



# FROM RISK TO RESILIENCE

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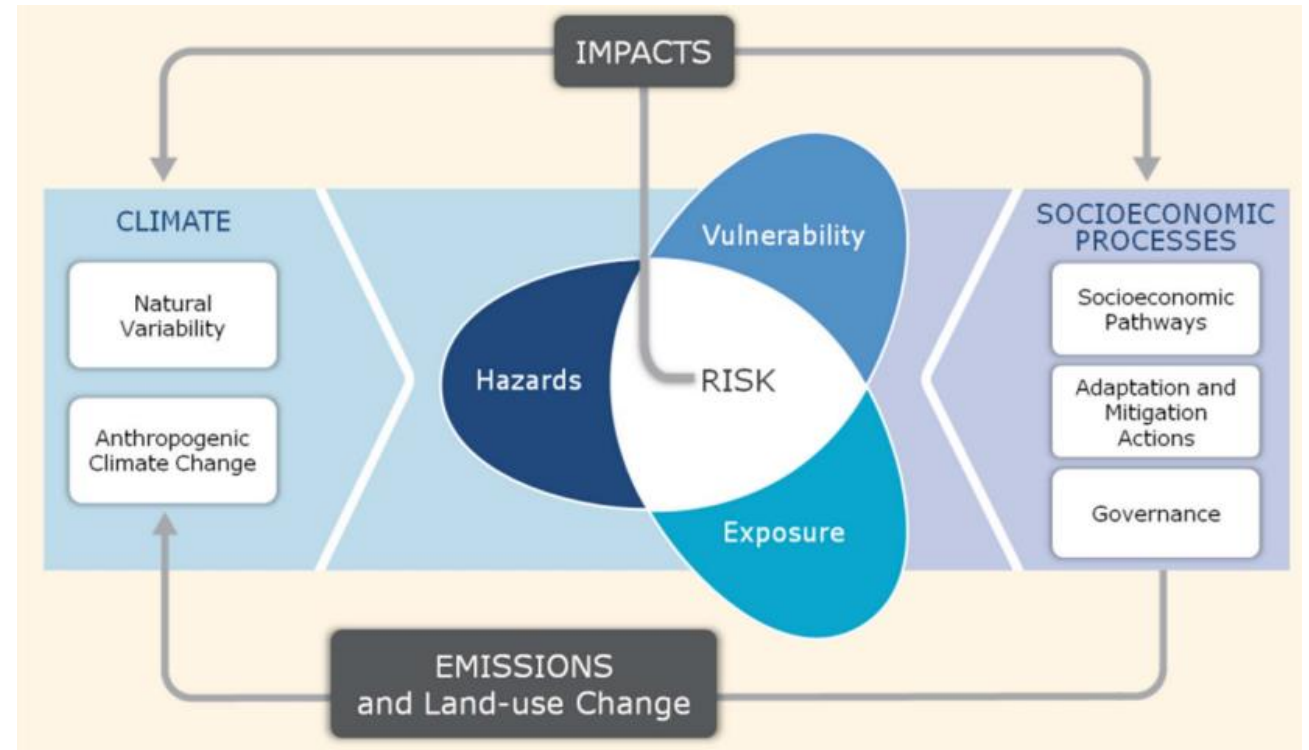
# WHAT ARE PHYSICAL RISKS



## RISK IS NOT THE SAME AS A HAZARD

Physical risks refers to the likelihood of hazardous nature related events occurring multiplied by their impacts when they occur. Understanding physical risks requires knowledge on:

- 1) Natural hazards and their potential occurrence.
- 2) Exposure of business activity and assets to physical hazards.
- 3) Sensitivity of business activities or assets.
- 4) Adaptive capacity of stakeholders.



# WHAT ARE PHYSICAL RISKS



## MULTIPLE TYPES OF PHYSICAL RISK EXIST

Physical risks are often categorized into two distinct groups

- Acute hazards (AKA event driven or rapid on-set) and
- Chronic hazards (AKA driven by long-term shifts or slow on-set).

