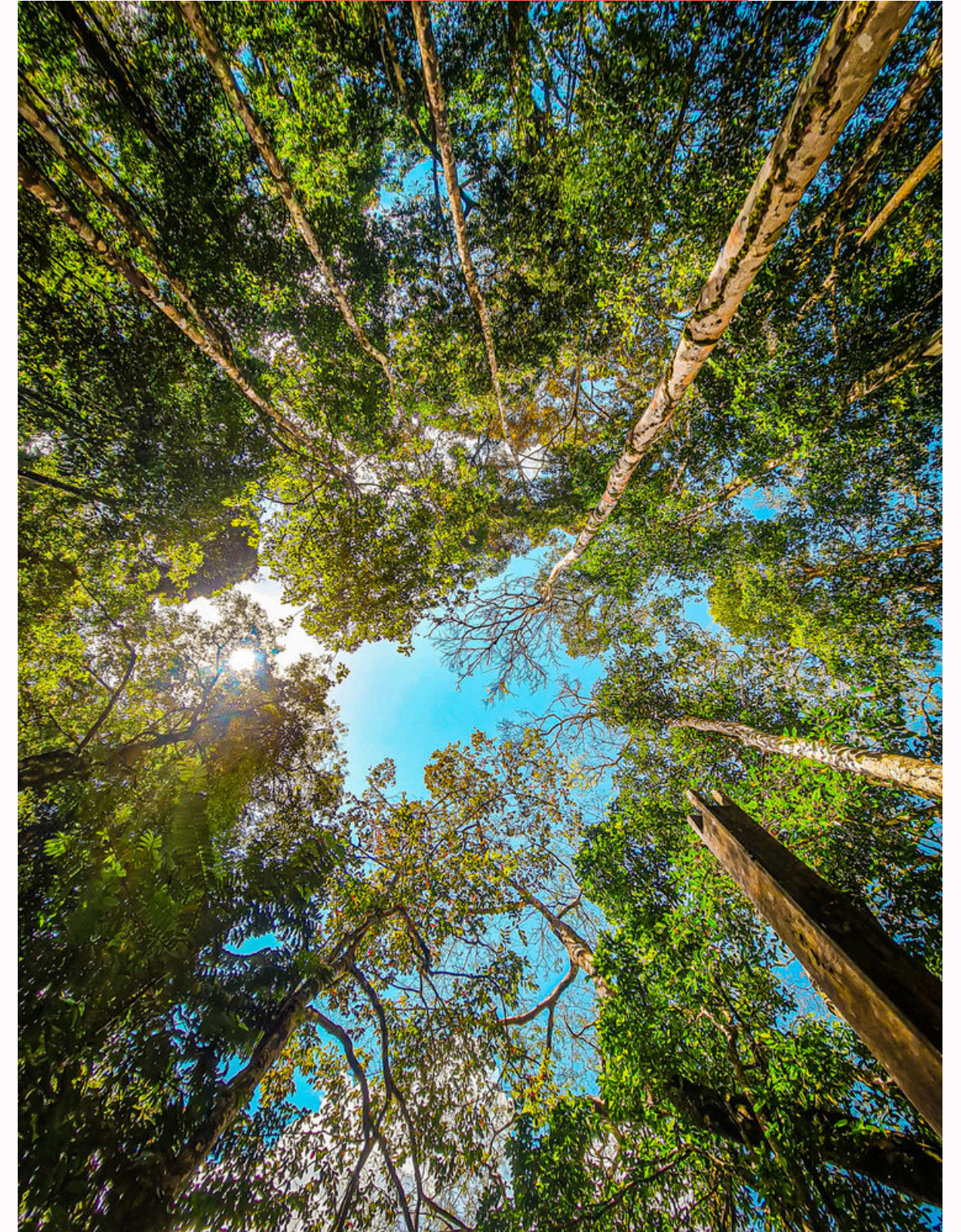


# NATURAL CAPITAL ACCOUNTING

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# Overview

Natural Capital Accounting is the practise of involving and integrating environmental considerations and natural resources into business decision-making. By maintaining accountability of and quantifiably valuing the natural assets in our environments of operation, we can make better, more sustainable business decisions. It is currently a growing priority within the mining industry, and there already exists several international NCA standards and protocols, these include:

