



proteus

# Measuring business dependencies on nature

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# WELCOME

## Objectives of the Proteus Data Forum sessions

- A venue for direct communication between data users and technical experts
- Increase familiarity with Proteus resources
- Peer-to-peer learning between Proteus Partner companies
- Identifying common challenges & finding solutions

## Logistics

- *Frequency*      quarterly
- *Scheduling*    AM and/or PM sessions
- *Rules*            Chatham House discussion, but presentations recorded

# TODAY

## Presentation: Measuring business dependencies on nature

- Importance of measuring dependencies
- Understanding measurement of dependencies
- Components of a robust measurement of business dependencies on nature
- Case study: Energy company's dependency on coastal hazard protection

## Peer-to-peer discussion

- Q&A with presenters
- Feedback from Partners

# INTRODUCTION

- Guidance developed by UNEP-WCMC with inputs from UNEP FI
- Complements TNFD guidance on evaluating dependencies



Source: UNEP-WCMC 2023

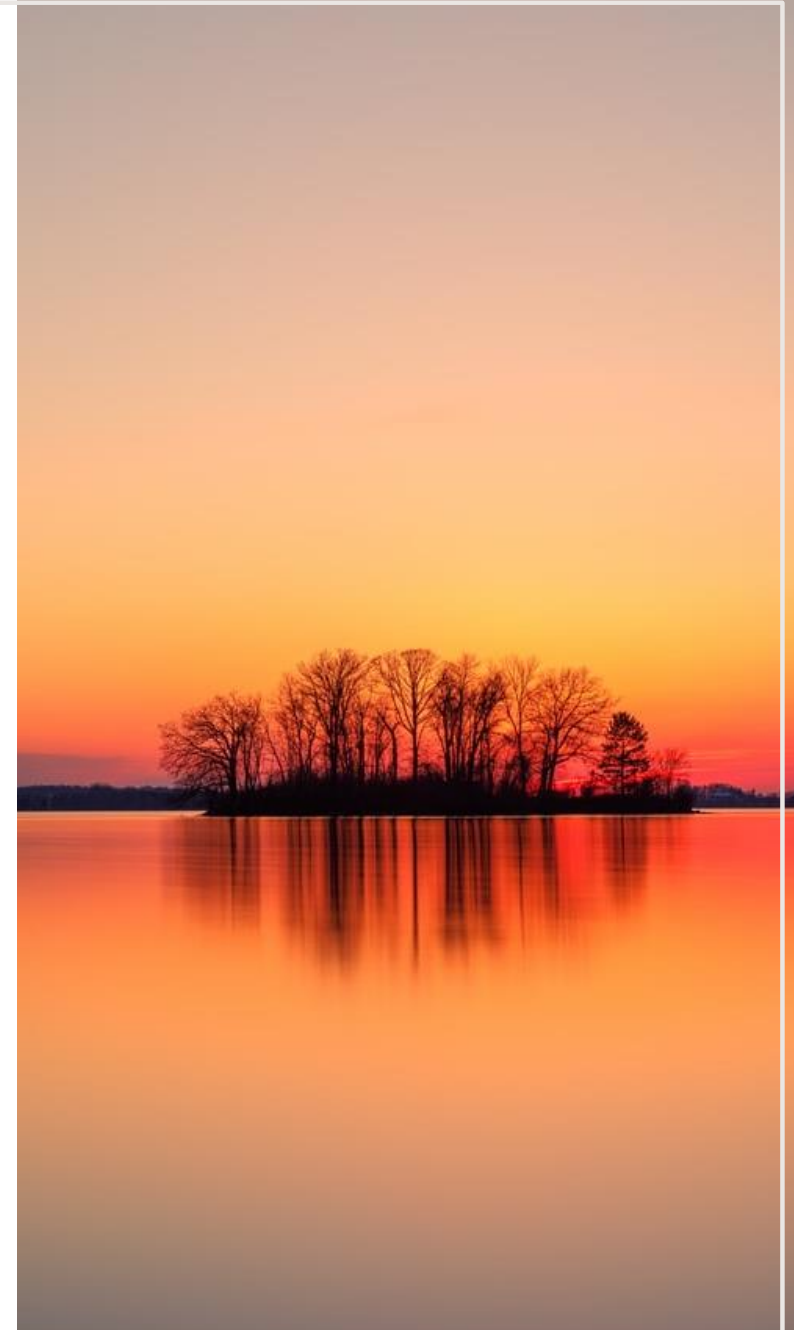


Importance of measuring dependencies

# BUSINESS DEPENDENCIES ON NATURE

- Aspects of nature's contributions to people that an organization relies on to function, including water flow and quality regulation; regulation of hazards like fires and floods; pollination; carbon sequestration.

Source: SBTN 2023

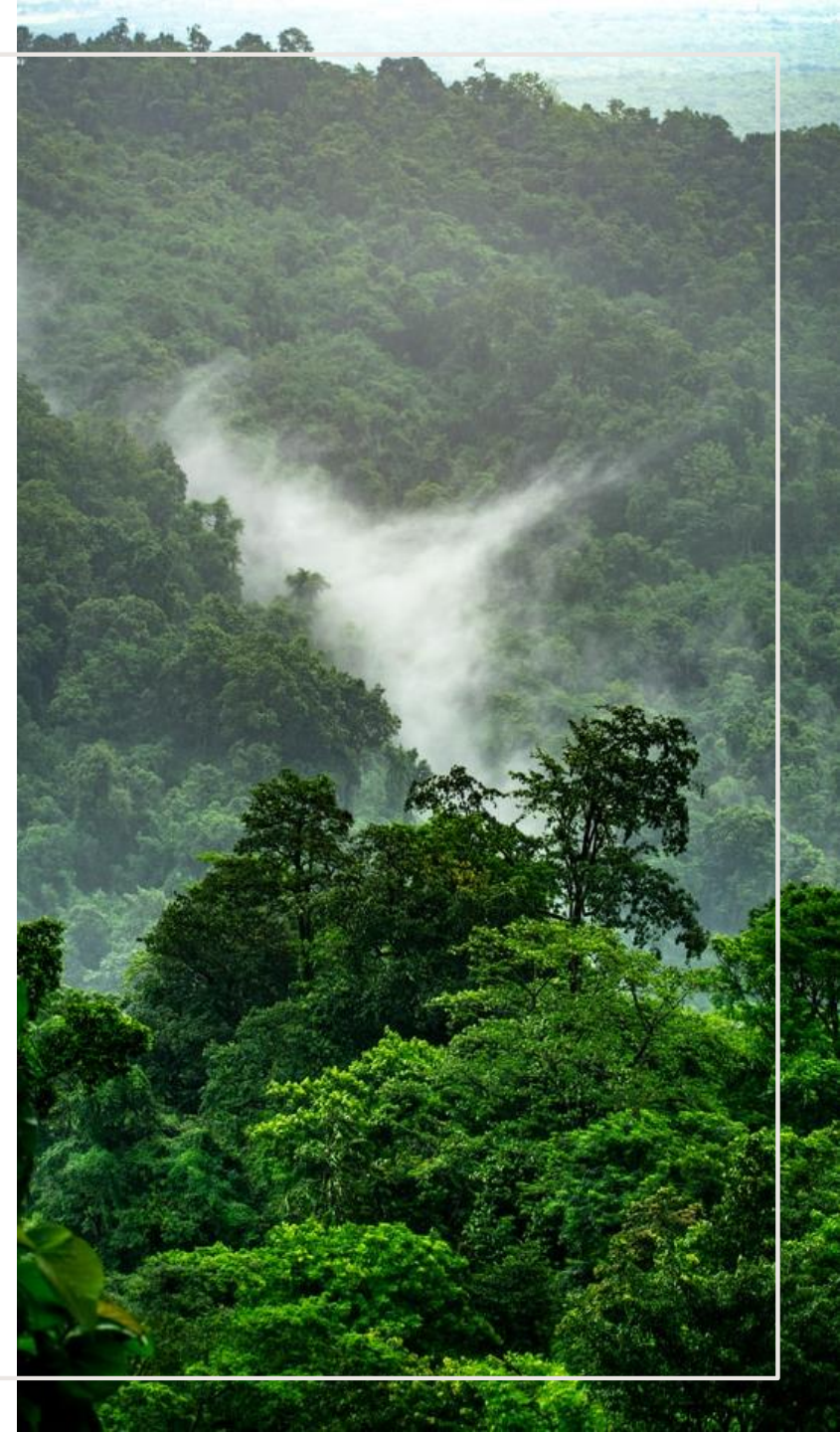


# BUSINESS DEPENDENCIES IN THE KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK

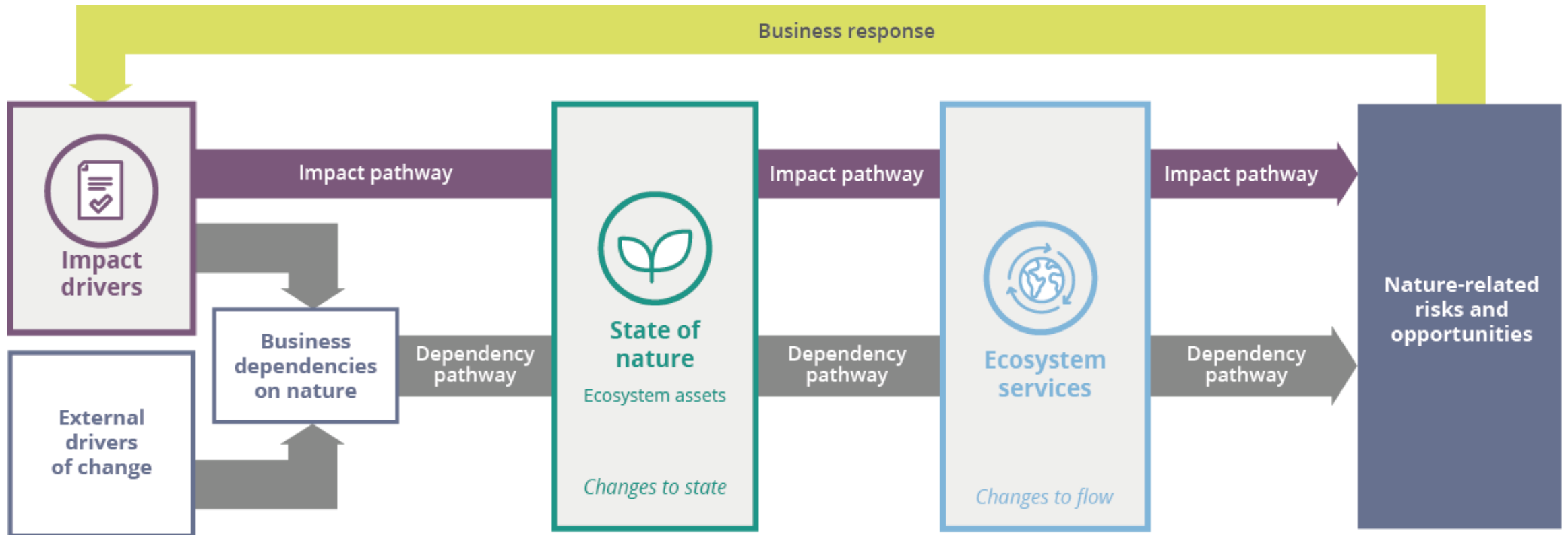
## Target 15:

Countries that are parties to the Convention on Biological Diversity (CBD), commit to “take legal, administrative or policy measures to encourage and enable businesses, and in particular to ensure that large and transnational companies and financial institutions [...] regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity”.

