
THE BUSINESS OF BIODIVERSITY
Changing business perceptions regarding biodiversity: From impact mitigation towards new strategies and practices.
exxaro
POWERING POSSIBILITY

Who are we?

Exxaro is one of South Africa's largest and foremost black-empowered and diversified resources companies, with strong historic presence in coal and acquisitive growth prospects in renewable energy and minerals powering a low-carbon world.

COAL
[100% Ownership
50% Mafube]

SIOC
[20.6% Interest]

RENEWABLE
[87% Ownership]

ZINC
[26% Interest]

FerroAlloys
[100% Ownership]

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A convergent narrative to address the twin emergency of biodiversity loss and climate change

NATURE UNDERPINS THE GLOBAL ECONOMY

More than 50% of the global economy is depended on biodiversity (nature and its services) estimate about **USD 44 trillion**

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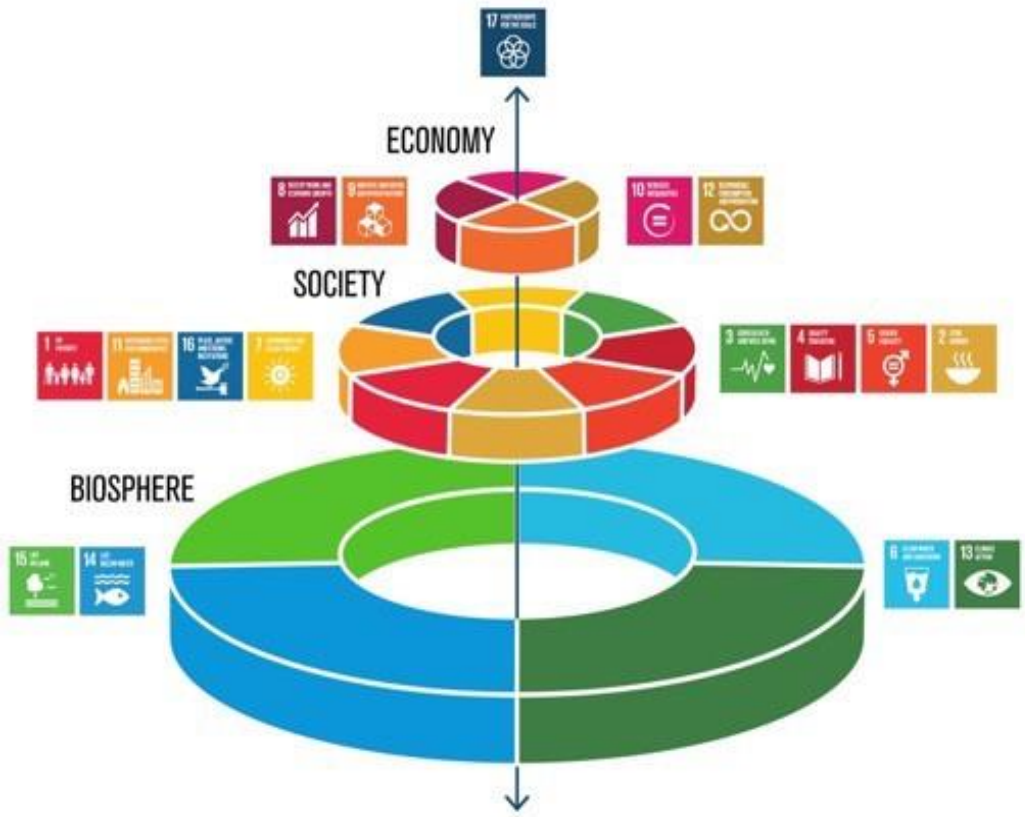
The Global Futures Initiative (GFI) estimates a business-as-usual scenario will see biodiversity loss cause financial losses of **USD 10 trillion between 2011 and 2050.**

World Economic Forum (2020) Nature Risks Rising
IPBES (2019) Global Assessment Report on Biodiversity and Ecosystem Services

Biodiversity frameworks

SDGs PROVIDE FRAMEWORK FOR GLOBAL DIVERSITY INTERGRATION



https://www.stockholmresilience.org/research/research-news/2016-06-14-how-food-connects-all-the-sdgs.html

Within the global Sustainable Development Goals Framework **the key biodiversity thematic areas** of 6 Clean Water and Sanitation, 13 Climate Action, 14 Life Below Water and 15 Life on Land, **are indicated as underpinning of all economic and societal activity.**

This further emphasises and highlights the critical importance of nature and natural capital in the broader global developmental discourse. However prominent they may feature in this illustration; **the biosphere thematic areas in the SDG framework are the only thematic areas which do not have specified targets.** This further exacerbates the problematic of standardisation of quantifiable metrics.

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Where does biodiversity risk exposure lie in business ecosystems?

The ESG Landscape?

ESG addresses many topics and stakeholders.

ESG represents the company's efforts to systematically assess, manage, and monitor risks of material potential impact to the strategic and financial decisions of the company.

The term ESG is often used as a synonym for sustainability, CSR, public relations, social investment, or environmental compliance.

