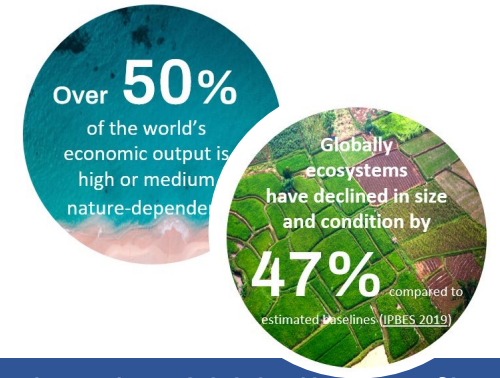*Artificial Intelligence: Automated avenues to embed nature in financial markets*

Why are we having this conversation?

Over **50%** of the world's economic output is high or medium nature-dependent

Globally ecosystems have declined in size and condition by **47%** compared to estimated baselines (IPBES 2019)

2022 UN BIODIVERSITY CONFERENCE
COP 15 - CP/MOP10-NP/MOP4
Ecological Civilization-Building a Shared Future for All Life on Earth
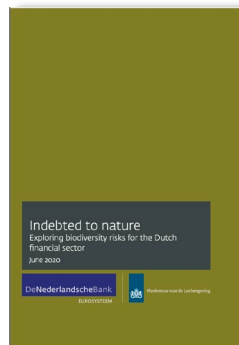**KUNMING — MONTRÉAL**

To take urgent action to halt and reverse biodiversity loss by 2030, thereafter restoration

Disclose nature-related financial dependencies, impacts, risks and opportunities.

30 by 30: Restore and protect 30 % of all land and marine areas by 2030.
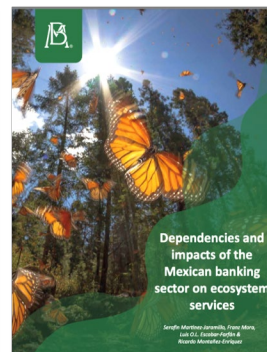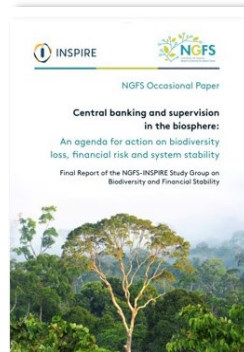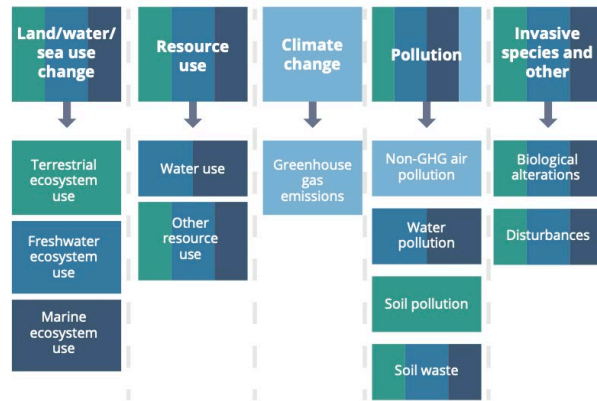
35-50% of investments by financial service institutions highly dependent on nature.

Potential market for biodiversity-friendly investments is more than USD 10 trillion annually (WEF, 2022)

Metric categories for nature in financial markets

Impacts drivers

Standards: SFDR, CSRD, TNFD & GBF

Metrics:
- Extent of land/freshwater/ocean use change (km2), by type of ecosystem (before and after change) and business activity. (TNFD).

