

# Reads

## Valuing and accounting impacts on natural capital

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Reads is an innovative digital tool designed to improve corporate decision making by valuing impacts on Natural Capital.

Natural capital is the stock of natural resources (e.g., air, water, biodiversity) that bring value to society. Value can be expressed in monetary terms, but also in quantitative/ qualitative terms.

Natural capital assessments can provide actionable information about the total value/net impact of individual entities and of portfolios.

Global Energy Leaders are beginning to measure and report their impacts using natural capital metrics. This approach allows to answer questions from partners, financial institutions, NGOs and governments.

Our approach has been reviewed and endorsed by the UN Environment Programme World Conservation Monitoring Centre and the Capitals Coalition.



Reads is an internationally recognized natural capital valuation and accounting approach



Reads conforms to the **Natural Capital Protocol** and its Biodiversity Guidance, as well as the **ISO 14008:2019** on Monetary valuation of environmental impacts.

## Natural Capital Protocol

The Protocol is a standardized framework for business to identify, measure, and value their direct and indirect impacts (positive and negative) and dependencies on natural capital.

It is designed to help generate trusted, credible, and actionable information that business managers need to make informed decisions.

## Norma ISO 14008:2019

This document provides a framework that includes principles, requirements and guidance for the monetary valuation of environmental impacts.

Monetary valuation methods on this Standard can also be used to value real or potential impacts on natural capital, including cost-benefit analysis, risk and life cycle assessments.



TRANSPARENT



Align

Aligning  
accounting  
approaches  
for nature

The Reads team is actively involved in the Transparent and Align projects in order to ensure the scientific and technical robustness of the solution.



## Collaborators

The following companies have participated with Repsol in the development of Reads by providing digital and/or environmental consulting services.