While some of these elements may factor into an ESG program, **at the center of ESG is the management of risk and the preservation of shareholder value.**

A DIGITAL AND CONNECTED MINE

Exxaro Approach to the “E” in ESG

Our Ecological Approach which seek to ensure that our operations results in the minimum biodiversity loss

Where we can’t avoid biodiversity loss our approach is to restore and/or invest in biodiversity offsets.

Exxaro's approach

Exxaro takes a holistic approach the protection and conservation of biodiversity-rich ecosystems

Species Approach vs Ecosystem Approach

There are two broad approaches to conservation that is used globally:

1. Single Species Approach, i.e., protecting a charismatic specie like a lion or rhino; or
2. Ecosystem approach, i.e., protecting an ecosystem with an emphasis on biodiversity hotspots

Exxaro makes use of both approaches depending on circumstances and resources available.


African Grass-owl Project


Wetland Rehabilitation

Our Approach

- Cost-effective solutions
- Conservation of biodiversity-rich areas within the right mining areas, as far as possible
- Management of threatened red data species
- Control of category 1a, 2 and 3 invasive plants
- Integration of biodiversity into social impact studies

Our biodiversity and conservation efforts have yielded success

Our collaborative approach, working with NGO’s and government has led to success

At Matla, we have implemented a monitoring and action program that enables us **to actively manage the grass-owl population at Matla** to ensure
mining and associated activities do not impact the population.

At Grootegeluk, our team, in close cooperation with the authorities, **successfully relocated Baboon spiders** and protected succulent species as our mining footprint expanded. Ensuring that these species continue to thrive in new habitats

In the Eastern Cape, Exxaro is supporting **the creation of a vulture safe zone together with the Endangered Wildlife Trus**t to establish first safe vulture habitat within an environment that contains wind energy facilities

Our vision is zero harm

Exxaro’s Wetlands & Pans (depression wetlands)

IMPORTANCE OF WETLANDS

- Wetlands are areas of land saturated with water, either permanently or seasonally.
- Wetlands help to buffer flood waters, soak up water to release water gradually over time.
- Naturally filter sediments and purifying water.
- **Provide Habitat for thousands of species of aquatic and terrestrial plants and animals (biodiversity**)