- Share of investments in investee companies with sites/operations located in or near to biodiversity-sensitive areas where activities of those investee companies negatively affect those areas

- Emissions to water

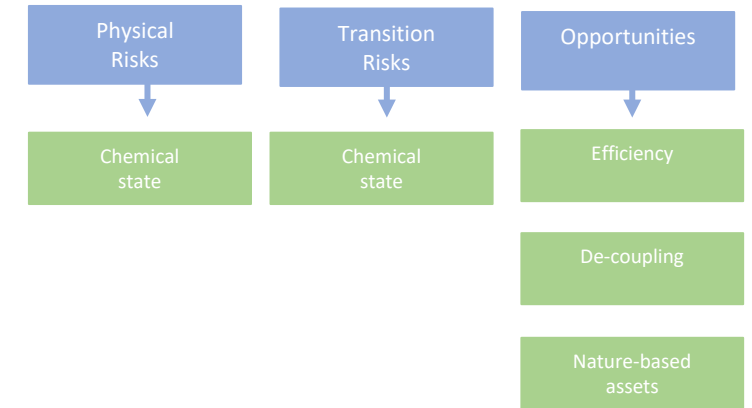## State of Nature

Standards: TNFD & GBF
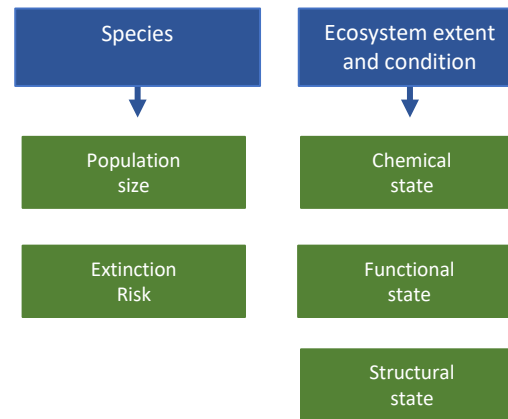
Metrics:
- Extent of primary and secondary growth forest in area of company operation

- Soil health, quantity of soil carbon, eutrophication, plastic in the water column

- Mean Species Abundance (MSA).

Risks & opportunities

Standards: Taxonomies, SFDR, TNFD & GBF

Metrics:
- Value at Stake

- Value at Risk

- Portfolio percentage allocated to nature related opportunities (taxonomy aligned)
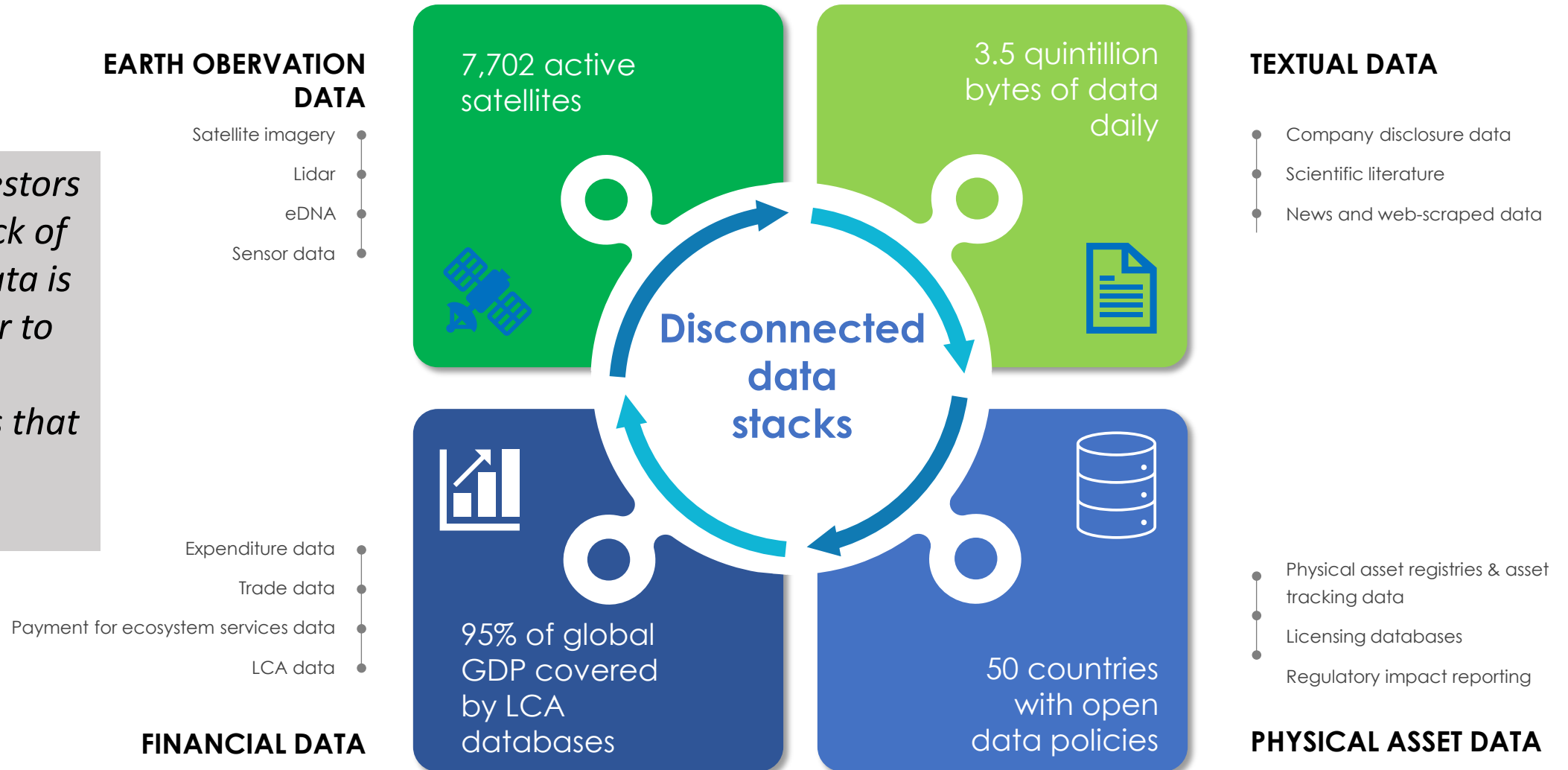
| Portfolio footprint (e.g., plastic) | Aggregate fund nature score (MSA) | Product development |