Source: CBD 2022



# MEASURING DEPENDENCIES TO UNDERSTAND RISKS AND OPPORTUNITIES



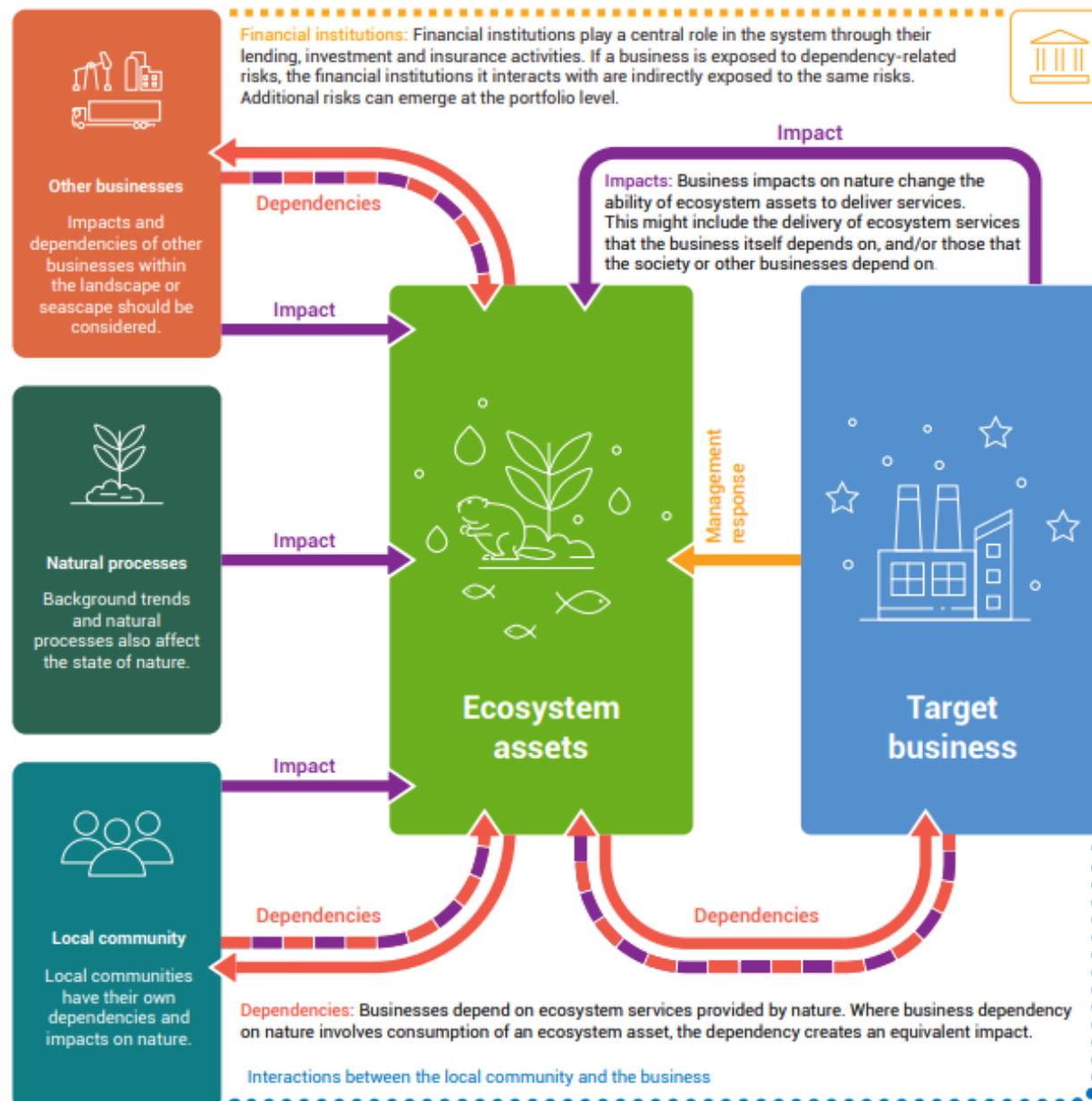
# DEPENDENCIES IN ASSESSMENT AND DISCLOSURE FRAMEWORKS AND STANDARDS

Framework or standard	Assessment of business dependencies on nature	Disclosure of business dependencies on nature	Assessment of dependency-related financial risks the business	Disclosure of dependency-related financial risks to the business
ESRS	Yes	Yes	Yes	Yes
ISSB	Yes	No (with exceptions)	Yes	Yes
GRI	Yes	No	Yes	No
TNFD	Yes	Yes	Yes	Yes
SBTN	No	No	No	No
CDP	Yes	Yes	Yes	Yes



Understanding measurement of dependencies

# IMPORTANCE OF INTERCONNECTIONS BETWEEN BUSINESSES, NATURE AND LOCAL COMMUNITIES

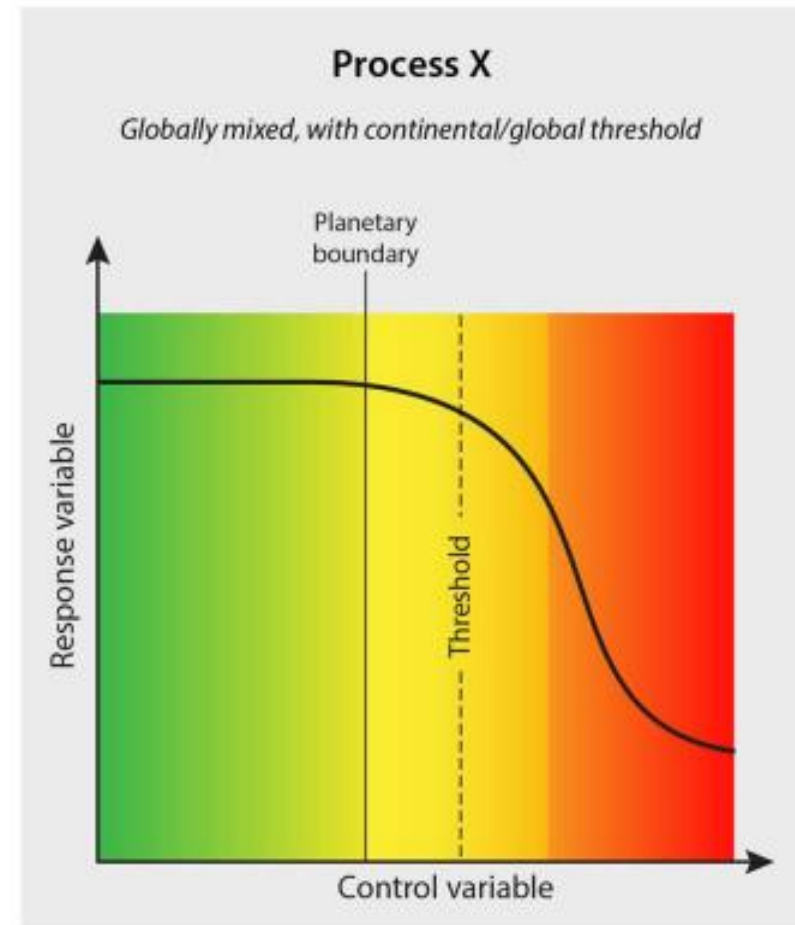
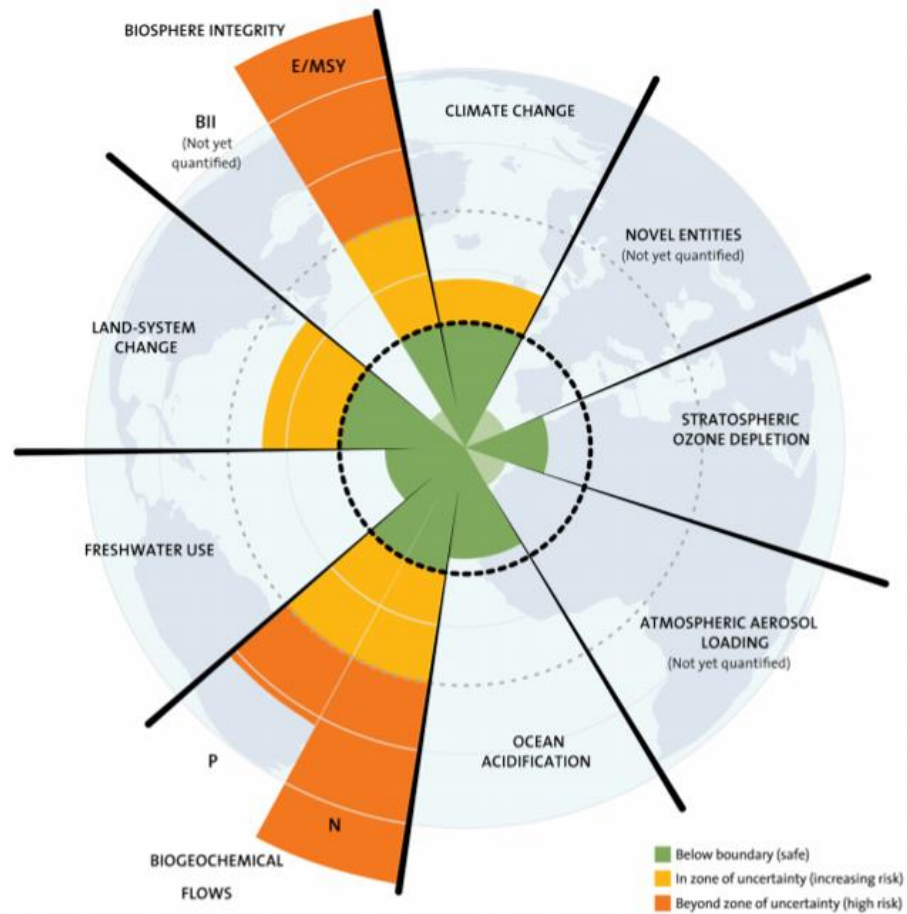