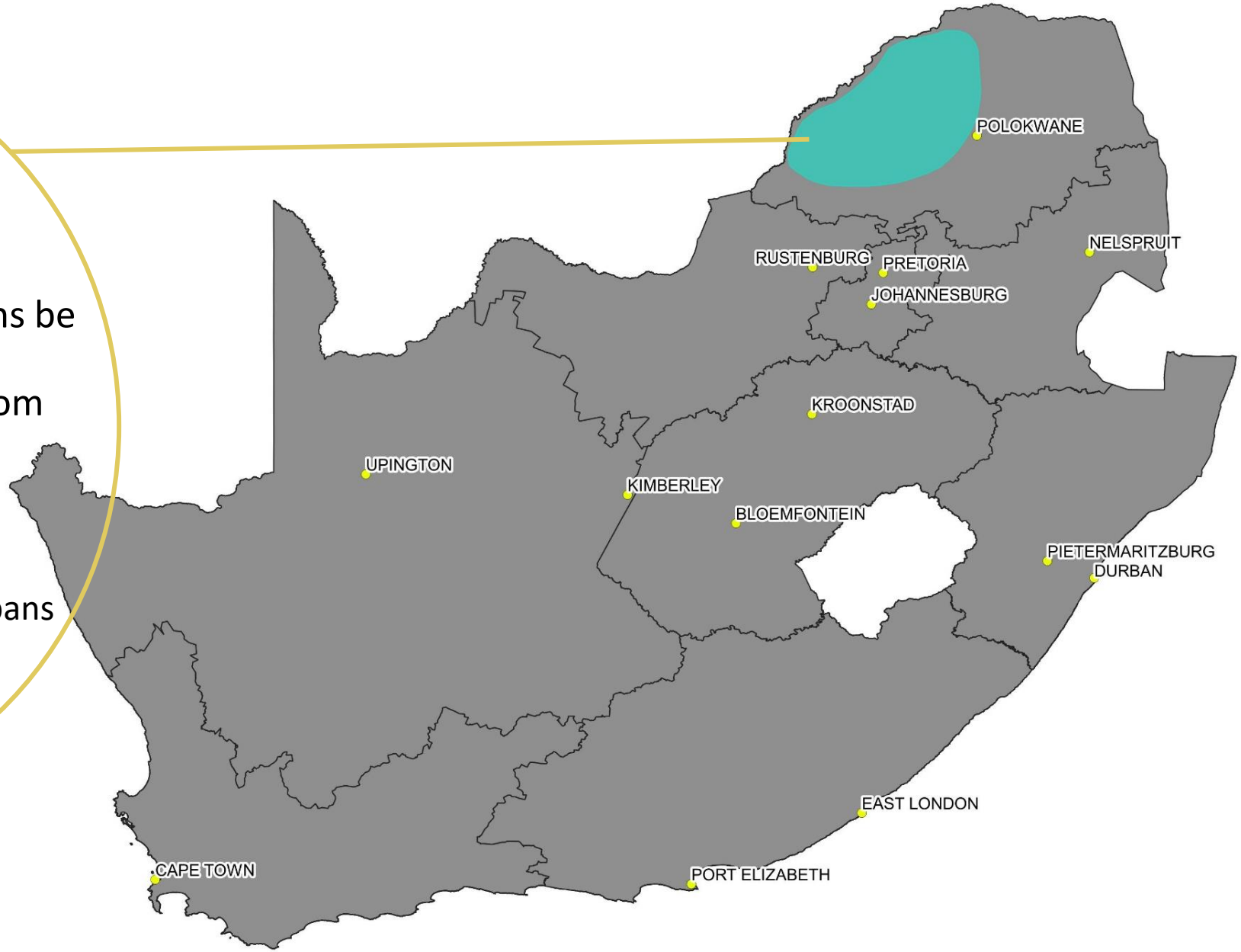
Case Study 1: Pan relocation

STUDY AREA AND OBJECTIVE

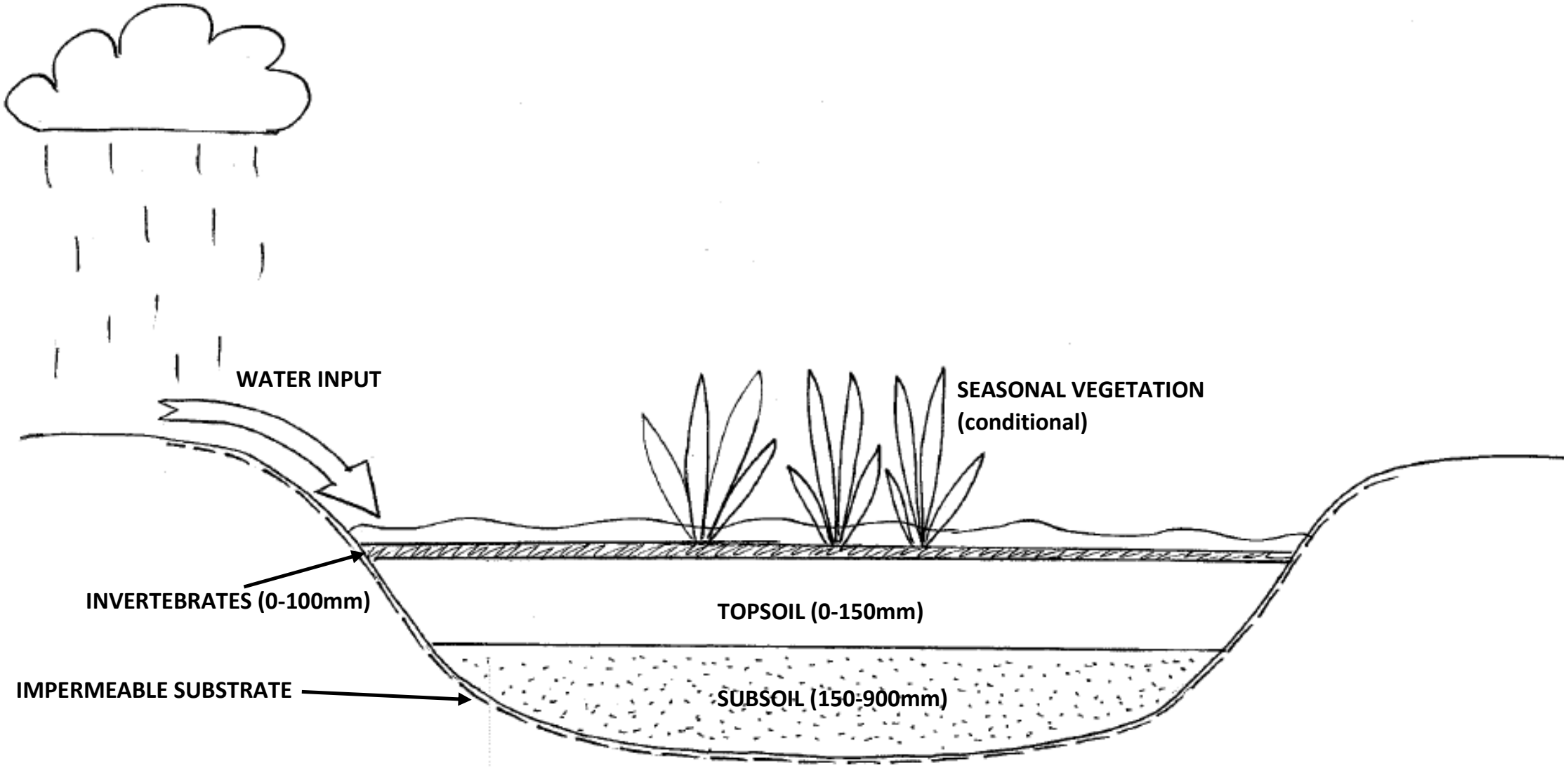
Expansion of an opencast mine

Can depression wetlands or pans be successfully recreated in the landscape using the material from systems that would be lost?