- The Natural Capital Protocol
- System of Environmental-Economic Accounting 2023 (Central Framework)
- CSIRO's The Nature Capital Handbook
- British Standard's BS 8632: Natural Capital Accounting for Organisations – Specification
- Science Based Targets for Nature (SBTN)
- Accounting for Nature



# Nature in Decline

For years, we have been largely producing and consuming goods and services at the expense of natural capital. Since natural capital can contribute directly or indirectly to a country's economic output, as well as set ecological boundaries for socio-economic systems within and between countries – the contribution of natural capital is invaluable to societies.

The global decline of nature is therefore a problem, as since it is a critical asset or capital stock – the decline is a warning of a future global asset management problem. There is also a need for producers and consumers to protect, sustainably use and restore nature.





# Our Obligation

Therefore, a concrete framework is needed for valuing natural assets and integrating them with performance reporting. That's where Natural Capital Accounting comes in. The NCA can provide a framework by quantifying and mapping out impacts and/or dependencies of a business portfolio on surrounding and relevant natural resources.

Companies have an obligation to assess the impact of their operations to biodiversity, waste, water, soils, vegetation, sensitive areas, flora and fauna, and impacts to communities. Natural Capital Accounting can be used to guide sustainable practises, enhance reporting accuracy, demonstrate environmental responsibility and support long term environmental stewardship, contributing to the protection of reputation and license to operate.





# The NCA in helping Mining Companies Transition to Sustainability

The NCA framework will help mining companies transition to sustainable practices by ensuring they are ethically conducting disturbance on their land of ownership. There are several key ways NCA supports this transition including:

**Improving Decision Making:** Better informed operational and strategic decisions are enabled by NCA, since companies will have a more complete picture of their environmental impacts and dependencies.

**Risk Management:** Through quantifying natural capital, mining companies will have an advantage in assessing and then mitigating environmental risks, to include future liabilities or resource scarcity.

**Opportunity Identification:** Opportunities for cost savings, resource efficiency and potentially even new revenue streams (via ecosystem services) can be revealed through NCA.

**Stakeholder Engagement:** Communication with local communities, regulators and investors regarding environmental impacts and mitigation efforts can be more transparent and meaningful with the detailed data provided by NCA.

**Long Term Planning:** NCA supports better forecasting of environmental impacts through a mine's lifecycle, including closure and rehabilitation.





# The NCA in helping Mining Companies Transition to Sustainability (cont.)

**Biodiversity Conservation:** Encourages mining companies to prioritise conservation and restoration efforts by placing a value on biodiversity and ecosystem services.

**Climate Change Adaption:** Helps companies understand their vulnerabilities to climate change and plan appropriate strategies.

**Circular Economy Initiatives:** Accounting for natural capital incentivises companies to minimise waste and maximise resource efficiency – aligning with circular economy principles.

**Sustainable Finance:** Supports access to green finance instruments and improve ESG ratings – which could potentially lower the cost of capital.

Although there remain challenges in standardisation and implementation, NCA provides the robust framework for mining companies to quantify their environmental impacts, set science based targets, and drive continuous improvement in sustainability performance. It will be the key tool in the industry's transition towards responsible, sustainable resource extraction.





