast Tourism Master Plan to unlock the region's potential as a global destination for responsible travel. By investing in and boosting current infrastructure for sustainable tourism, the region can generate thousands of permanent jobs across the following specialised sectors:

- **Botanical & Coastal Safaris:** Tours on endemic succulents, and 'citizen-science' expeditions, with marine mammal watching, bird watching and kelp forest snorkel trails.
- **Geological & Palaeontological Heritage:** Interpretive trails covering ancient dune systems, fossil parks, and unique features like 'heuweltjies' (mounds) and desert pavements – the wonders of the quartz-strewn veld.
- **Cultural & Community Tourism:** Authentic experiences led by indigenous and local fishing communities, including traditional storytelling, craft markets and culinary heritage.
- **Wilderness Astronomy:** Capitalising on the Namaqualand and Richtersveld 'dark skies' for international astro-safaris and Milky Way astronomy and photography workshops.

Economic Alternatives: Ecotourism

Ecotourism is responsible travel to natural areas that conserves the environment, sustains the wellbeing of local people, and involves interpretation and education. As one of the most beautiful and biodiverse regions in the world, the West Coast has huge eco-tourism potential.

Geological and cultural tours, and adventure tourism could be a major revenue earner, with a cascade of downstream related services and opportunities.

Namaqua West Coast Tourism, Brandkop Farm. *Photo Jacques Marais*

Economic Alternatives: Rehabilitation Projects

The organisation, Regeneration, is a social enterprise that reprocesses mine waste (tailings, waste rock and wastewater) to recover minerals and metals, creating a circular economy and more responsible supply for the green energy transition and beyond. It reinvests the earnings to restore biodiversity and rehabilitate degraded mine sites, helping turn legacy mining landscapes into ecological and community assets.

Working with local and indigenous communities, governments, mining partners, innovators and sustainable brands, this model is already being applied through initiatives like Salmon Gold, which reprocesses legacy mining waste and reinvests proceeds into river and salmon habitat restoration.[14] Along South Africa's West Coast, abandoned and legacy mining sites present a clear opportunity for regeneration projects.

3. Strategic Planning and Assessment

Focus on Cumulative Impact Assessments (CIAs): Ensure that the requirement to assess cumulative impacts as outlined in the EIA Regulations is complied with by providing clear guidelines to EAPs on the approaches and methodologies for conducting these assessments in the context of mining in the West Coast. The provincial governments should commission regional CIAs to better understand these impacts – including the indirect and synergistic effects of mining together with other development activities in an area. These studies would feed into Regional or Strategic Environmental Assessments on the West Coast.

Strategic Environmental Assessments (SEAs) as Pre-requisites: Commission a regional-scale SEA to inform decision makers about the future combined impacts of current, planned and anticipated human activities along the West Coast, including mining, and the mitigation required to ensure that these activities do not exceed acceptable environmental limits. The SEA(s) can use the output of the Cumulative Impact Assessment outlined above as an information source. The SEA would aid in identifying 'no-go' areas for mining based on biodiversity, water resources, climate change, local livelihoods and cultural heritage considerations, amongst others.

Immediate Strategic Moratorium: Impose a temporary pause on the approval of all new West Coast mining applications until the CIA and SEAs are commissioned and there is evidence that DMR and DFFE are addressing the environmental and social costs of mining on the West Coast in a coordinated and serious manner.

4. Transparency and Accountability

Digital Mining Cadastre: Initiate the development of a transparent, real-time online cadastre – similar to the Ripl platform created by PTWC – to provide public data on the status, location, and ownership of all mining applications and rights.

Natural Capital Accounting: Update legislative frameworks in line with the Gaborone Declaration to ensure mining royalties reflect the true loss of 'ecological wealth', capturing resource depletion accurately in national accounts rather than masking it as GDP growth.