- Experimental approach
- Construction of 6 non-perennial pans



EXAMPLE OF PAN PROFILE TO BE REPLICATED



CONSIDERATIONS

Location selection

Catchment analysis

Proposed site conditions

Size of pan

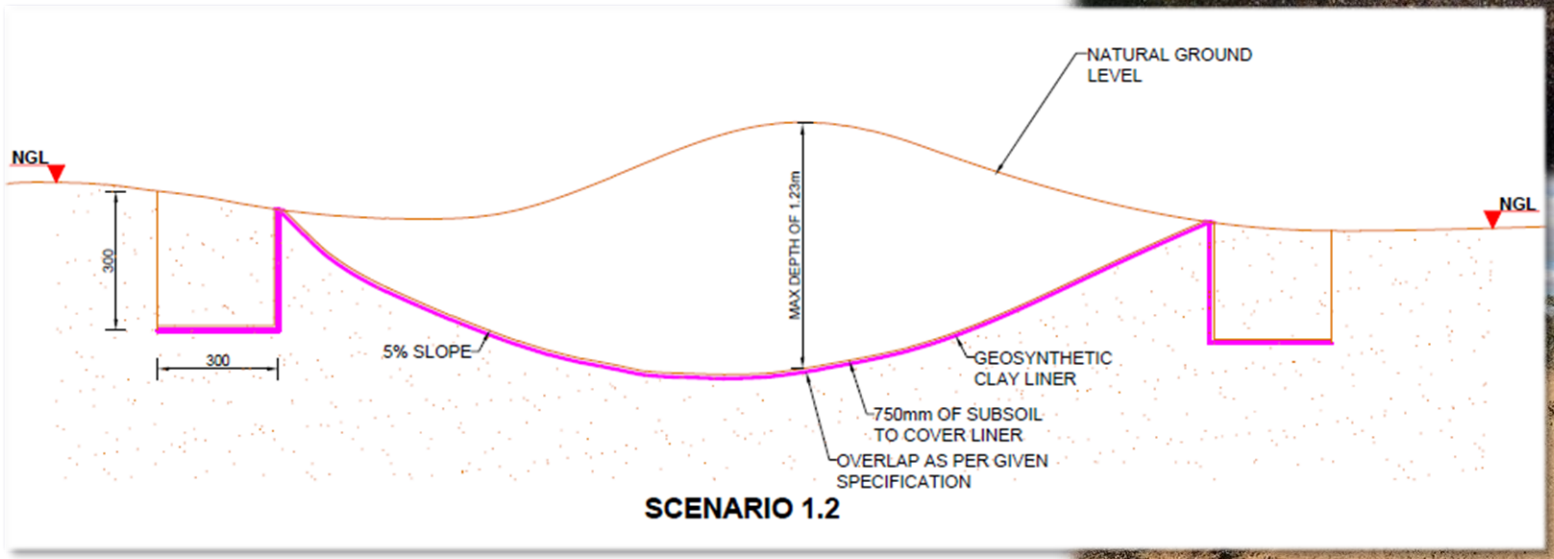
Water balance

Invertebrate

Donor material – 2 donor pans

Area 1

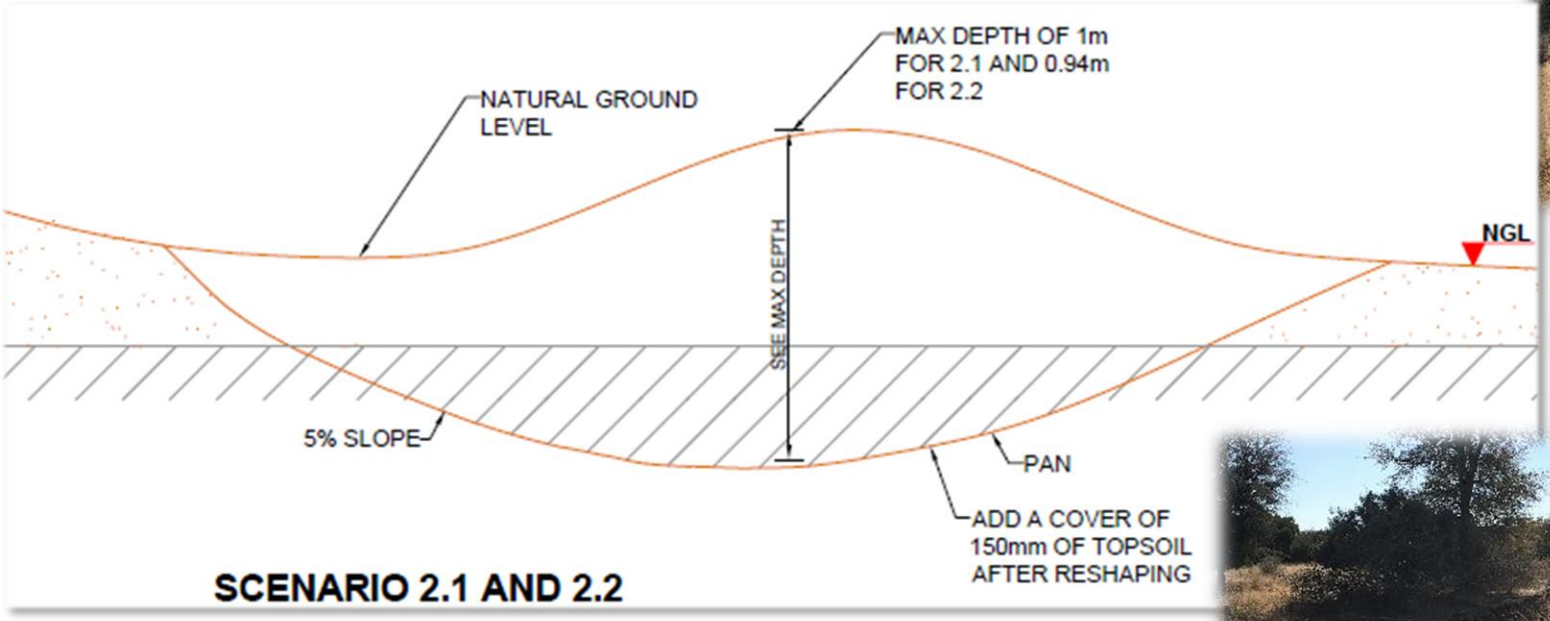
To recreate wetland habitat under less desirable conditions, e.g., sparse vegetation cover. These conditions may resemble those within the post-mining scenario of the rehabilitated pit area. Due to the nature of the substrate, synthetic liners will be incorporated into the design of the systems to ensure water is retained within these systems