The nature data paradox

70 % of investors believe a lack of available data is a key barrier to making investments that support biodiversity

EARTH OBERVATION DATA

Satellite imagery

Lidar

eDNA

Sensor data

7,702 active satellites

3.5 quintillion bytes of data daily

TEXTUAL DATA

Company disclosure data

Scientific literature

News and web-scraped data

Disconnected data stacks

Expenditure data

Trade data

Payment for ecosystem services data

LCA data

95% of global GDP covered by LCA databases

50 countries with open data policies

Physical asset registries & asset tracking data

Licensing databases

Regulatory impact reporting

FINANCIAL DATA

PHYSICAL ASSET DATA

The Key to Nature Intelligence, is Artificial Intelligence

Build **historical track record** of performance of nature assets and asset aggregation

Classify economic activities as taxonomy eligible and classify type and state of nature assets

Forecast physical and transition risks

Observe nature related impacts.
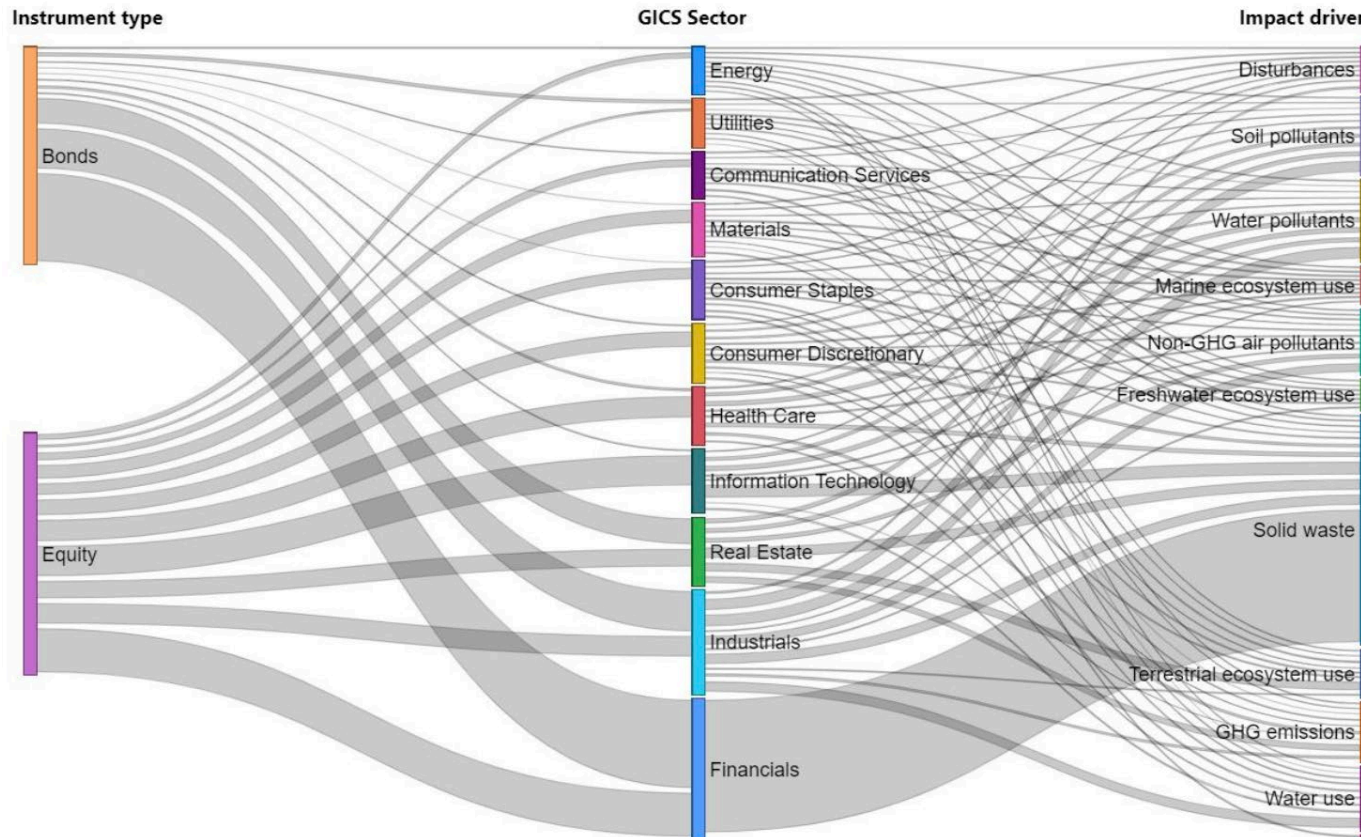
Identify asset geolocation for physical assets.

Track nature-related performance

Structure unstructured textual data incl. disclosure reports, expert reports, news etc.

Impact driver classification

AI for portfolio exposure screening