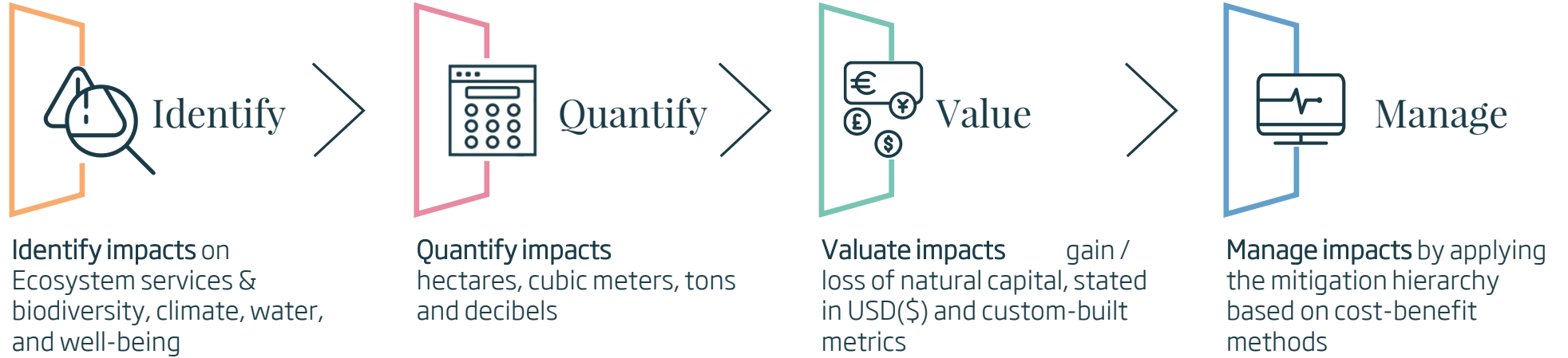


Reads has been peer-reviewed by

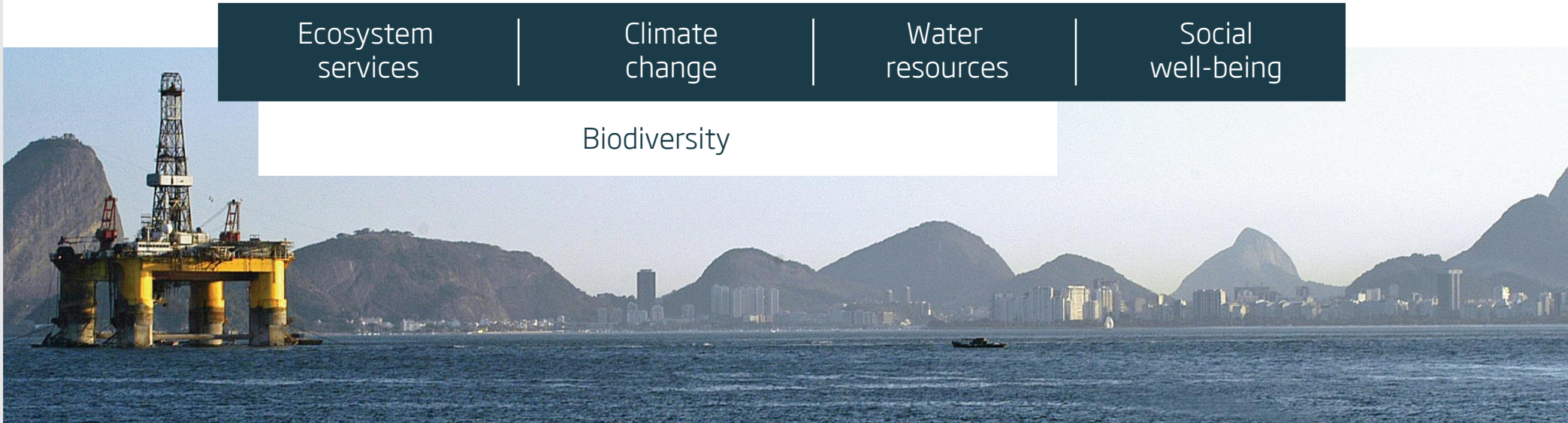


# Reads

The valuation and accounting method follows a tiered approach...



... to value impacts on





Identify material environmental aspects and impacts

#### Physical presence

- Occupation
- Disturbance & nuisances
- Territory fragmentation
- Collisions and electrocutions
- Lighting

#### Emissions

- Dust
- Vehicles
- Combustion processes
- Fugitives
- Venting
- Flaring

#### Discharges

- Drainage
- Sewage
- Cooling
- Drilling
- Process and production chemicals

#### Resources use

- Water
- Energy

#### Noise

- Transport road, marine, air
- Industrial processes
- Civil works

#### Materials and waste

- Hazardous
- Non-hazardous
- Contaminated sites



*The approach is flexible and configurable. The user selects and combines the environmental aspects and impacts according to the conceptual model of the site.*



Quantify Biophysical Impact Units (BIUs)

Ecosystem services & biodiversity	Climate change	Water resources	Social well-being
Ha, dB, t	T CO <sub>2</sub> eq	m <sup>3</sup>	t

BIUs amount the potential magnitude of impacts with:

- Direct inputs
- Calculations
  - Emissions: stacks, flares
  - Discharges to sea: produced water, drilling waste
  - Discharges to rivers: process and production chemicals
  - Onshore noise: roads, helicopters, industrial sources
  - Offshore noise: vessels, airguns
  - Visual: power lines, windmills, facilities
  - Wildlife: collision, electrocution



*Calculations are only for ecosystem services & biodiversity. Outcomes are based on screening models that estimate upper bound impacts*





## Valuation of impacts Metrics

Natural capital gain/ loss is measured in:

- **Environmental Economic Values (EEVs)**, monetized as US\$ (2018)
- **Impact Units (IUs)**, calculated from the EEVs to improve the valuation accuracy/ representativeness by using local adjustments that cannot be subjected to monetary valuation

EEVs/IUS are expressed in **Net Present Value (NPV)** so that the valuation considers the time value of money and better informs decision-making.

This information helps to focus on most material aspects and to simulate mitigation measures from a CBA standpoint.







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## Valuation of impacts

### Ecosystem Services

**Ha-eq** of impacted biome with loss of ecosystem services.

Reads includes an analysis of the monetary values of ecosystem services provided by the **18** main biomes of the world (**\$-ha/y**)

- Artificial surfaces
- Barren land
- Crops
- Grasslands
- Shrub-covered areas
- Tropical forests
- Template forest
- Aquatic / regularly flooded areas
- Mangroves
- Waterbodies
- Tundra
- Permanent snow / glaciers
- Open ocean
- Continental shelf
- Coastal
- Estuaries
- Seagrass / algae beds
- Coral reefs

### Economic Valuation (\$)

#### Reads Valuation Database

Adapted from TEEB Database (2010)

- NPV of reduced ecosystem services per biome, grouped by (20) CICES groups, including Provisioning (8); Regulating (8); Cultural (4)
- Intra-biome adjustment: Net Primary Production and Population Density
- Eco-services adjustment: materiality, detraction (%), and recovery time