# PATHWAYS TO RISK

EXAMPLE 1	EXAMPLE 2
<b>Provisioning ecosystem service: business impacts the ecosystem asset that underpins its dependency through its own consumption in addition to impact drivers associated with other activities</b>	<b>Regulating and maintenance ecosystem service: business's dependency does not impact the ecosystem asset underpinning the service</b>
<p>An agricultural producer is dependent upon a clean water supply. The availability of sufficient quality and quantity of water will be impacted by both the consumption of water if unsustainable, as well as the agricultural producer's use of fertilisers that pollute groundwater.</p>	<p>An electricity distribution company benefits from erosion control provided by soil stabilising forests, which reduces likelihood of landslides affecting its transition lines. This dependency does not limit the availability of the same ecosystem service to other businesses and rights holders in the area.</p>

Source: UNEP-WCMC 2023

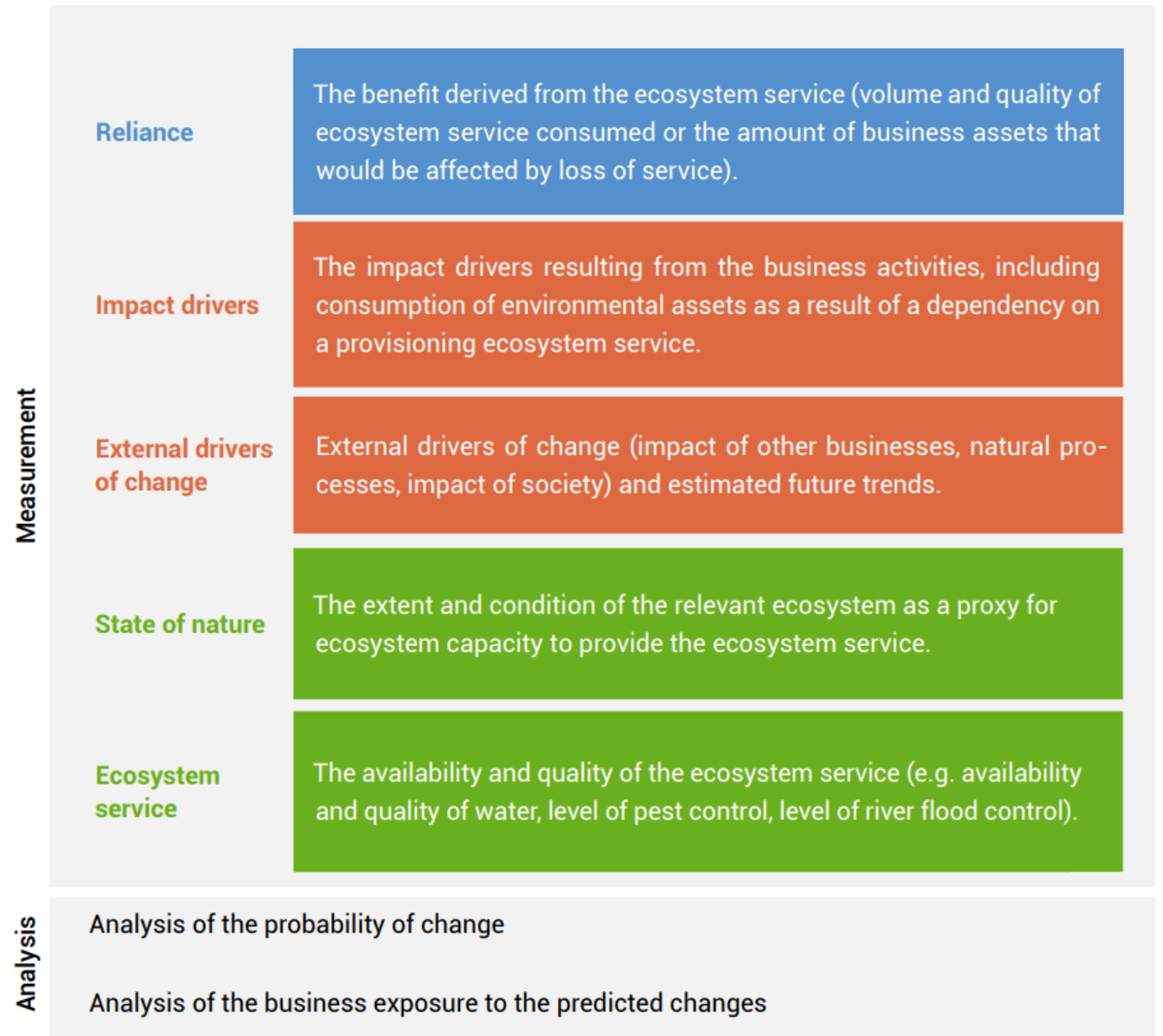
# ECOSYSTEM TIPPING POINTS



A landscape photograph showing multiple layers of mountains receding into the distance. The sky is a soft, hazy mix of pink, orange, and light blue, suggesting a sunset or sunrise. The mountains in the foreground are dark and silhouetted, while the layers further back become progressively lighter and more ethereal. The entire image is framed by a thin white border.

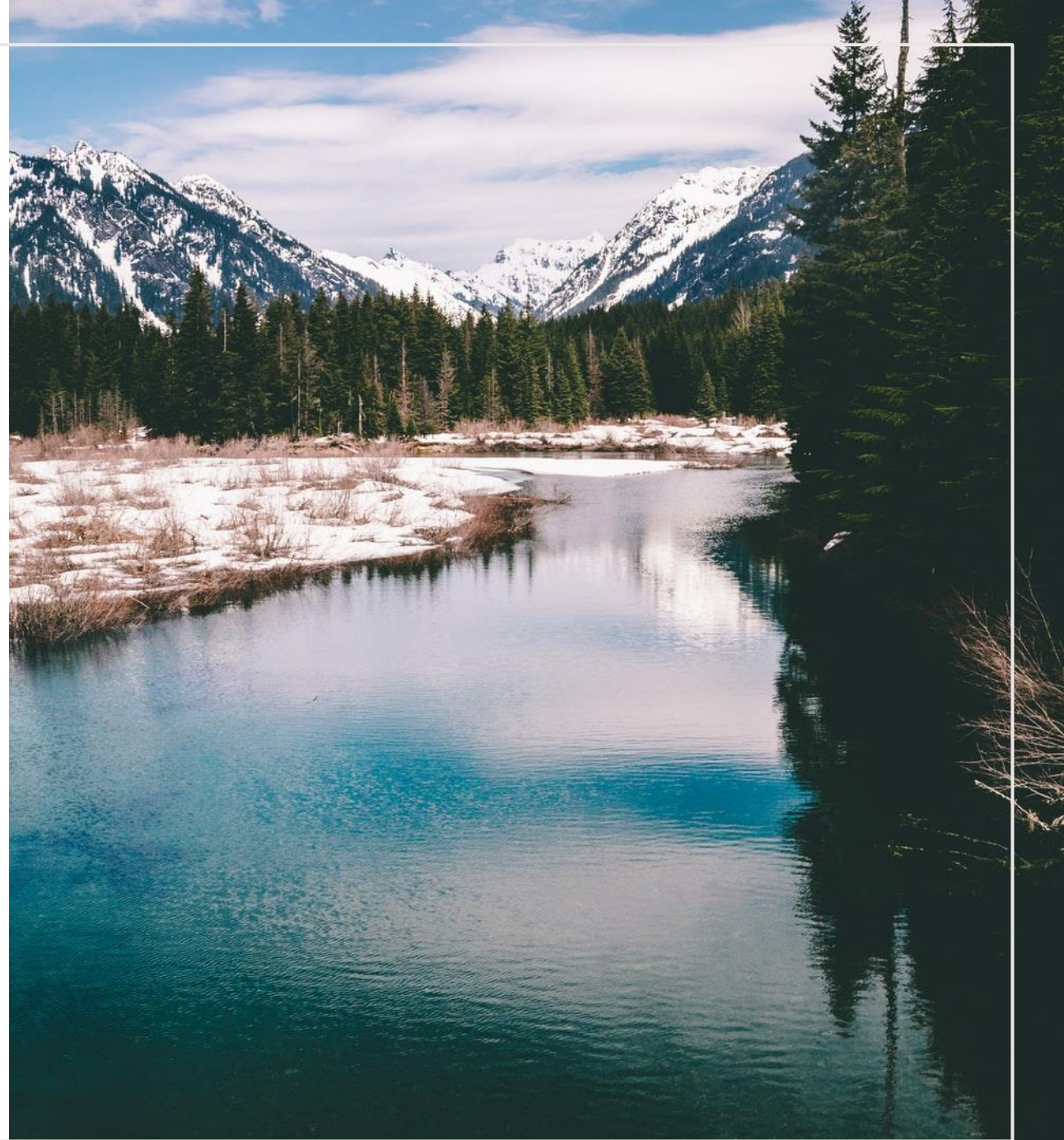
Components of a robust measurement of business dependencies on nature