Identify impact drivers and dependencies per sector

Materiality rate impact drivers

Data stack = scientific literature

AI identify proximity exposure

Number of protected areas and KBA's within a 10km buffer of each project
Source: IBAT Example Africa Multi-Site Report, June 2022

Site	Area (km²)	Protected Areas	KBAs
Bab-El Mandeb	7619	2	6
Bale Mountains	10311	13	5
Gaborone	54	0	1
Guéckédou	11831	9	4
Magaliesburg	421	7	1
Mampikony	731	2	2
Pofadder	156	0	1
Sagala Hills	61	1	1

Example GIS Download screen

Custom GIS download

GIS downloads are included in some IBAT subscriptions but can also be paid for on a PAYG basis. If you are a PAYG user, please select your polygon and the area and cost will automatically be calculated.

To download data for a specific area:
1. Draw your geometry
2. Name your geometry
3. Click 'Download'

Project
Test line project

Data name:

Dataset
Core(IUCN Red List, WDPA, WDKBA)

Selected area:
4,591 km²

Buffer (km)
20

Require LC, DD and NT data?

Summary of protected areas overlap
Source: IBAT Example Africa Multi-Site Report, June 2022
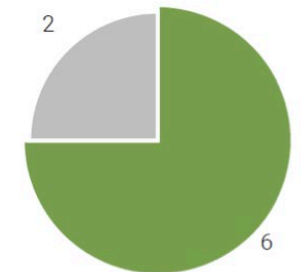
- 6 (75.00% of sites) are within 10.0 km of a protected area.
- 2 (25.00% of sites) are not within 10.0 km of a protected area.