#### Acronyms:

- **NPV:** Net Present Value
- **TEEB:** The Economics of Ecosystems and Biodiversity
- **CICES:** The Common International Classification of Ecosystem Services

### Impact Units (IUs)

#### Integration of local context

Required

- Biodiversity richness (species #) and risk-status (species / habitats) for genetic pool
- Ecosystem quality and resilience (abiotic) for regulating services
- Social dependence and appreciation for provisioning and cultural services



*The database can be edited, both in timeline and values, allowing the inclusion of site-specific studies. The % detraction of ecosystem services can be adjusted by the user.*



## Valuation of impacts

### Climate change

Tons CO<sub>2</sub>-eq emitted  
(inc. CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O)

### Water resources

m<sup>3</sup>of water used, after water mass balance

### Social well-being

Tons of chemicals (metals, salts, hydrocarbons)  
reaching the air, water, and soil

### Economic Valuation (\$)

#### Carbon Pricing

Social Cost of Carbon (SCC)

- NPV of CO<sub>2</sub>-eq emitted, considering the full global cost of the damage that it imposes during its lifetime.

#### Water Risk Pricing

Recommended Water Risk Monetizer, Ecolab

- NPV of reduced water abiotic services, including habitat maintenance, recreational use, and chemical regulation.

#### Environmental Contamination Pricing

Adapted from Environmental Prices Handbook, Delft

- NPV of emitted pollutants that may impact human health (social cost) during its time in the environment.

### Impact Units (IUs)

#### Integration of local context

Not Required

- Global effect

#### Integration of local context

Required

- Scarcity
- Demand
- Dependency

#### Integration of local context

Required

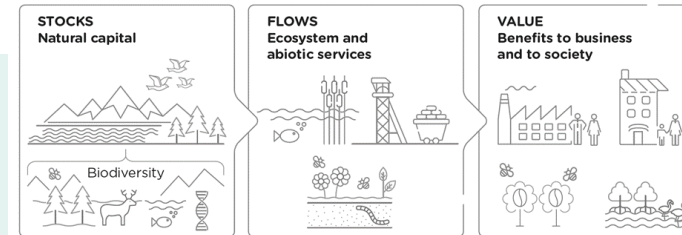
- Baseline levels
- Dispersion conditions
- Affected population



*The database can be edited, both in timeline and values, allowing the inclusion of site-specific studies.*



## Valuation of impacts Biodiversity



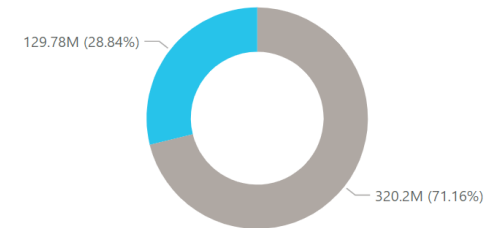
Cambridge Conservation Initiative & Capitals Coalition. 2020.

Reads produces **biodiversity-inclusive natural capital assessments** to avoid that business's impacts on biodiversity are underappreciated and mismanaged. It includes negative and positive impacts.

- Acknowledges that, in general, higher levels of biodiversity generate a greater quantity and quality of goods and services, and more resilience to change.
- Includes specific biodiversity features to evaluate the condition of the stock, including number of species, threatened species' extinction risk, habitats status and protection categories.
- Considers that impacts on ecosystem services, water resources, and climate are intrinsically linked with biodiversity → a *direct relationship is established between the impact on ecosystem services, water resources and/or climate.*
  - **Ecosystem services:** variable for three (3) provisioning and four (4) regulating services.
  - **Water resources:** variable for surface and groundwater resources.
  - **Climate:** fixed at global scale.