# COMPONENTS OF MEASUREMENT OF BUSINESS DEPENDENCIES ON NATURE



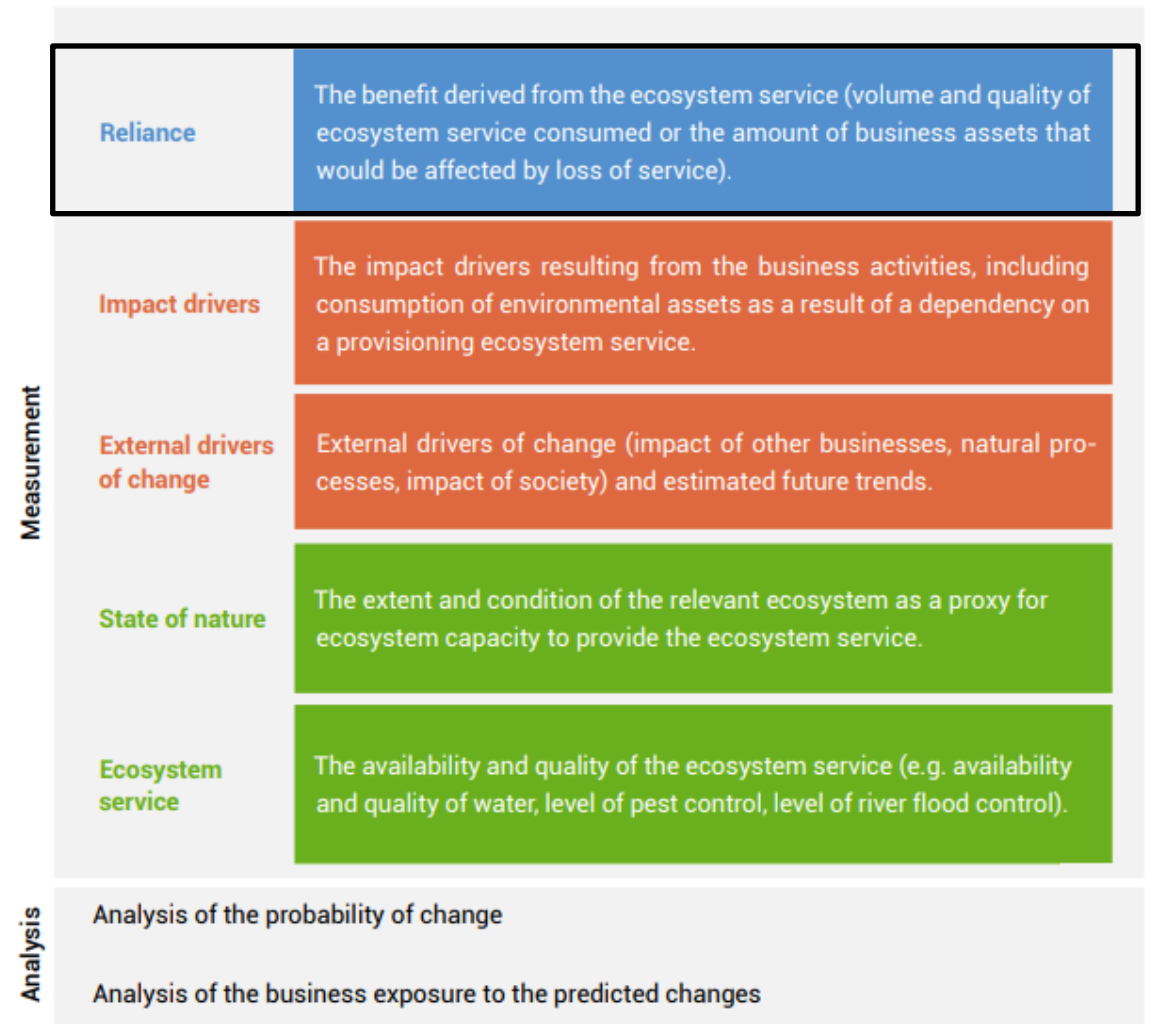
# BEFORE MEASURING DEPENDENCIES

- Compile location information
- Prioritise
- Develop nature scenarios



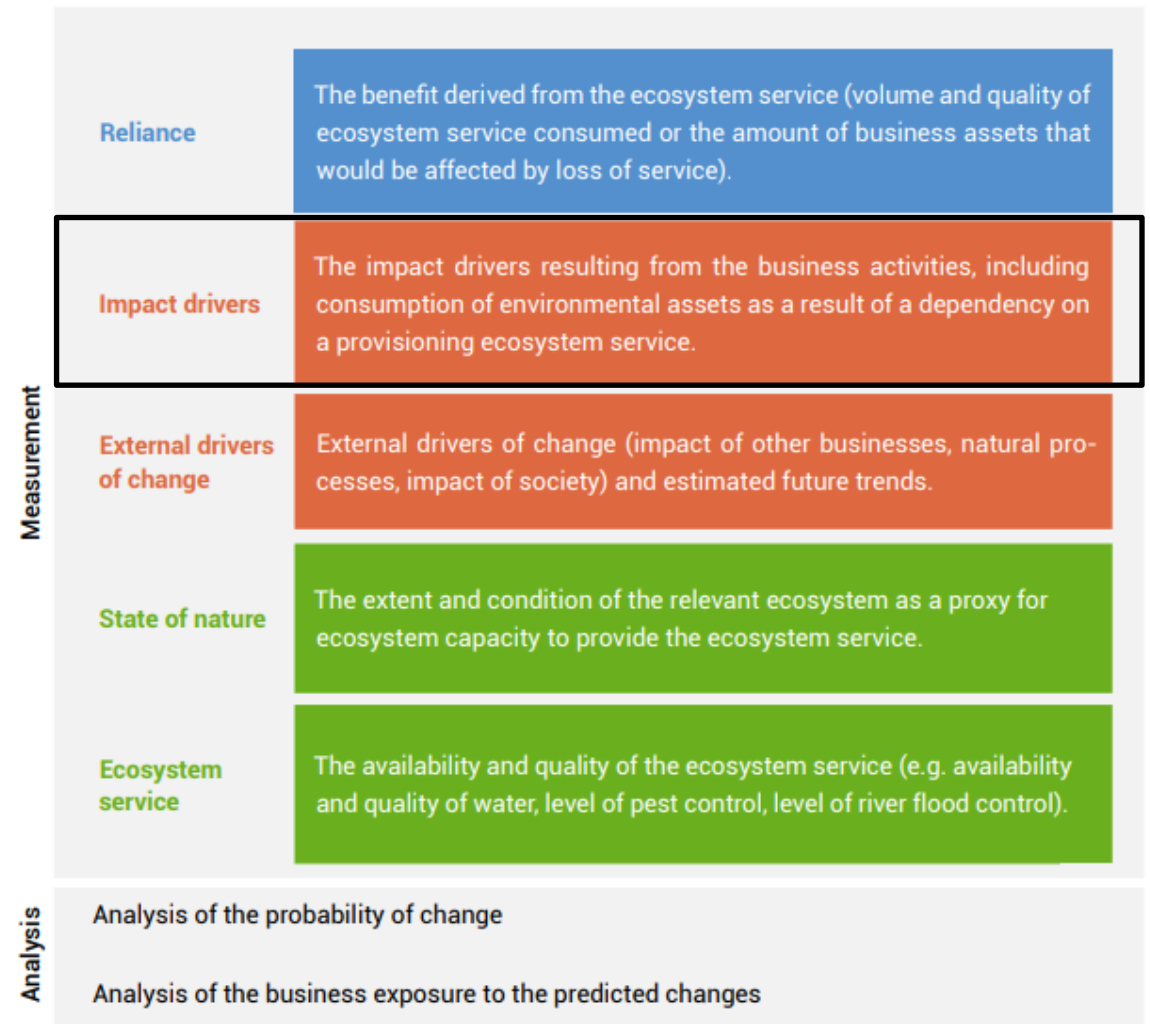
# RELIANCE ON THE ECOSYSTEM SERVICE

- Benefit to business activities derived from the ecosystem service (ES) upon which the business depends.
- Provisioning ES: quantity of ecosystem asset consumed.
- Regulating and maintenance ES and cultural ES: amount of business assets or value of business assets that would be affected by the loss of the ES.

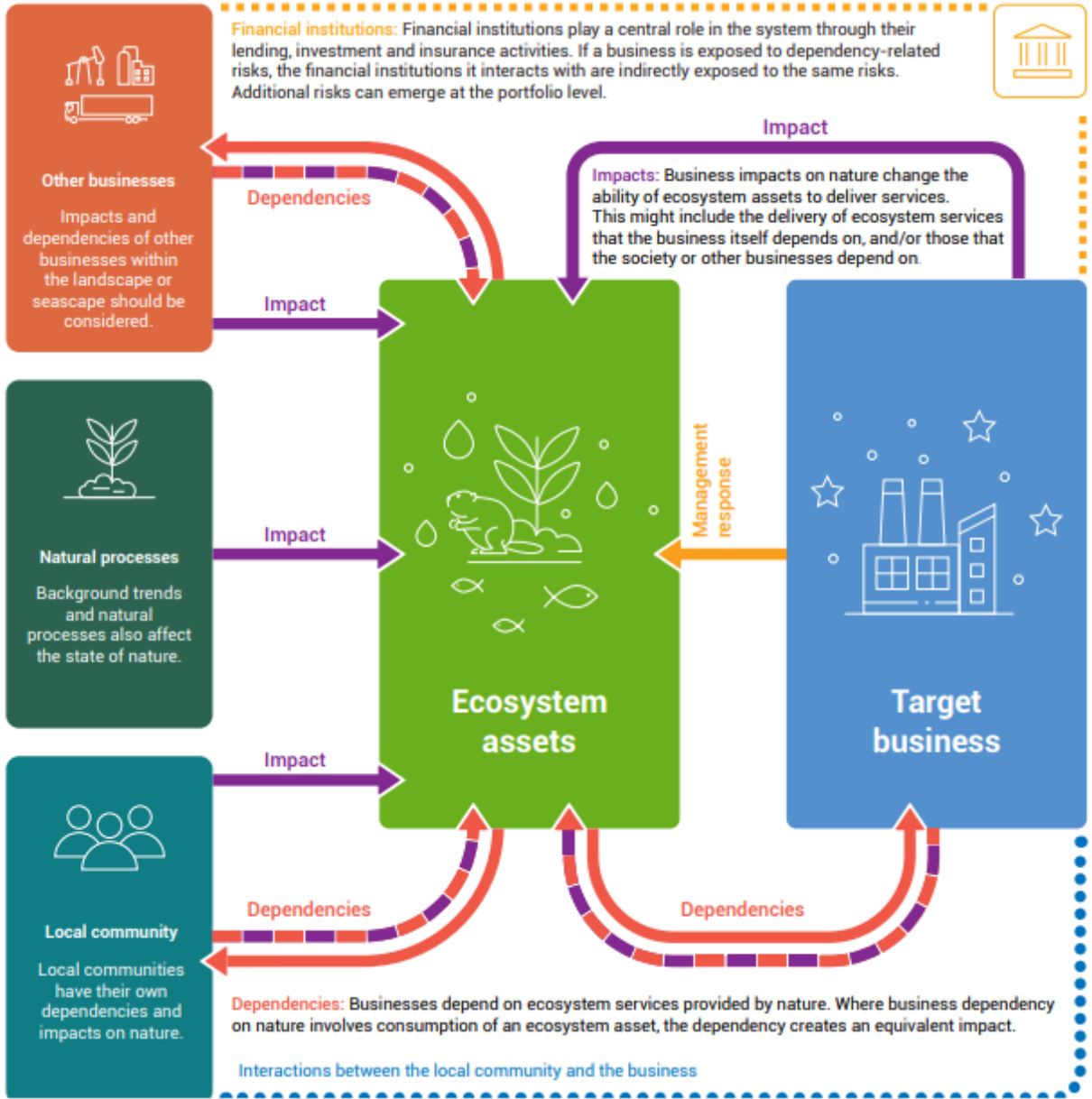


# IMPACT DRIVERS RESULTING FROM THE BUSINESS'S OWN ACTIVITIES

- Businesses may alter the stock of ecosystem assets, the state of nature and the availability and quality of ecosystem services through their activities.
- Impact drivers can also lead to indirect impacts on other ES.
- Includes reductions in the stock of ecosystem assets as a result of businesses' dependence on provisioning ES.