Physical hazards often have multiple causes (e.g. climate change and environment degradation)

Acute  
physical  
hazard  
exampl  
es

Tropical cyclones, flooding, storms, heat waves, droughts, wildfires, storm surges.

Chronic  
physical  
hazard  
exampl  
es

Sea level rise, water scarcity, precipitation changes (including variability), temperature changes (including variability), biodiversity decline, declining soil fertility.

# PHYSICAL RISKS ARE ON THE RISE

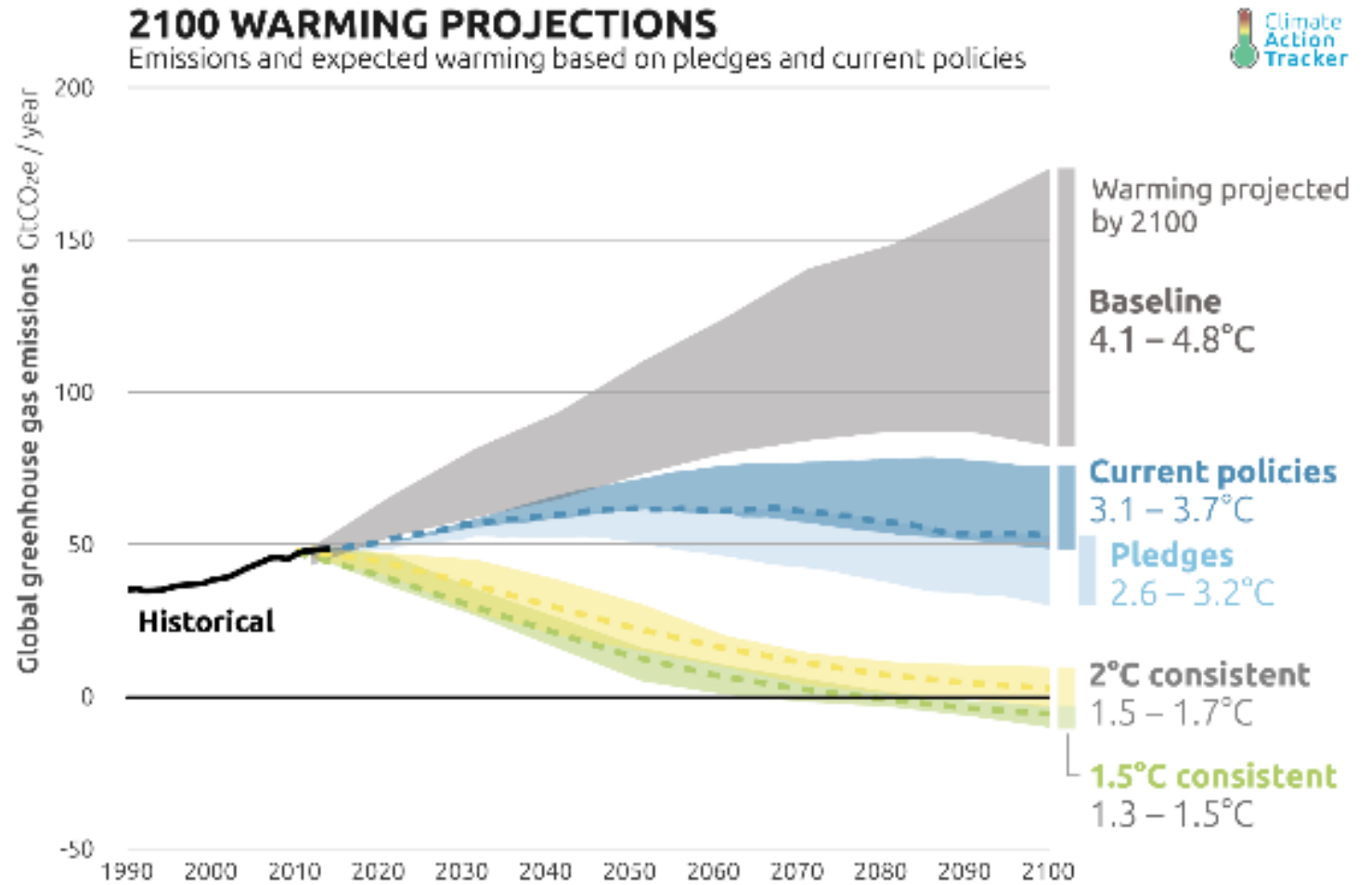


## PARIS AGREEMENT

Article 2.1.A: Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks.