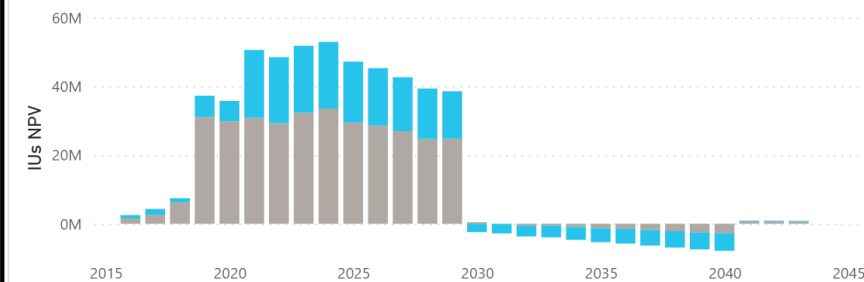
### Biodiversity Impact vs Other

● Other IUs NPV ● Biodiversity IUs NPV



### Biodiversity Impact by Year

● Other IUs NPV ● Biodiversity IUs NPV





## Cost-Benefit Analysis for Impact Mitigation/Compensation

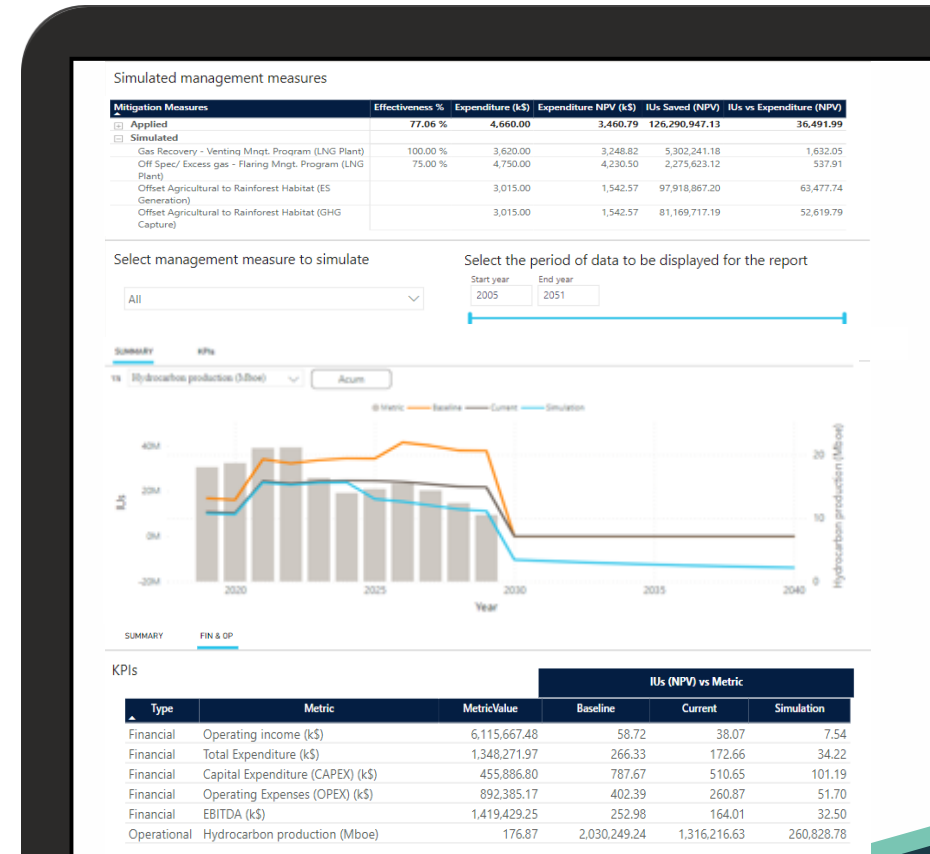
Climate change

- Conduct comparative assessment of scenarios
- Appraise mitigation alternatives for specific impacts
- Quantifies offsets, including potential CO2 sequestration and generation of ecosystem services (positive impacts)

Performing a **BAT assessment** for the purpose of implementing Reads is an effective means of evaluating an operation - at the project, process or site level - to find a suitable solution that has the least environmental impact, given a set of cost and benefit constraints.

It is a stepwise process as follows:

1. Identify impact mitigation options (avoid, reduce, restore, offset)
2. Assign overall performance, expressed as impact reduction (%) for negative impacts.
3. Perform cost-benefit appraisal: CAPEX, OPEX, and ABEX costs are brought to Net present value (NPV)
4. Appraise KPIs/ metrics and select the BAT.