[14] Regeneration (2024) From Mining Waste to Fine Jewelry: The Journey of Salmon Gold. Regeneration Enterprises, 21 June. Available at: https://www.regeneration.enterprises/discover/salmon-gold (Accessed: 26 February 2026).

CHAPTER 7

Time to Put Words into Action

There is an increasing legal and moral imperative for human beings to protect the natural world to sustain and protect future generations.

This need to protect rather than extract and destroy is spurred by a growing sense of urgency that it is time to take action. For a healthy economy, we need a healthy land and ocean – and time is running out.

As custodians of the West Coast, the government and citizens of South Africa have an ethical responsibility to protect the finite resources and ecosystems of this unique area. The need to protect the West Coast is not just about ecological health, but it is a fundamental requirement to ensure the survival of this region and its people.

The future of humanity is inextricably linked to healthy ecosystems. Our future depends on clean air, water, and food. We are dependent on the natural capital that our planet provides. Overexploitation of these resources puts our own long-term future at risk.

We urge the government to take the necessary action suggested in this Special Report to make the necessary changes as outlined in this document. The Tipping Point is now.

Glossary of Mining Acronyms and Terms

Core Legislative and Oversight Framework

- **MPRDA:** Mineral and Petroleum Resources Development Act. The overarching legislation that says all minerals belong to the people of South Africa, with the State as the custodian.
- **NEMA:** National Environmental Management Act. The foundational law, ensuring that "development must be socially, environmentally, and economically sustainable".
- **DMPR:** Department of Mineral and Petroleum Resources (formerly DMRE). The 'landlord' of SA's minerals; they decide who gets to dig and where.
- **DFFE:** Department of Forestry, Fisheries and the Environment. The 'watchdog' that sets environmental standards and handles appeals against mining permits.
- **NEMBA:** National Environmental Management: Biodiversity Act. The rulebook for protecting the West Coast's unique plants and animals.
- **OES:** One Environmental System. Introduced in 2014, this legislative alignment placed environmental authorisations for mining under the DMPR, while retaining NEMA and its Environmental Impact Assessment Regulations as the governing environmental framework. Appeals are decided by the DFFE Minister.
- **REMDEC:** Regional Mining Development and Environmental Committee. An advisory committee that meets to consider objections and provide recommendations when the public fights a mining application.

Application Documents and the 'Paper Trail'

- **MWP** (Mining Work Programme): The geologist's master plan. It is supposed to show exactly where the minerals are, how much is there, and the step-by-step plan to extract them.
- **PWP** (Prospecting Work Programme): The 'search plan'. Meant to outline low-impact activities (like soil sampling or test pits) to see if a full mine is viable.
- **SLP** (Social and Labour Plan): The 'social contract'. A mandatory document meant to detail how the mine will provide jobs, training, and local infrastructure (e.g., clinics or schools) for West Coast towns.
- **EAP** (Environmental Assessment Practitioner): The independent consultant (middle-man) who manages the application. They are legally bound to be neutral, even though the mining company pays their fee.
- **BAR** (Basic Assessment Report): A shorter environmental study for activities with 'known' impacts of a mining operation.
- **S&EIR** (Scoping & Environmental Impact Reporting): A two-part, massive scientific study for large-scale mines. The Scoping asks "what could go wrong?' and the EIR asks "how do we fix it?"
- **EMPr** (Environmental Management Programme): The 'rulebook' for the mine once it starts. Meant to be a legally binding commitment to mitigate damage.
- **EA** (Environmental Authorisation): The formal environmental approval issued by the DMPR under NEMA, allowing a listed activity (such as mining) to proceed subject to conditions.
- **WUL** (Water Use Licence): Authorisation required under the National Water Act where mining affects groundwater, surface water, or watercourses.
- **ICMA** (Integrated Coastal Management Act): Legislation protecting coastal public property and ensuring equitable access and coordinated coastal governance.