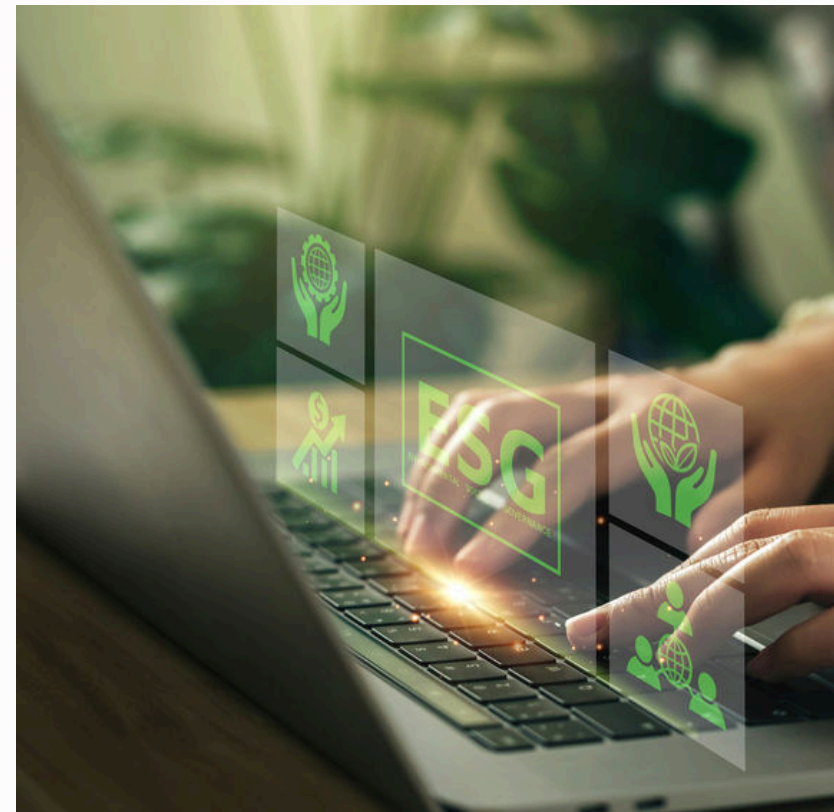
# Closing the Gap between NCA Data & Strategic Decision Making

Bridging the gap between Natural Capital Accounting data and strategic decision making in the mining industry is crucial. Technology is the great enabler, vital for translating complex environmental information into accessible, actionable insights. Some of the ways technology facilitates this process are:

**Data Integration and Visualisation:** Aggregates diverse data sources - from satellite imagery to on-ground sensors, then present them in intuitive dashboards. This allows decision-makers to quickly grasp complex NCA information.

**Real-time Monitoring & Reporting:** IoT devices and cloud computing enable real-time data collection and analysis, allowing for more responsive and agile decision-making.

**Predictive Analytics:** Machine learning algorithms can analyse historical NCA data to forecast future trends, helping companies proactively manage natural capital risks and opportunities.



**Scenario Modelling:** Advanced simulation tools can model different operational scenarios and their impacts on natural capital, supporting more informed strategic planning.

**Secure Transparency:** Ensures the integrity and traceability of NCA data, building trust with stakeholders and supporting more confident decision-making for all involved stakeholders.

**Automated Reporting:** Technology can streamline the creation of NCA reports showing areas of concern or areas of non-compliance.

**Collaborative Platforms:** Cloud-based tools can facilitate sharing of NCA insights across different departments and stakeholders, ensuring all strategic decisions are informed by this data.

Technology provides an enabler to automate and simplify data capture and management and is instrumental in making NCA data accessible, actionable and understandable for strategic decision making in the mining industry.



# Importance of Communicating NCA Data to Stakeholders

Going beyond mere transparency, creating understanding, building trust and driving collaborative actions are essential to communicating Natural Capital data effectively to stakeholders. This is crucial for mining companies for several reasons.

**Building trust** and maintaining license to operate are important to mining companies, and clear communication of NCA data demonstrates both commitment to environmental stewardship, as well as potentially improving relationships with local communities and regulators. As ESG factors increase in importance, comprehensive NCA data can help inform investor decisions, such as in assessing a company's long-term sustainability and risk profile. If communication of NCA data is proactive enough, interactions with regulatory bodies can be smoothed, potentially influencing future policy development

Within an organisation, sharing NCA insights across that organisation can help align different departments towards sustainable business practices and decision making. It also drives innovation – transparent communication can spark dialogues, leading to new ideas for improving environmental performance. Proactive disclosure of NCA data allows mining companies to control their narrative around environmental impacts, thereby managing reputational risk. Shared NCA data can also be the foundation for collaboration with NGOs, research institutions, and other mining companies on sustainability initiatives.