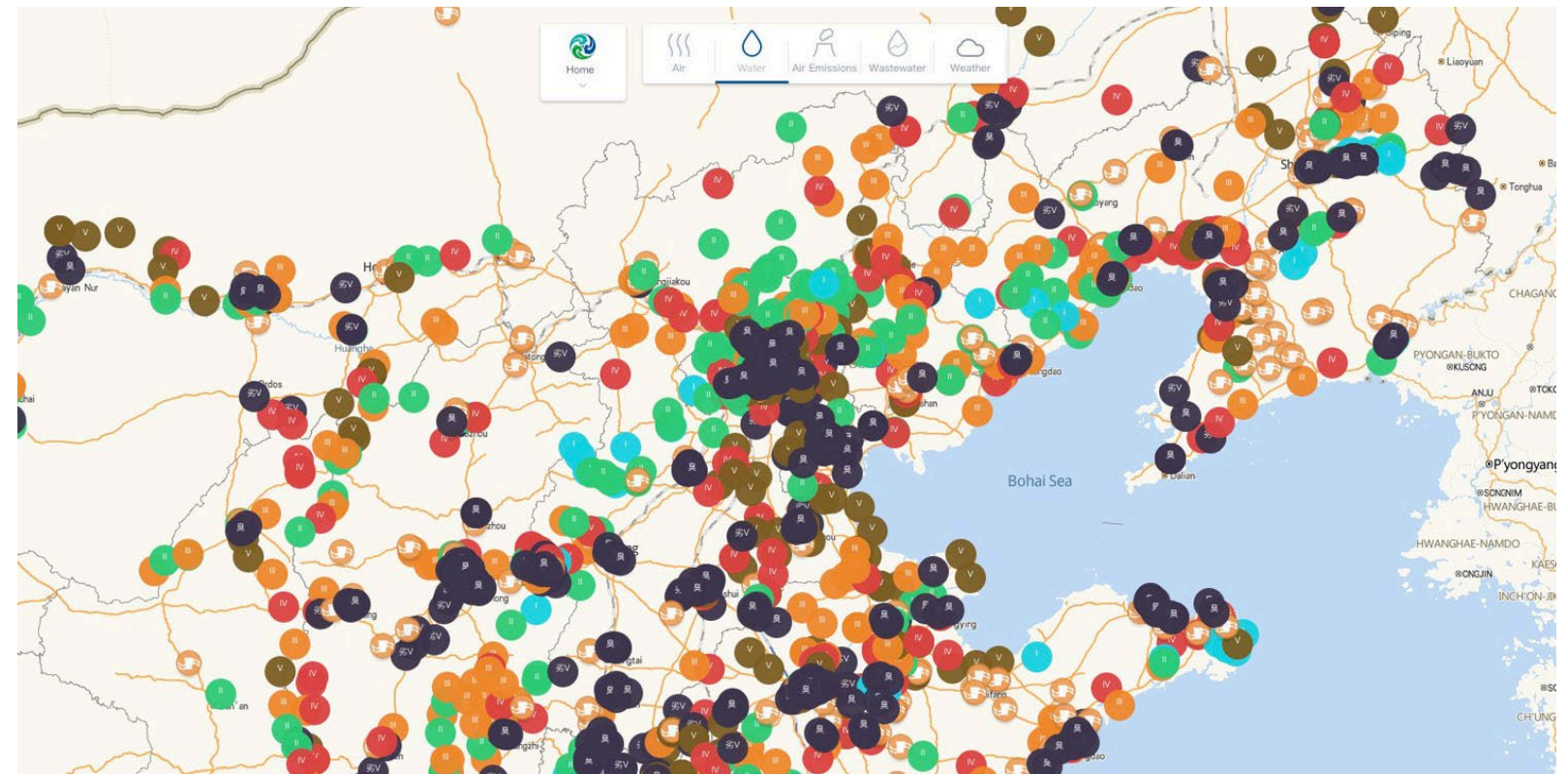*Source:*

AI identify asset geolocation & impact
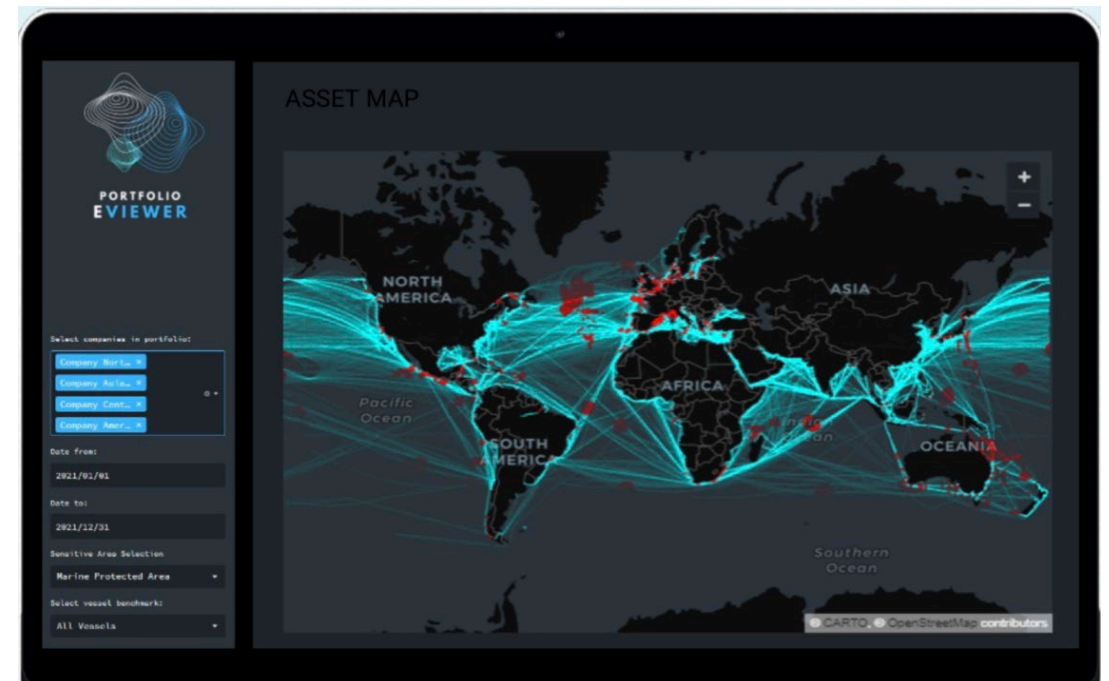