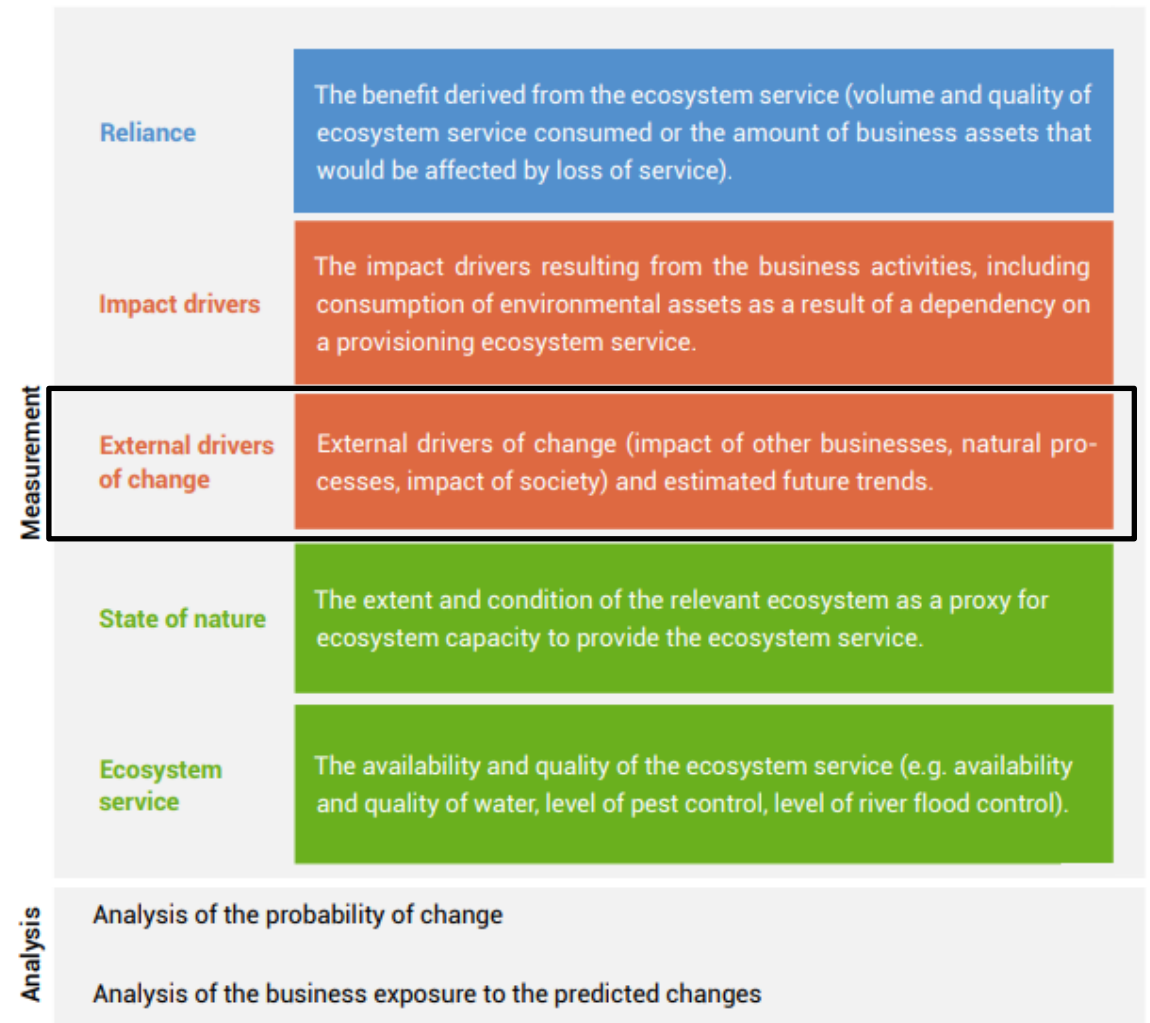
# IMPACT DRIVERS RESULTING FROM THE BUSINESS'S OWN ACTIVITIES



Source: UNEP-WCMC 2023

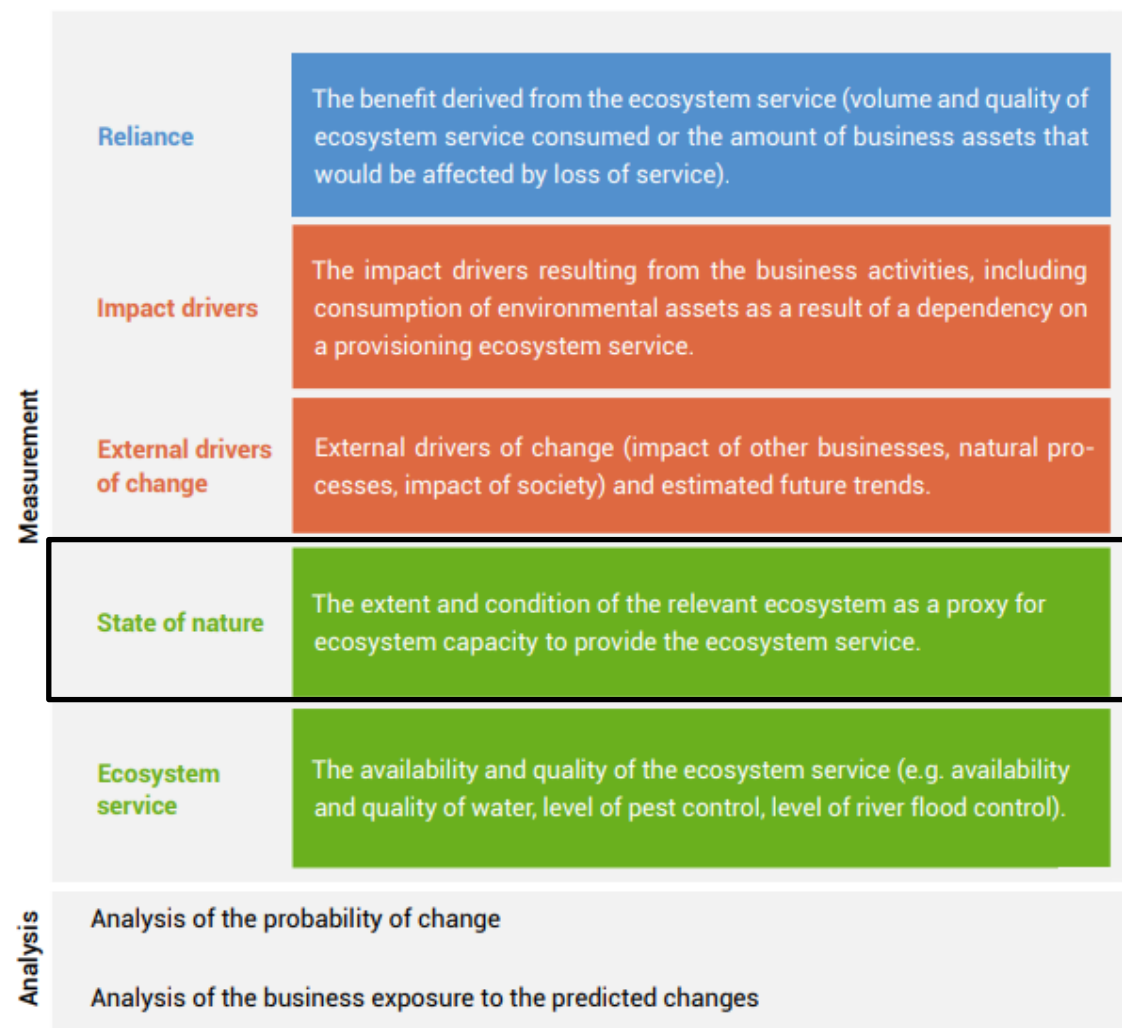
# EXTERNAL DRIVER OF CHANGE

- Activities of other businesses, which are associated with impacts and dependencies on nature.
- Nature-related impacts and dependencies of local communities and other stakeholders in the locations.
- Natural trends and processes that have the potential to change the state of nature.



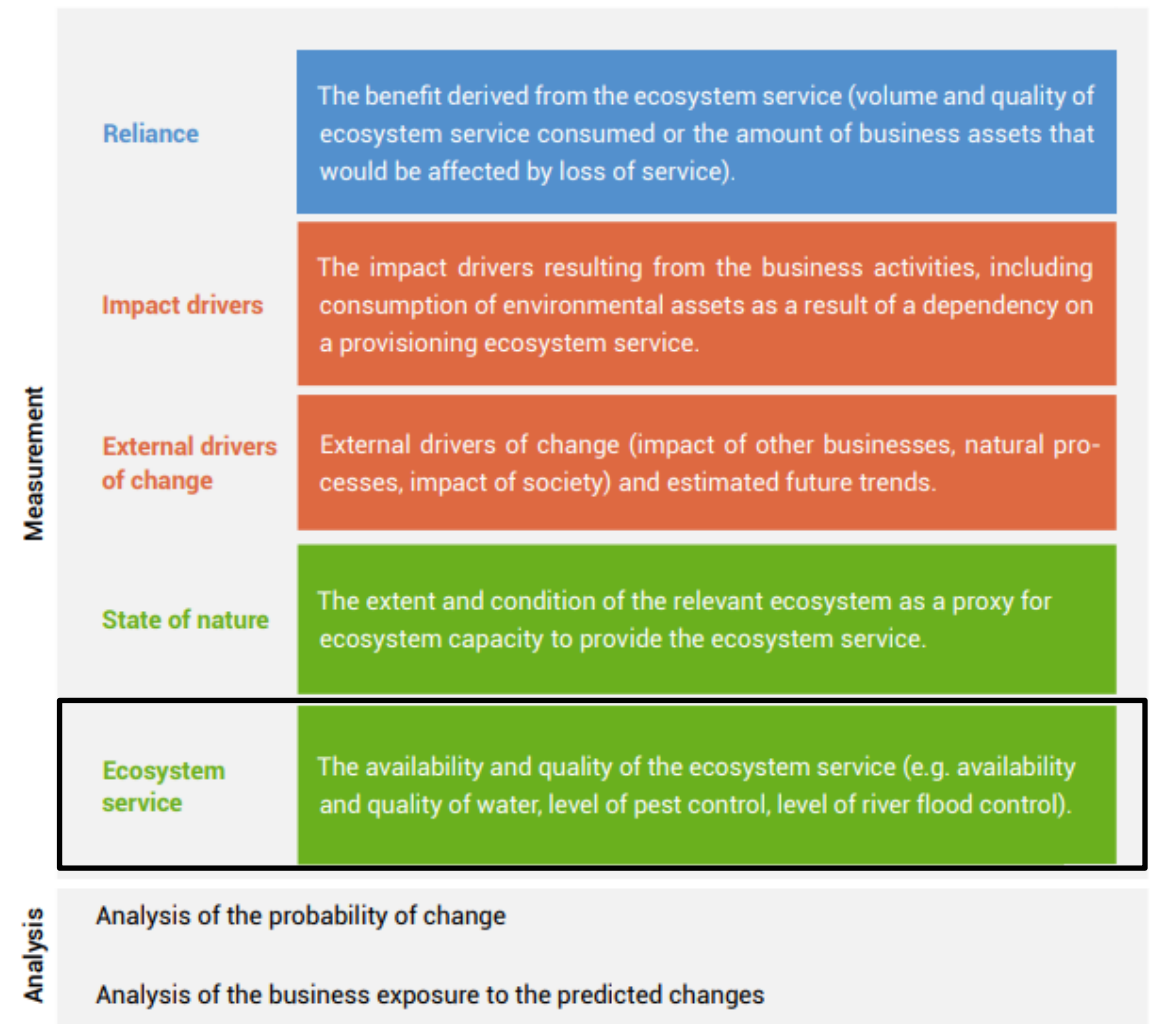
# STATE OF NATURE SUPPORTING THE ECOSYSTEM SERVICE