SCENARIO 1.2

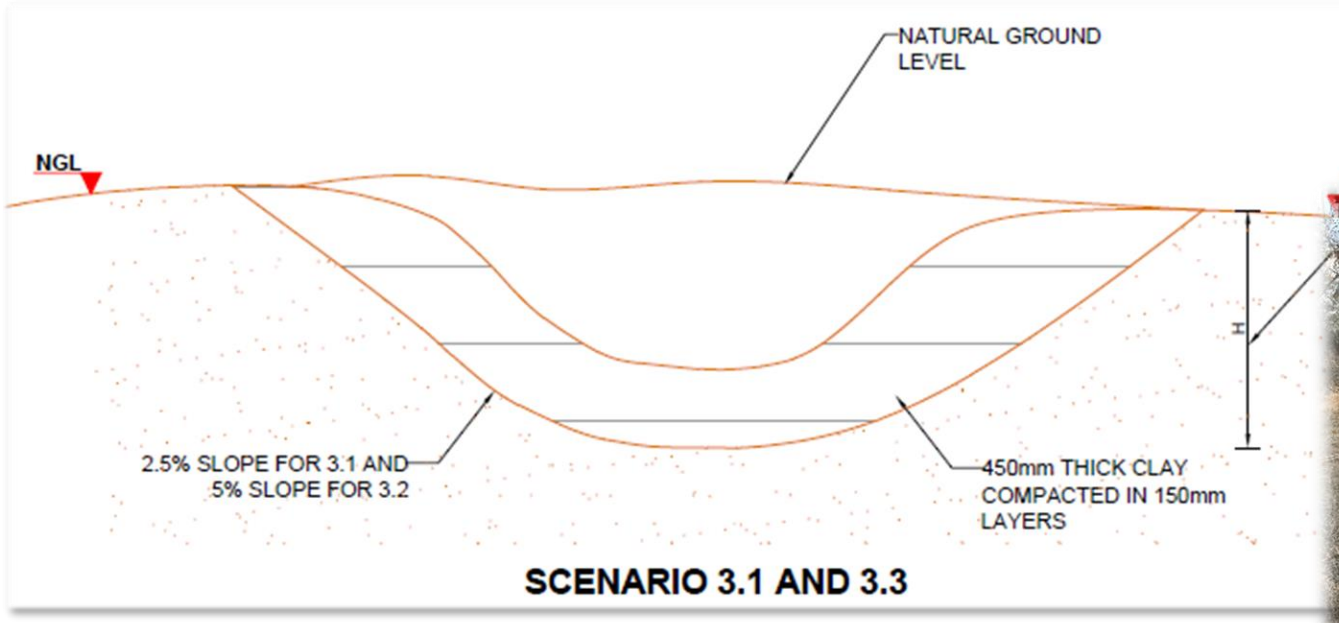
Area 2

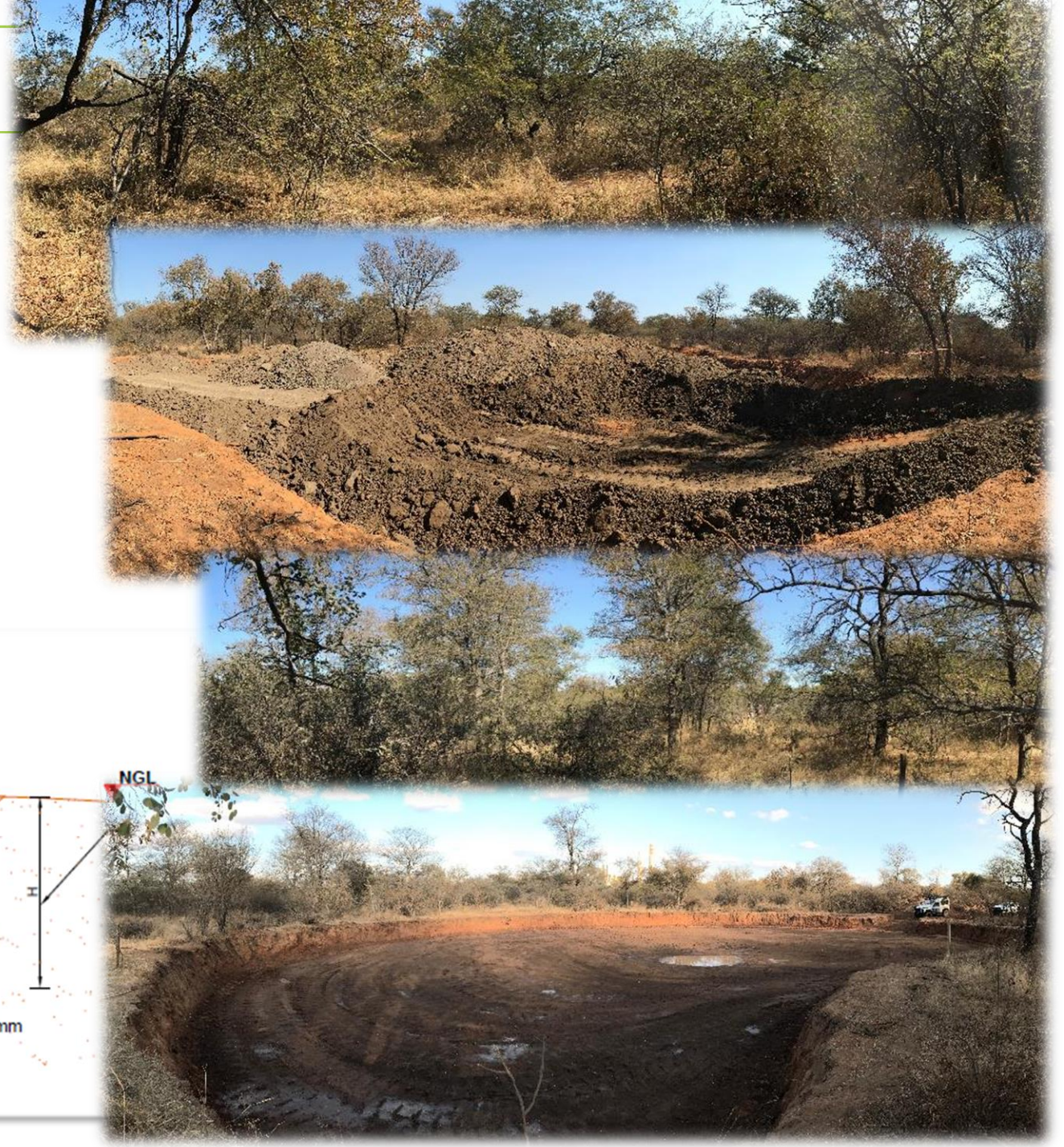
To recreate wetland habitat that is underlain by shallow bedrock. This system was created through excavating the material to the bedrock layer.



Area 3

To create wetland habitat using only the materials/substrate obtained from the donor pans. To create a barrier to prevent water from filtering out of the systems, clay material from the donor pans will be suitably compacted and used as a liner of the system, followed by the backfilling the remaining part of the depression with donor material





POST CONSTRUCTION: Area 1

POST CONSTRUCTION: Area 2

POST CONSTRUCTION: Area 3

POST CONSTRUCTION: MONITORING

BASELINE: October 2021
- Donor pans

WET SEASON MONITORING: February 2022
- 6 pans created






MACROINVERTEBRATES
- Total of 17 taxa were identified
- Good diversity & abundance of taxa
- Pan 2.1: lowest diversity (7 taxa)
- Pan 1.1: highest diversity (13 taxa)
- Equivalent to baseline survey

DRAGONFLIES
- Created pans had a higher DBI scores
- Habitat availability – vegetation
- 14 species identified
- IUCN – ‘least concern’