Article 2.1.B: Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production.

Article 2.1.C: Making finance flows consistent with a pathway towards low greenhouse gas emissions and



# TRANSMISSION CHANNELS OF PHYSICAL RISK



## CORPORATE PERSPECTIVE

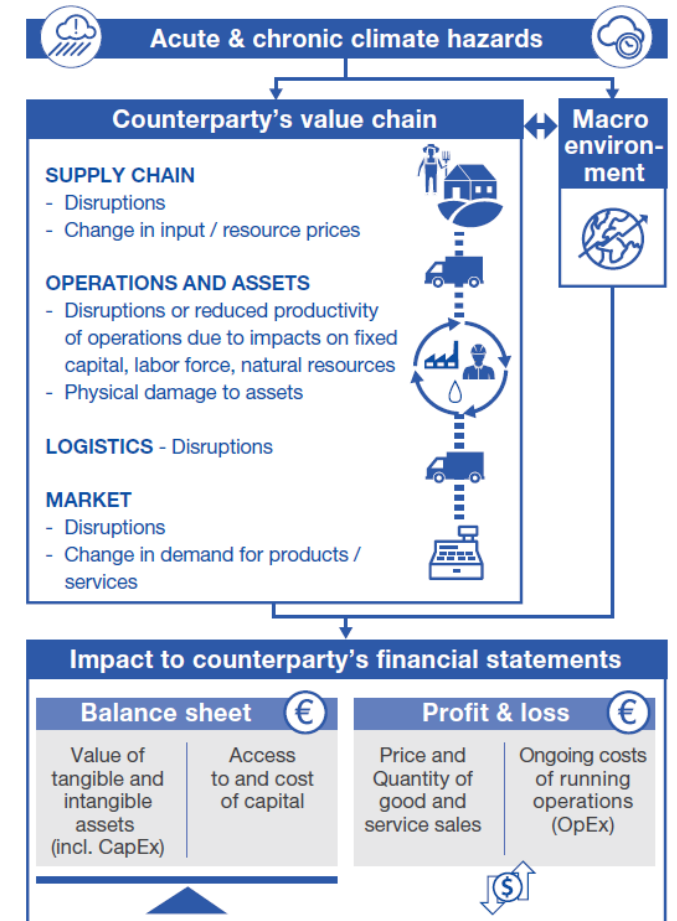
Corporates exposure to physical risk can be thought of as first order impacts and second order impacts both of which affect corporate financial performance, capital expenditure, and operating expenditure.

### First order impacts:

Direct implications of physical hazards on operations and assets, supply chains (including logistic issues), and markets. Activities more reliant upon natural capital are more exposed to physical risks.

### Second order impacts

Impact of physical hazards on environmental, social, economic, and governance systems. They are difficult to predict and manage through traditional risk management approaches as second order impacts are highly context specific and will differ even at localised



Source: [https://www.i4ce.org/wp-core/wp-content/uploads/2018/12/I4CE-ClimINVEST\\_2018\\_Getting-started-on-physical-climate-risk-analysis.pdf](https://www.i4ce.org/wp-core/wp-content/uploads/2018/12/I4CE-ClimINVEST_2018_Getting-started-on-physical-climate-risk-analysis.pdf)