- Ecosystem extent
- Ecosystem condition
  - Composition
  - Structure
  - Functioning



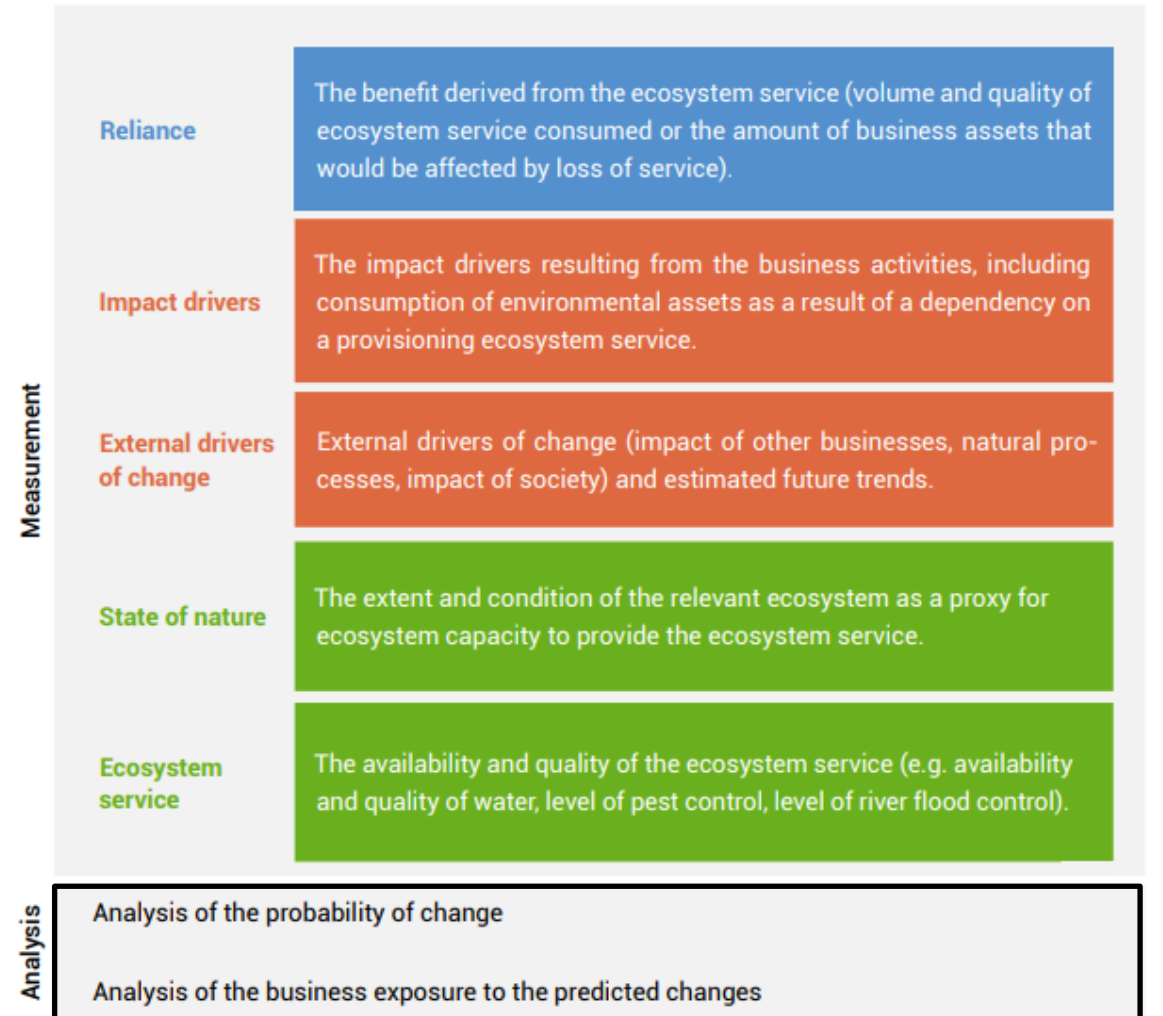
# ECOSYSTEM SERVICE

- Measurement of the flow, including:
  - Availability of the ES
  - Quality of the ES



# RESULTING ANALYSIS

- Estimate probability of change to the quality and availability of each ES.
- Estimate the consequence of any change to the ES for the business.



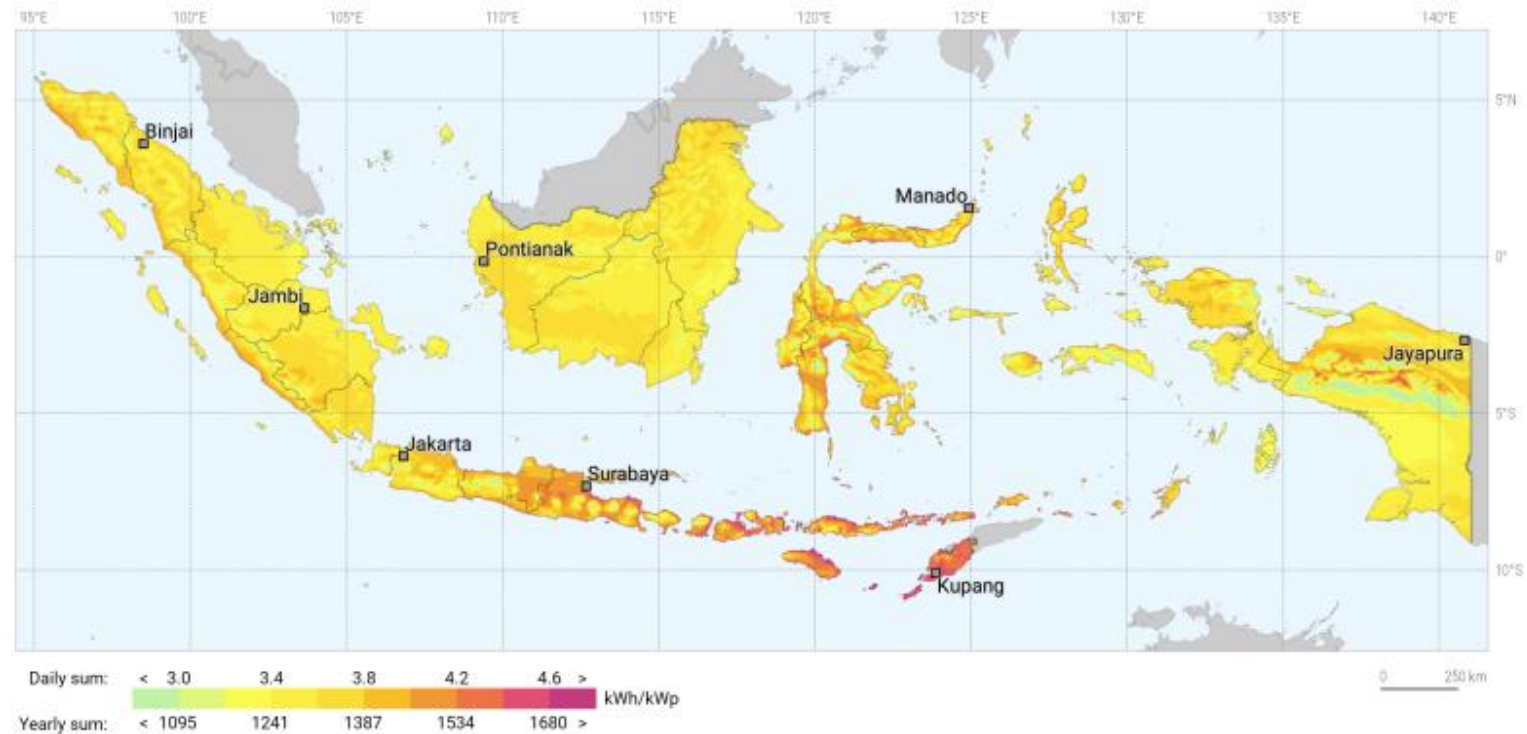


Illustrative case study: Energy company's dependency on coastal hazard protection

# ILLUSTRATIVE CASE STUDY: SOLAR ENERGY COMPANY IN INDONESIA

Illustrative example, not based on an actual company.

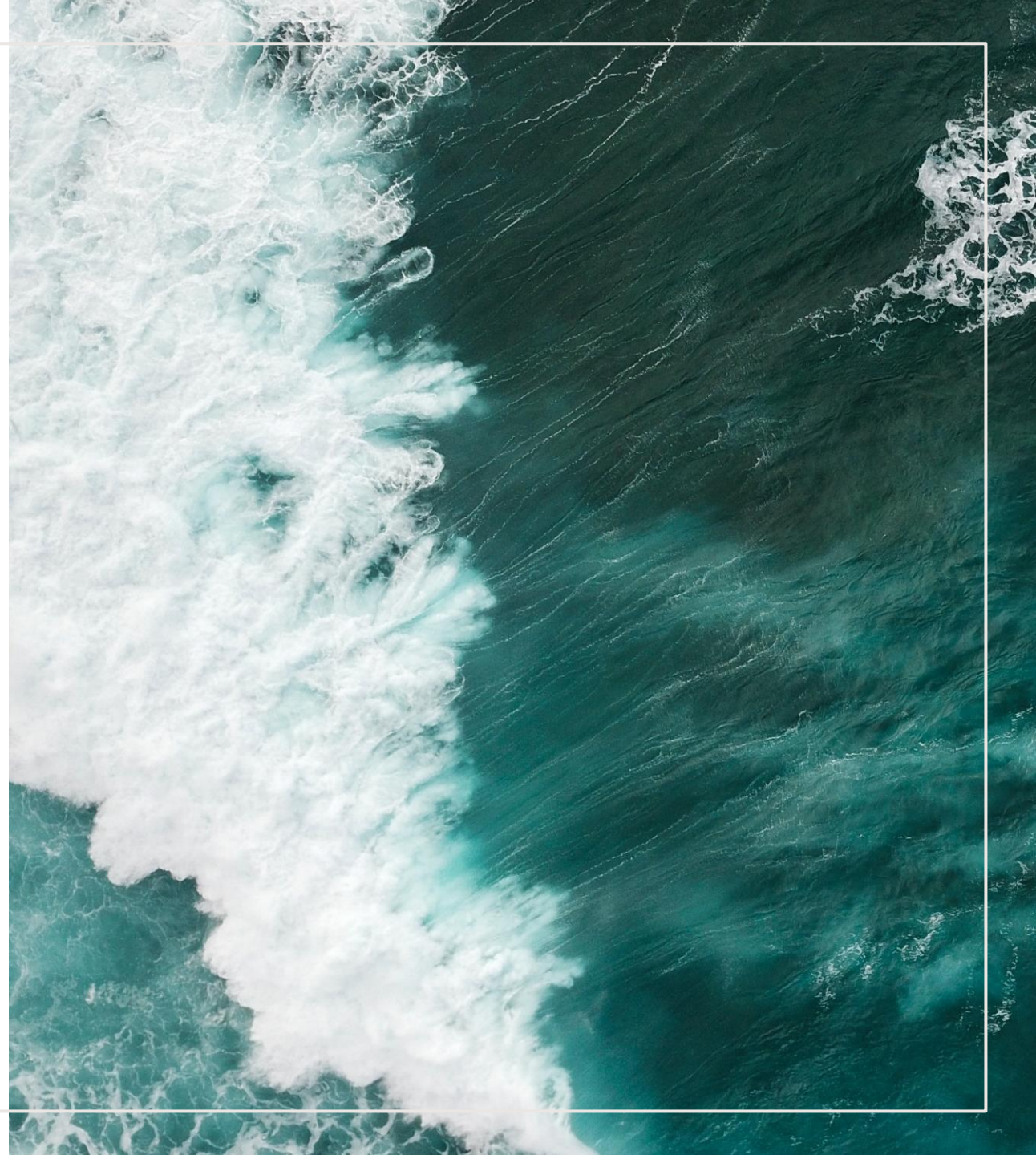
Photovoltaic power potential in Indonesia