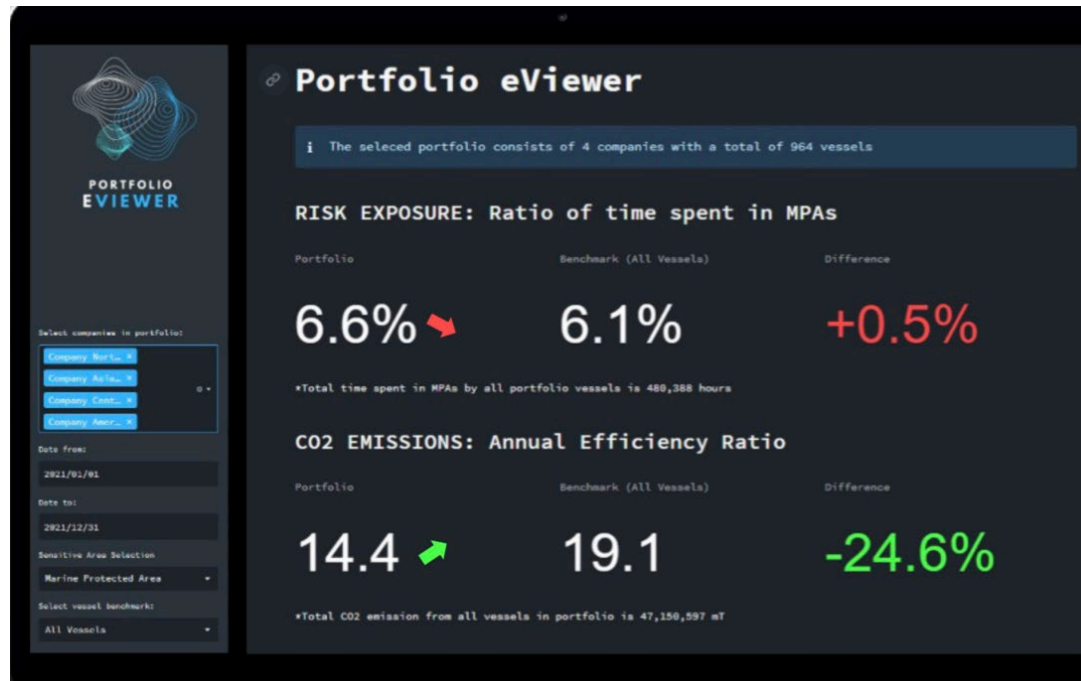
AI track pollution impacts in supply chains –
Financed pollution