Earth Science: Geology and Palaeontology

- **HMS** (Heavy Mineral Sands): The primary target on the West Coast. These sands contain 'heavy minerals' such as Zircon, Ilmenite, and Rutile (used in ceramics, paints, and high-tech alloys).
- **Alluvial Deposits:** Minerals (like diamonds) that were moved by ancient rivers or sea-level changes and are now found in gravel layers.
- **Overburden:** The layers of sand and soil sitting on top of the minerals. Miners must move this to get to the 'pay dirt', which causes the most visible environmental scarring.

- **PIA** (Palaeontological Impact Assessment): A study of fossils. The West Coast is a global 'time capsule' for extinct species (like five-toed horses); the PIA is meant to ensure they are not destroyed.
- **HIA** (Heritage Impact Assessment): A study of human history, including Shell Middens (ancient refuse heaps left by the Khoekhoe and San people) frequently found along the coast.
- **Cliff Collapses** or **Slumps:** Often caused by roads cut too close to the cliffs, mining at the toe of cliffs, or incorrect methods of water drainage.

Biological and Marine Science

- **SKB** (Succulent Karoo Biome): The West Coast's unique 'arid garden.' It is a global biodiversity hotspot where most plants exist nowhere else on Earth.
- **CBA** (Critical Biodiversity Area): 'No-go' or 'high-caution' zones. These are lands that must remain natural to prevent total ecological collapse.
- **Benthic Environment:** Life on the sea floor. Offshore diamond mining can 'smother' these habitats with silt.
- **Turbidity Plumes:** The clouds of sediment stirred up by coastal or offshore mining. These can block light for kelp forests, which are the 'nurseries' for local fish and crayfish.
- **Search and Rescue:** A botanical requirement where rare plants are physically moved out of the way of bulldozers and kept in a nursery for later replanting.

Biodiversity and Planning

- **SEA:** Strategic Environmental Assessment. Unlike a site-specific EIA, the SEA looks at cumulative impacts over a whole region (e.g. the West Coast) to inform future planning.
- **CBA:** Critical Biodiversity Area. Terrestrial and aquatic areas required to meet biodiversity targets. These are high-risk areas for mining.
- **ESA:** Ecological Support Area. Areas that support the ecological functioning of CBAs.
- **MBG:** Mining and Biodiversity Guidelines. A cross-sectoral tool used by practitioners to identify high-risk biodiversity areas before applying for rights.
- **SDF:** Spatial Development Framework. A municipal or provincial plan that guides where different types of land use (like mining or conservation) should occur.

The Public Participation Process (PPP)

- **I&AP** (Interested and Affected Party): Anyone with an interest in the project. You have a legal right to be informed and to have your objections heard.
- **BID** (Background Information Document): The 'CliffsNotes' of a project. A short, easy-to-read summary sent out at the very beginning of the application process.
- **CRR** (Comments and Response Report): A critical legal log. The EAP must record every single public comment and provide a formal, scientific, or legal response.
- **Public Meeting:** A forum where the EAP and geologists present the plan to the community. (Note: These are often the best places to voice concerns for the record).

Closure and Financial Security

- **Financial Provision:** A 'rehabilitation deposit.' The mine must give the government a bank guarantee or cash before they start, so if the company disappears, there is money to clean up the mess. Must be reviewed annually and maintained until a closure certificate is issued.
- **MCP** (Mine Closure Plan): The 'exit strategy.' It describes how the land will be shaped and replanted so it can be used for farming or tourism after the minerals are gone.
- **Closure Certificate:** A formal certificate issued by the DMPR confirming that rehabilitation obligations have been fulfilled. Until it is issued, liability for environmental harm remains with the right holder.

ripl

powered by PTWC

A ripple effect occurs when an initial disturbance to a system propagates outward to disturb an increasingly larger portion of the system.

Sign up to Ripl today - Protect the West Coast's innovative new public participation platform

An accessible, user-friendly technology solution, Ripl is set to revolutionise the Public Participation Process to hold the mining industry accountable on the South African West Coast.

www.ripl.co.za

110626