# PG&E: THE FIRST CLIMATE CHANGE BANKRUPTCY



USD \$30 BILLION IN FIRE LIABILITIES AFTER POWER  
LINES SPARKED WILDFIRES



*Pacific Gas and  
Electric Company*



# TRANSMISSION CHANNELS OF PHYSICAL RISK




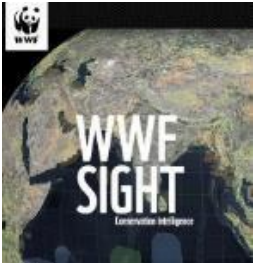














## BANK PERSPECTIVE: PHYSICAL RISK IS A TRANSVERSE RISK AFFECTING STANDARD RISK FACTORS

Credit Risk	<ul style="list-style-type: none"><li>• Transaction risk – Disrupted business increasing late or non-payments of loans.</li><li>• Interest rate risk – Higher risks not accounted for by interest rate charges.</li><li>• Commercial risk - Increased risks leading to inability to set interest rates which attract commercially viable clients.</li></ul>
Market Risk	<ul style="list-style-type: none"><li>• Demographic risk – Reduced consumption and demand as economies worsen.</li><li>• Macroeconomic risks – Increased likelihood of economic shocks due to events associated by physical hazards. Increased sovereign risk and cost of capital.</li></ul>
Liquidity Risk	<ul style="list-style-type: none"><li>• Foreign exchange risk – Physical events affecting currency prices increasing risks of borrowing/lending, raising funds, or capital transfers between countries.</li><li>• Liquidity risks – Physical hazards causing mass deposit withdrawals and late loan repayments frustrating ability to efficiently meet current cash obligations.</li></ul>
Operational Risk	<ul style="list-style-type: none"><li>• Regulatory risks - Outdated risk management practices creating unpreparedness for enhanced regulations that can affect operations and service delivery.</li><li>• System Integrity risk – Unaccounted risks reducing quality of and processing of information entering the accounting and portfolio management systems.</li></ul>