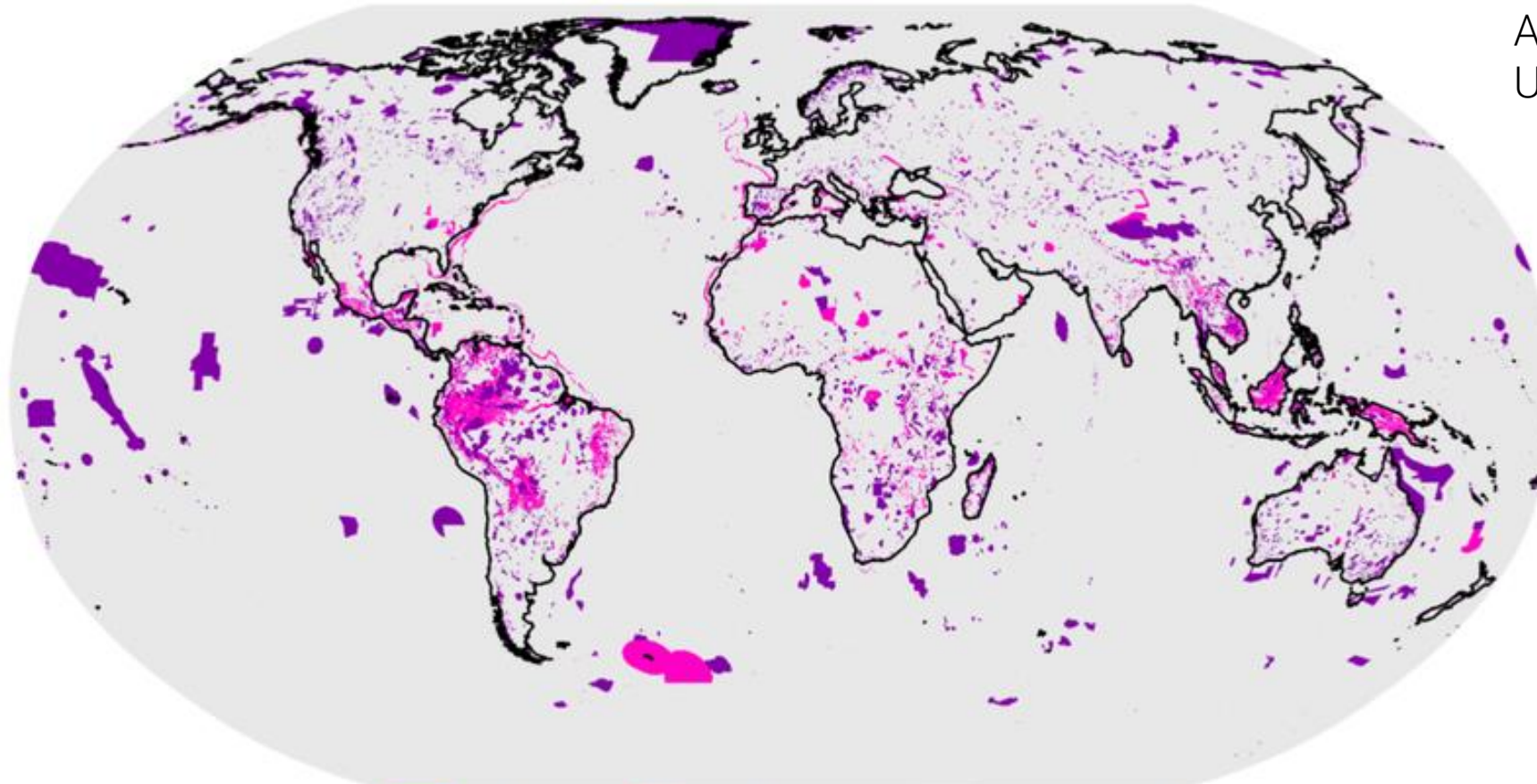
Source: World Bank, 2017

# BEFORE MEASURING DEPENDENCIES

- Compile location information
- Prioritise
- Develop nature scenarios



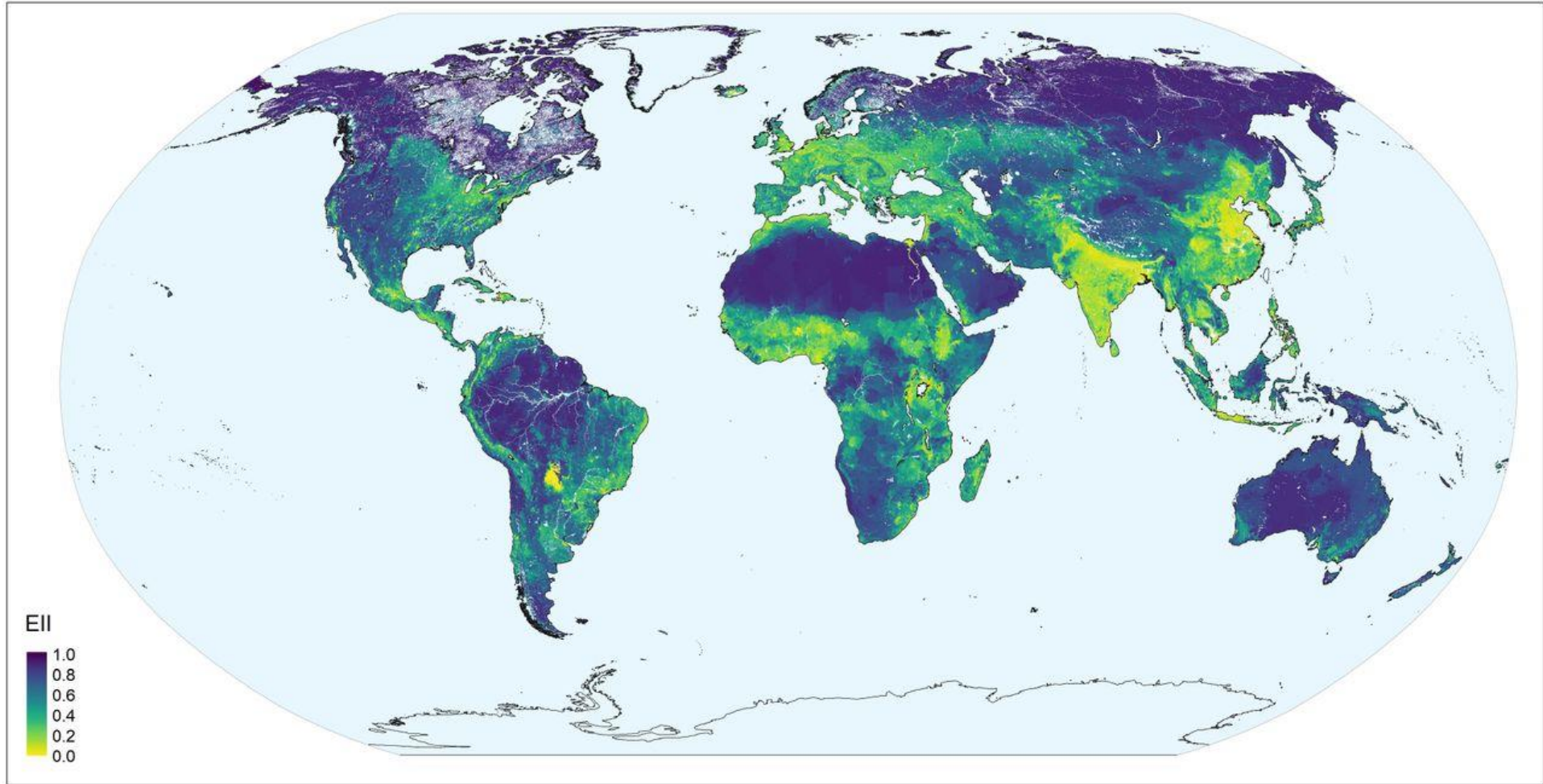
# GLOBAL CRITICAL HABITAT SCREENING LAYER



Access:  
[UNEP-WCMC Resources page](#)

 LIKELY     POTENTIAL     UNCLASSIFIED

# ECOSYSTEM INTEGRITY INDEX



Source: Hill et al, 2022 [preprint]

# RELIANCE

What is the benefit to Company X derives from the hazard protection ecosystem service provided by mangrove forests in coastal areas of Indonesia?

Extent and density of mangrove forests in Indonesia.