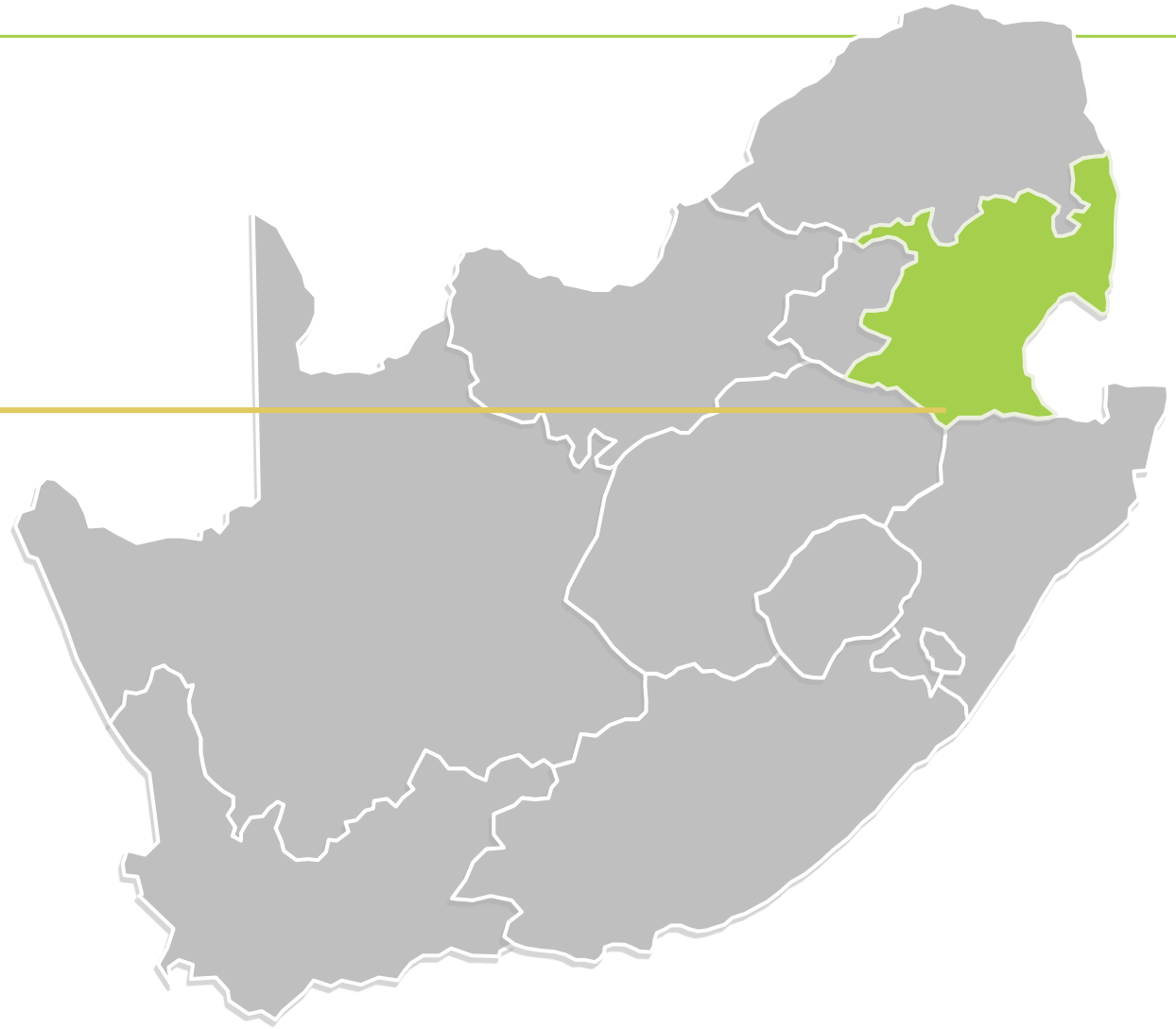




Case Study 2: Wetland rehabilitation

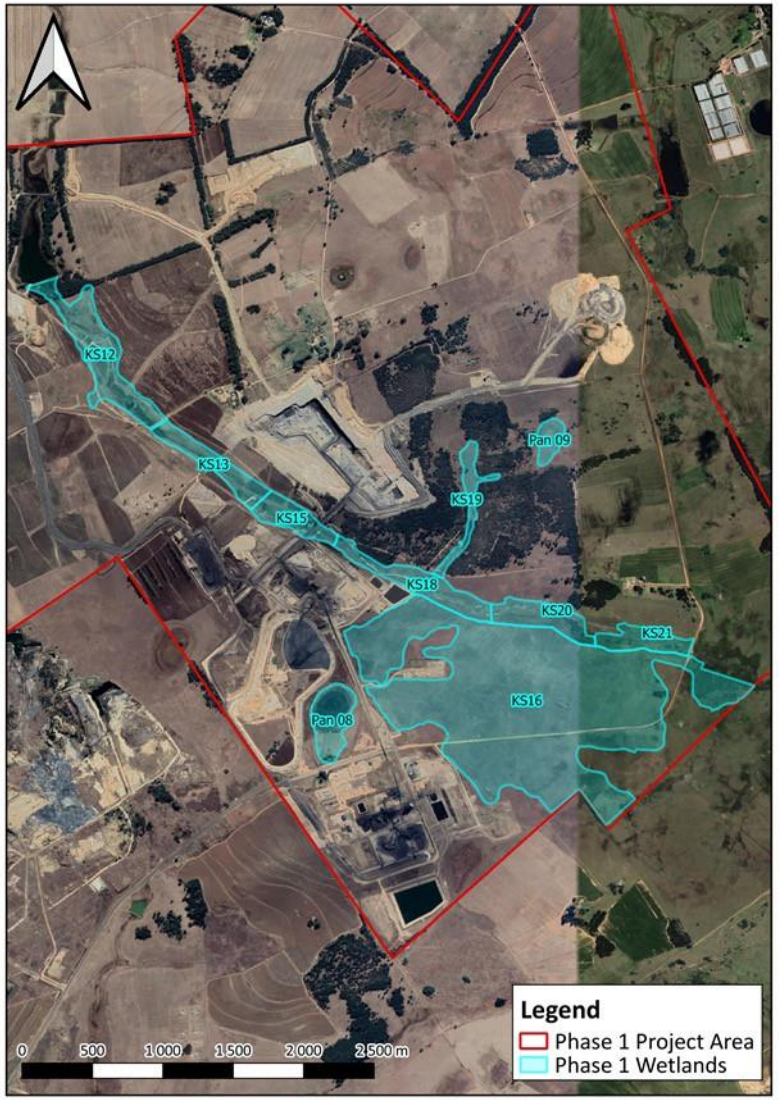
MINE OVERVEIW

- The Coal mine (open cast) is situated in the Mpumalanga province.
- The mine forms part of the Witbank coalfield.