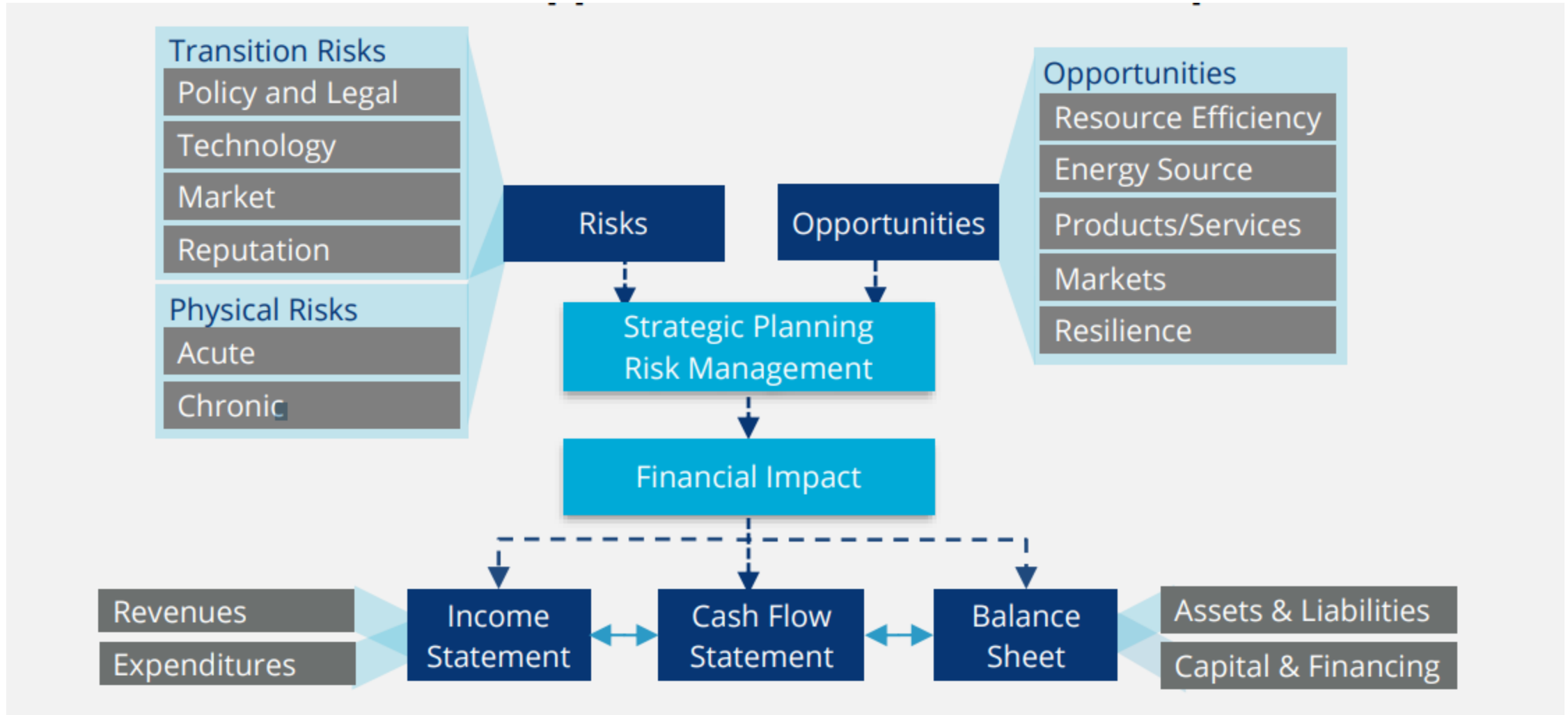
# EXISTING TOOLS & RESOURCES



Deforestation, Biodiversity Loss, World Heritage Sites	Climate Change	Water	Multiple
    	  	  <div data-bbox="1314 911 1798 1029" style="background-color: #e0e0e0; padding: 5px;"> <p><b>Drought Stress Testing</b> Making Financial Institutions More Resilient to Environmental Risks</p> </div>	   <p>A WWF INITIATIVE FOR A CIRCULAR ECONOMY AND NO PLASTICS IN NATURE BY 2030</p>   <p>Members</p> 



# TCFD FRAMEWORK IS A PHYSICAL RISK MANAGEMENT FRAMEWORK



# ADDRESSING PHYSICAL RISKS REQUIRES ADAPTATION



## THE OBJECTIVE OF ADAPTATION IS RESILIENCE

Capacity to absorb

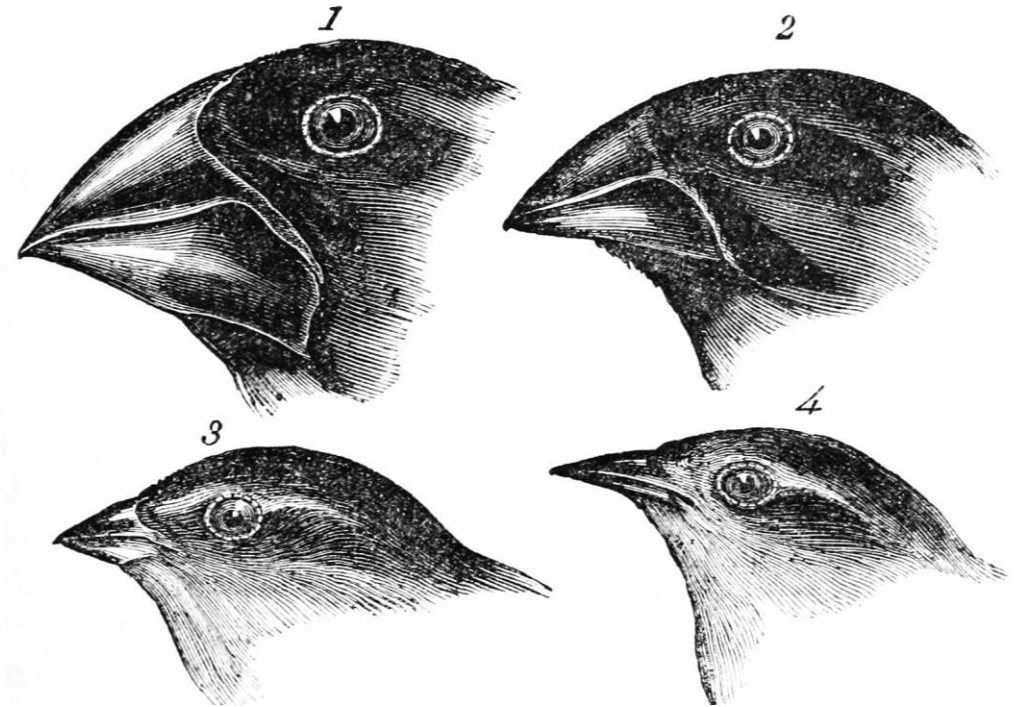
Ability to withstand the impacts caused by climate induced events.