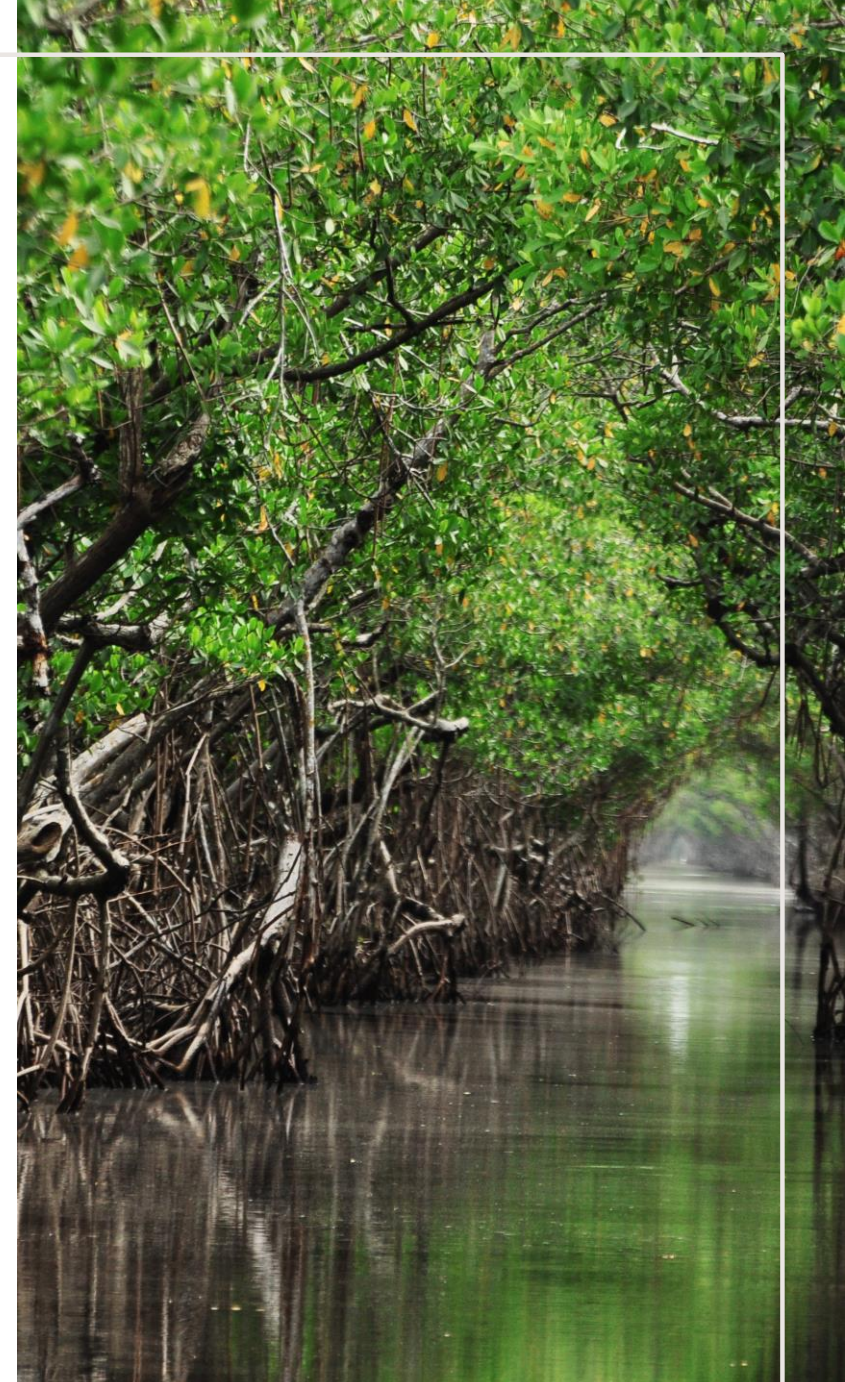
Source: Miller & Tonoto, 2023.

# IMPACT DRIVERS

- What impacts is Company X having on the mangrove forests that provide the hazard protection ecosystem service? How are these likely to evolve going forward?

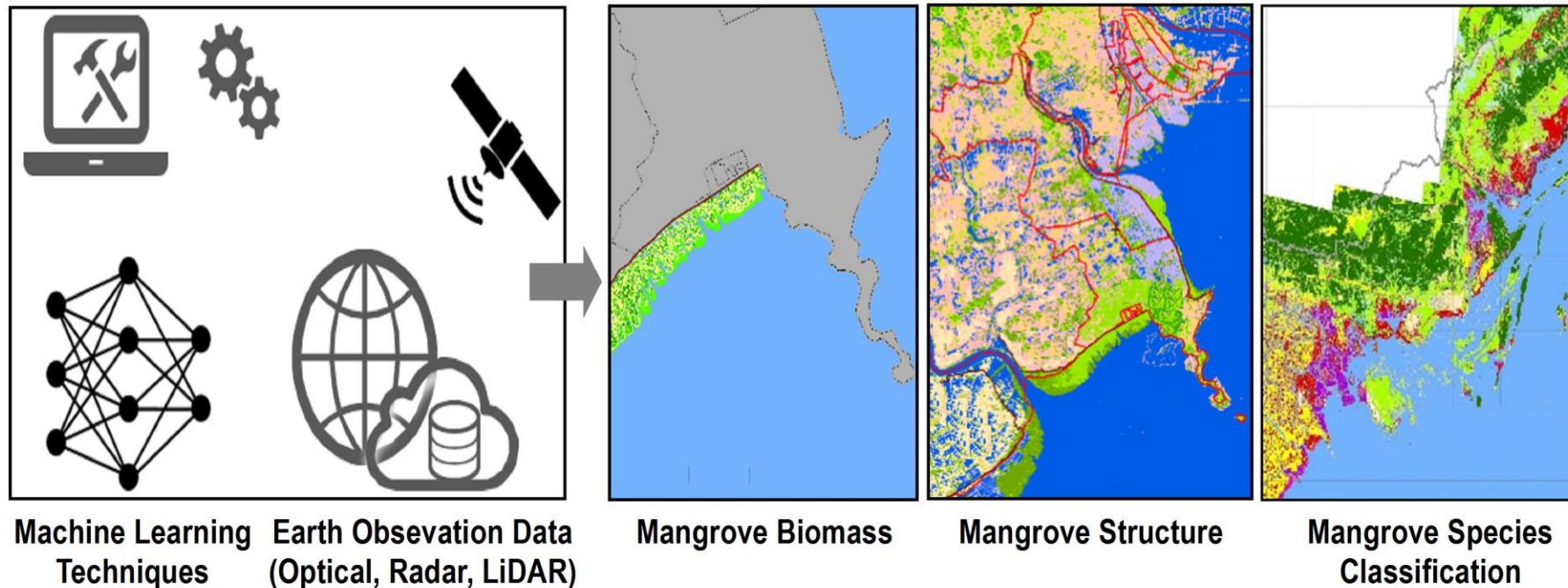
# EXTERNAL DRIVERS OF CHANGE

- Who are the other stakeholders in the locations where the Company X power plants are located?
- How are they impacting the mangrove forests and how is this likely to evolve going forward?



# STATE OF NATURE

- What is the size of the mangrove forest ecosystems near the power plants?
- What is the condition of the mangrove forest ecosystems near the power plants?



Source: Pham et al., 2019

# ECOSYSTEM SERVICE

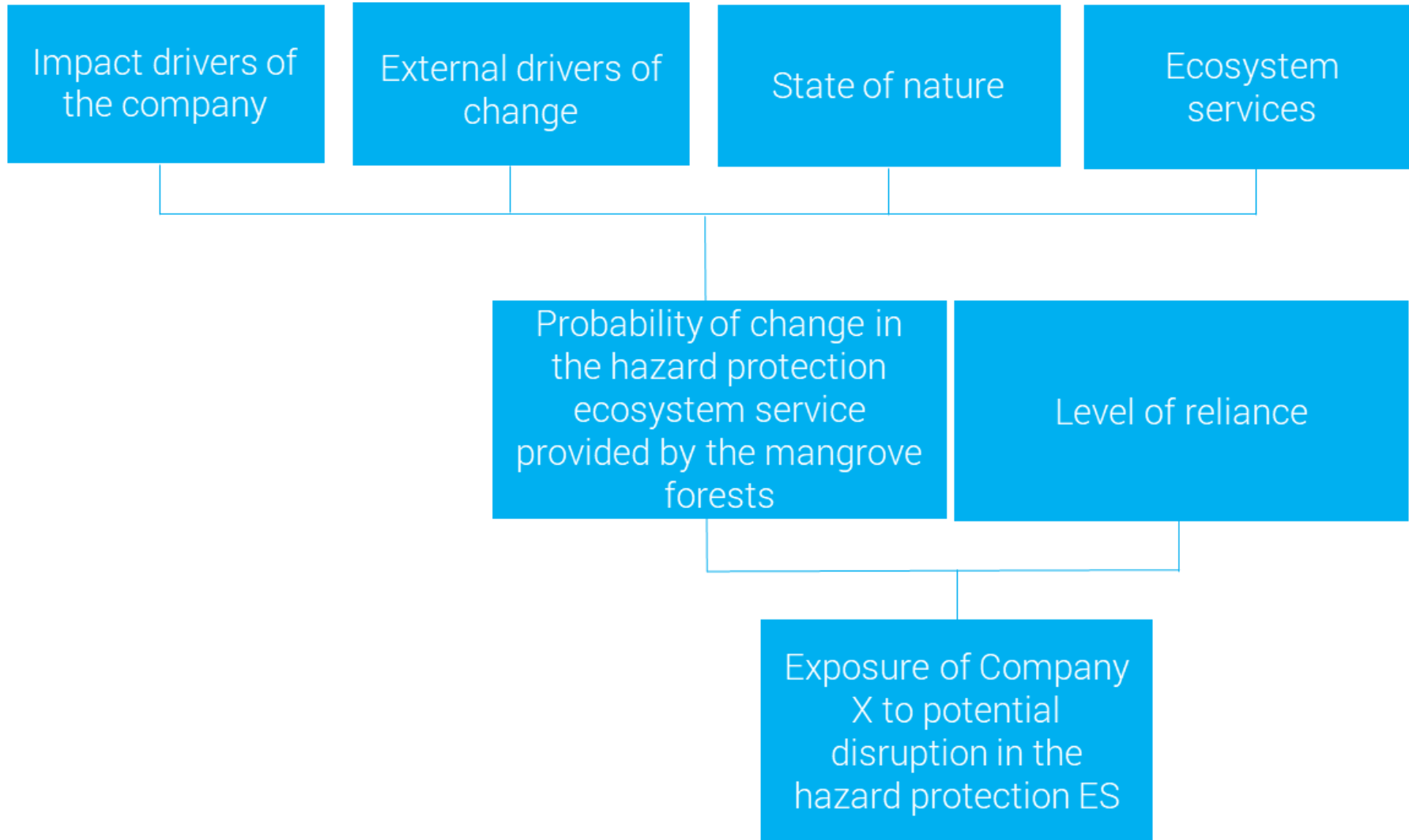
- Estimate level of hazard protection provided by the mangrove forests
  - E.g. incidence of floods in the areas where mangrove forests are fragmented

Projected flood risk in Indonesia



Source: Neise & Krist, 2018

# RESULTING ANALYSIS



# DISCUSSION

- How does your company currently measure its dependencies on nature?  
What challenges has your company encountered in measuring dependencies?
- What challenges has your company encountered in reporting or preparing for reporting of dependencies on nature in line with TNFD or other disclosure frameworks and standards?
- Can you share examples of actions or strategies your company has already implemented to address and overcome these measurement and/or reporting challenges?



Thank you

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**environment  
programme**

**WCMC**