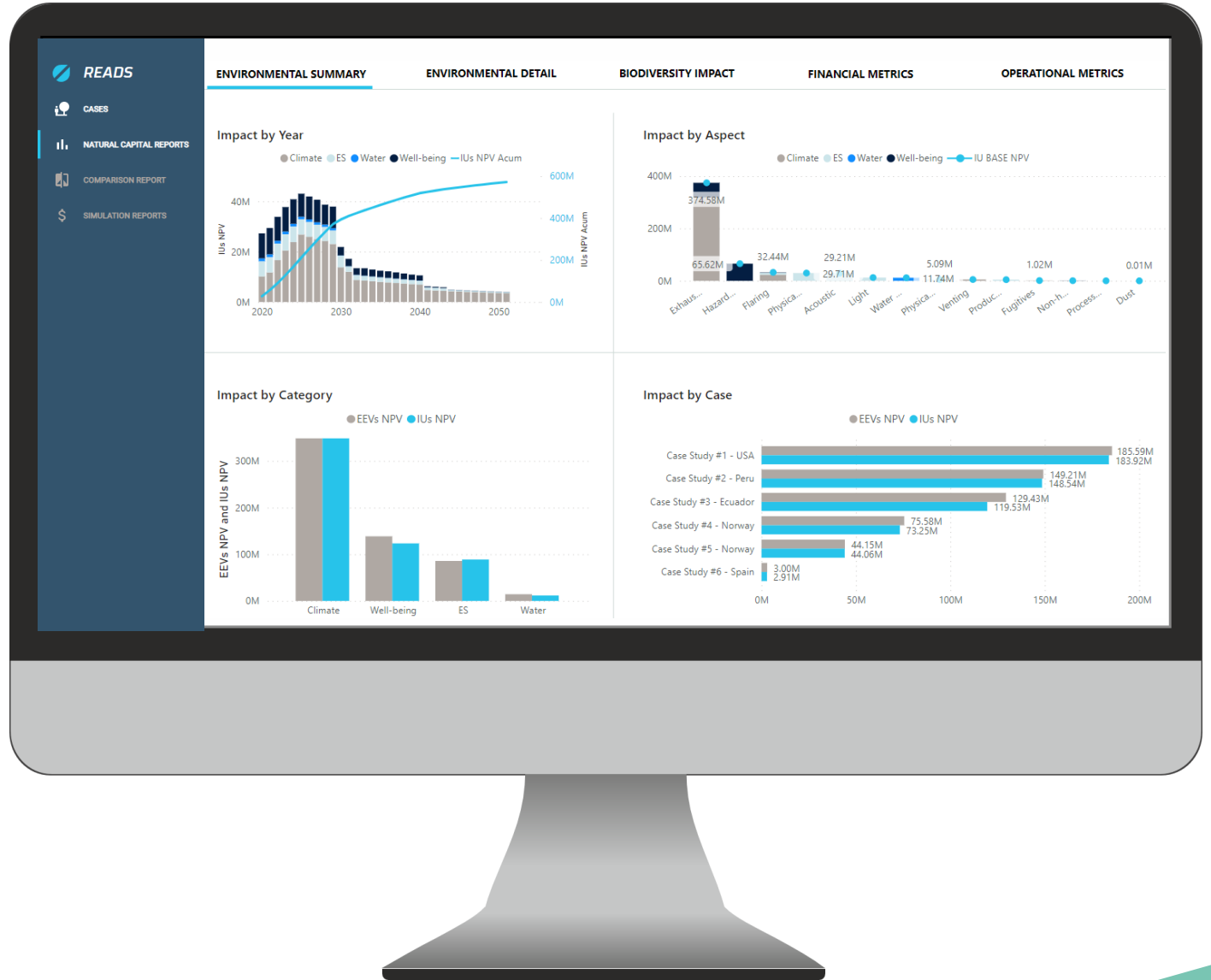
# Natural Capital Module

This is a Natural Capital valuation and accounting module.

It is used to produce environmental reports for internal company use, both at the corporate level and for asset managers. Specific reports can be generated to communicate aggregated or focused results to stakeholders.

The results provide an understanding of an organization's impacts on natural capital in qualitative, quantitative, and monetary terms.

These reports generate relevant information on the environmental evolution of the impacts and the management measures applied to mitigate them.