1. Road for vehicles transporting waste
2. Entry facility
3. Grey-brown texture showing mounds of plastic
4. Flow of plastic into the river
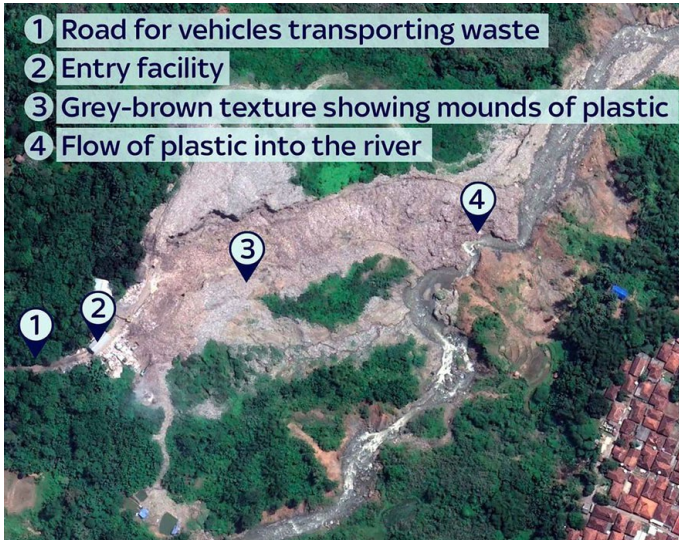
IPE's Green Supply Chain Map

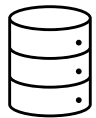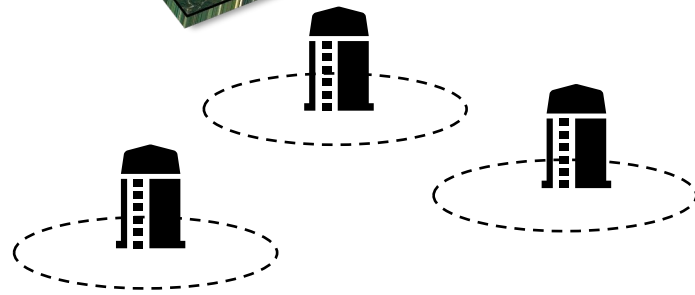Source: IPE CITI 5.0 Report

Aggregate portfolio footprint

Portfolio impact driver footprint

ML to detect de-forestation

Link universal mill list + supply sheds

Export database, custom data, cargo manifest etc.
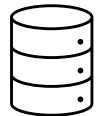
Taxation database
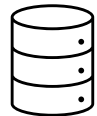
National mill registries