# Strategies in Communication

There are several strategies to use in effective communication, some of these might include specific actions such as tailoring the message. Different stakeholders may need differing levels of detail or have different areas of focus. To help access this information, visualising data is important which can be achieved through the use of geospatial views or interactive dashboards. Part of this accessibility is contextualising information, which helps stakeholders understand what the data means in practical terms. Other strategies include regular reporting, which can demonstrate commitment to ongoing environmental management. Two-way dialogue with stakeholders, encouraging feedback and questions on NCA data, can also promote engagement and continuous improvement.

Challenges on this front still exist, however. The main of which is striking the balance between transparency and protecting sensitive information. This ensures data accuracy and manages diverse stakeholder expectations. Effectively communicating NCA data is not just about disclosure, but ultimately fostering understanding, driving engagement, promoting more sustainable mining practices through informed stakeholder collaboration.





# IMPLEMENTATION CHALLENGES

The implementation of Natural Capital Accounting in the Mining Industry presents several significant challenges that a successful entity would need to address.

One such challenge is the sheer complexity and scale of the vast areas and diverse ecosystems that mining impacts. Quantifying these complex, interconnected natural systems is inherently challenging itself. Next, collecting accurate, comprehensive data on ecosystem services and biodiversity can be difficult, especially in remote or sensitive areas. Ensuring the collected data's quality and consistency is critical. Universally accepted methodologies for valuing natural capital are lacking in the mining industries, which can make comparisons between companies or projects difficult.

Mining projects have long lifecycles and therefore NCA needs to account for impacts and dependencies over decades, including post-closure which involves significant uncertainty. Integrating NCA into pre-established financial and operational systems can also be complex and resource intensive. Significant training or external support may also be necessary, since mining companies can lack in-house experience in ecological economics and environmental accounting.





# Implementation Challenges (cont.)

**Cost and perceived ROI:** Implementing robust NCA systems requires substantial investment. Demonstrating short-term return can be challenging, potentially limiting buy-in from management.

**Regulatory alignment:** NCA is not yet widely mandated, and aligning voluntary NCA efforts with existing regulatory requirements can be complex.

**Stakeholder expectations:** Different stakeholders may have varying expectations about how natural capital should be valued and accounted for, leading to potential conflicts.

**Cultural Shift:** Implementing NCA often requires a significant shift in organisational culture towards valuing nature intrinsically, which can face resistance.





# More Considerations

**Materiality and boundaries:** Determining which natural capital impacts and dependencies are material, and where to set system boundaries for accounting, can be contentious.

**Technology limitations:** While technology is advancing, there are still limitations in tools for measuring and monitoring certain aspects of natural capital at scale.

**Market mechanisms:** The lack of well-established markets for many ecosystem services makes valuation challenging and sometimes subjective.

**Balancing detail and practicality:** There's a constant tension between the desire for comprehensive, detailed NCA and the need for practical, implementable systems.

Despite all these challenges mining companies are **still** progressing in their NCA implementation. Technological innovation, capacity building, stakeholder engagement, and a long-term commitment to sustainability are often what is required to overcome these hurdles. In the future we can expect many of these challenges to be addressed gradually, as more and more companies adopt NCA and share best practices – leading to standardised, effective NCA practices.



# Natural Capital Accounting and K2fly

A core value of K2fly is that all natural resources are precious, and our mission is to help organisations, operationalise, govern and disclose key ESG information. We offer solutions that can bring together years of data – highly important in this era of higher regulation and higher requirements for transparency. We can provide a proper database for disclosures. This can help with a key problem in smaller organisations: disclosure hesitancy. The fears of increased scrutiny and litigation can be eased with this new, streamlined means of transparency – robust enough that smaller companies can access regularly.

Natural Resource Governance, illustrates activities and processes that occur on land, including access approvals for exploration activities or ground disturbance, safeguarding cultural heritage, managing tailings storage facilities and rehabilitating the land. Natural Resource Governance is applicable across sectors.

Learn more about our offering through our [website](#).



**Environmental  
Monitoring**



**Tailings  
Management**



**Land  
Rehabilitation**



**Land  
Access**



**Heritage  
Management**



**Ground  
Disturbance**




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