## Economic Module

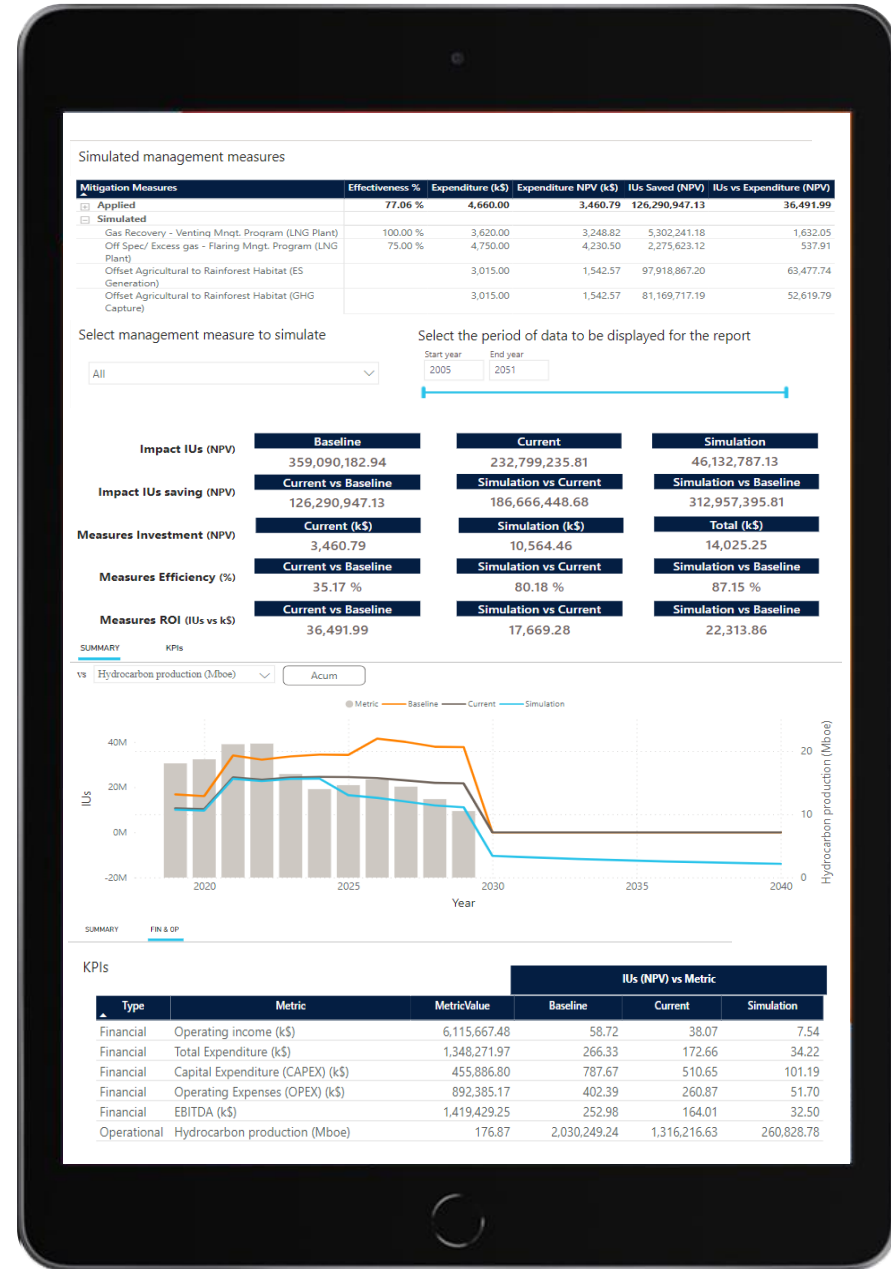
The economic module performs cost-benefit analysis (CBA) of environmental impact mitigation measures, calculating their effectiveness and financial return.

This module acts as a financial simulator that identifies what measures are most effective, allowing financial parameters to be changed such as discount rates for NPV calculation.

Additionally, this module includes a series of KPIs and metrics designed to relate the impact on natural capital to the Company's financial and production balance sheet, and to justify ALARP project alternatives.

It is intended for internal use as well as external dissemination.

Illustrative





## Differential value

### Facilitate business decision-making



It incorporates sustainability into business strategy, facilitating decision-making based on the assessment and efficient management of the environmental impact of operations.

### Access to finance



It facilitates access to finance and allows investors and stakeholders to assess the company's approach and progress towards action plans to manage natural capital risks.

### Transparency



It is a crucial support to boost transparency and accomplish stakeholder expectations on natural capital impacts.

### Methodology endorsed by international organisations



It adheres to state-of-the-art sustainability protocols, having been reviewed and endorsed by independent bodies.

### Support environmental compliance



Reads supports processes of impact assessment and justification of taxonomy requirements, as well as accounting for efforts to achieve "Nature Positive".

### Security and usability



It is a cloud application, built according to the highest security standards. Access is via website, and it is an easily usable tool for the user.



# Thank you