Portfolio species footprint

Total revenue

Sales of product by country 1

Sales of product by country 2

input

output

Land use

Emission to water

Emission to air

GHG emissions

Land Use impact

Emission to water impact

Emission to air impact

GHG emissions impact
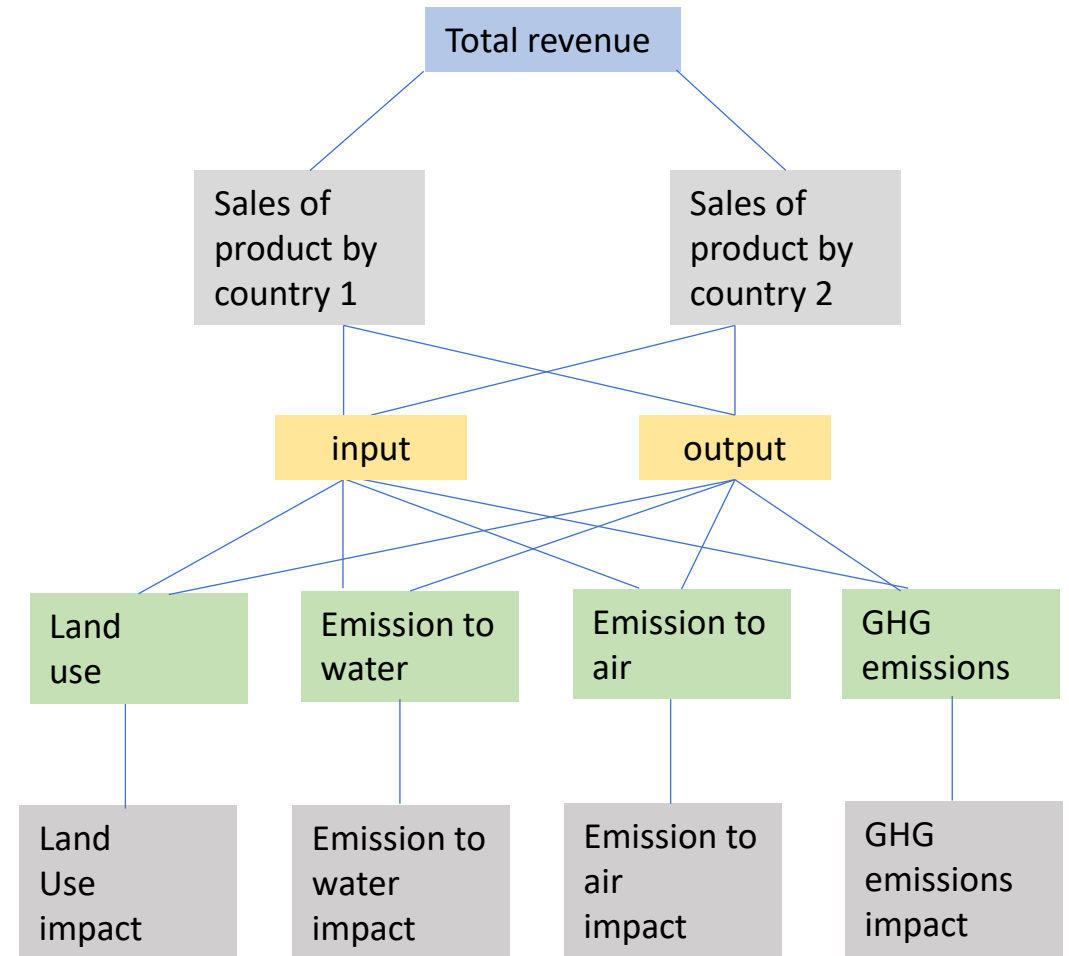
Opportunity categories

Efficiency

- Reduced resource extraction
- Reduced pollution and waste
- Increased reuse and recycling of natural resources

De-coupling

- Investments for neutral impact on natural resources
- Financing economic activities and asset that create positive changes to the supply of natural resources

Nature-based investments

- Direct restoration, conservation or protection of ecosystems or habitats

AI Connect to Innovate

Opportunity
- *developing a stack of value*

- 111 units of BNG creation on 35ha
- BNG units are being traded at £25,000 over a 30 year period
- This would mean the BNG value on our farm would be c.£2,500,000 over 35ha
- This equates to c.£71,428/ha over 30 years or c.£2,380/ha pa

Artificial Intelligence is a new pathways waiting to be deployed to align global finance with nature positive outcomes