WETLAND REHABILITATION PROJECT

- **The aim of the wetland rehabilitation project was to enhance the functioning and the integrity of the wetland ecosystem around the mine.**
- As mining was to commence in the sensitive area a wetland rehabilitation strategy was developed with the following objectives:
    - Stabilising and deactivating erosional features
    - Reducing historical agricultural alterations
    - Improving hydrological quality
    - Reducing the density of Alien plants along the system



WETLAND REHABILITATION PROJECT

- After government approved the Wetland Rehabilitation Plan the following interventions were implemented:
  - Construction of concrete weirs and cut-off walls.
  - Construction of gabion-energy breakers.
  - Construction of pipe culvert drop-inlet structures.
  - Deactivation of drains by means of ecologs and backfilling of the system with wetland material.

EFFECTIVENESS OF REHABILITATION

The effectiveness of the interventions are monitored by an ecologist during the wet and dry seasons and visually improvements are visible.

MONITORING AND REPORTING

The mine is continuing to monitor the effectiveness of the wetland rehabilitation and reports are submitted to authorities.

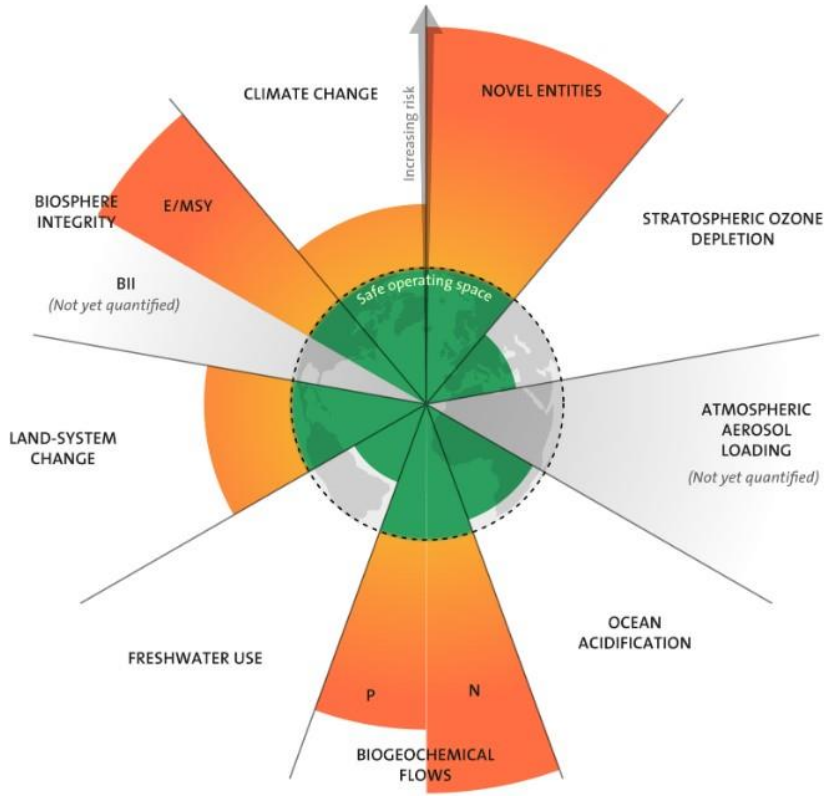
Some of the positive contributions of the wetland rehabilitation are:

1. Ecosystem improvement on site and downstream
2. Improved water quality and quantity
3. Improvement in biodiversity

Biodiversity is intrinsically linked to Exxaro's Decarbonisation Journey

Our operations are increasingly being affected by climate change and by enhancing biodiversity we can improve business resilience

Climate is one of nine important planetary boundary, other nature planetary boundaries are also at risk



Source: Stockholm Resilience Centre (2022) - Planetary Boundaries Update, TNFD Beta Framework March 2022

Link between nature and climate

- Climate change is one of the key drivers affecting biodiversity and ecosystems
- Nature risks can amplify climate risks, for example loss in biodiversity reduces the ability of ecosystems to functional optimally and thus serve as effective carbon sinks
- **Nature risk management can build on progress made with climate risk**

DISCLOSURE FOR NATURE

The TNFD framework focuses on ensuring that nature-related dependencies, impacts, risks and opportunities are effectively understood and communicated by organisations to the broader financial and investor community.

Exxaro to implement TNFD pilot in 2023 Financial year

“More than 30% of the climate mitigation that is needed to achieve the Paris Agreement can come from nature-based solutions”