Capacity to rebound

Ability to recover from the problems caused by climate induced events.

Adaptive management

Ability to learn from experiences or anticipate future risks to reshape operations in a manner which reduces future vulnerability.

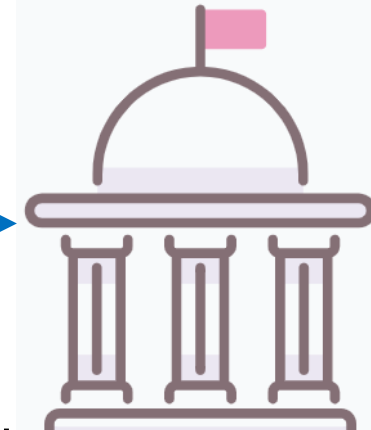


Adaptation: The process whereby an organism becomes better able to survive or prosper in its habitat.

# 'ADAPTATION' RESPONDS TO 'VULNERABILITY' TO OBTAIN 'RESILIENCE'



ADAPTATION REDUCES CLIMATE INDUCED RISKS OR MANAGES THIS RISK AND THE PROBLEMS CAUSED



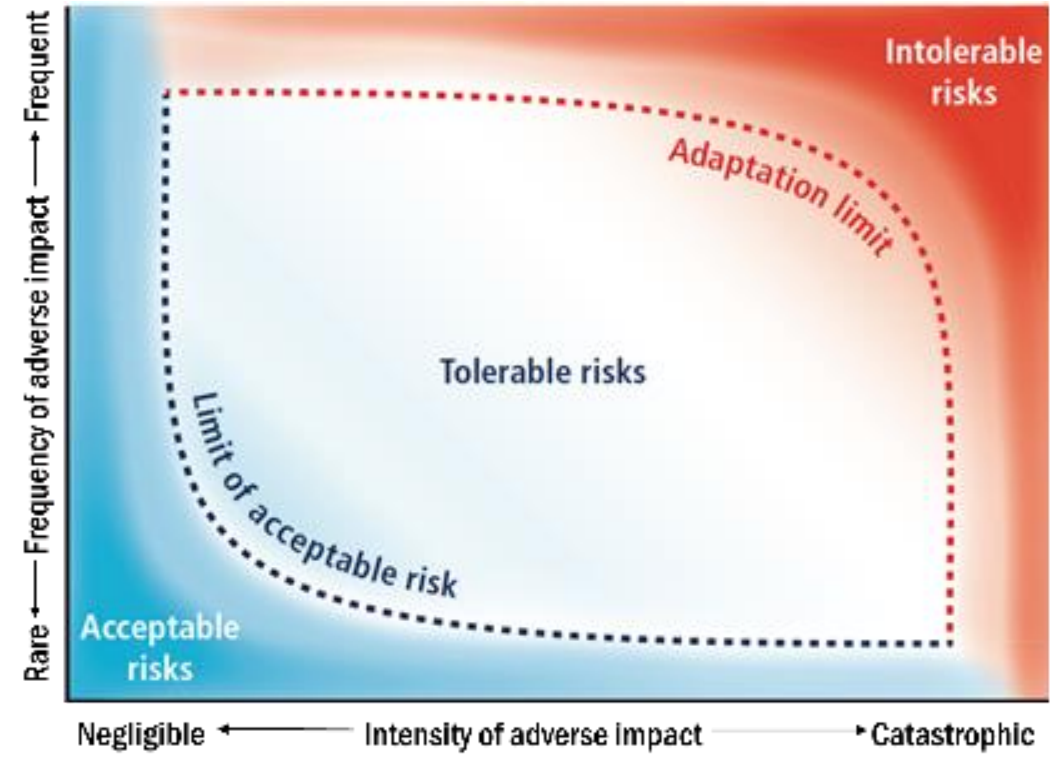
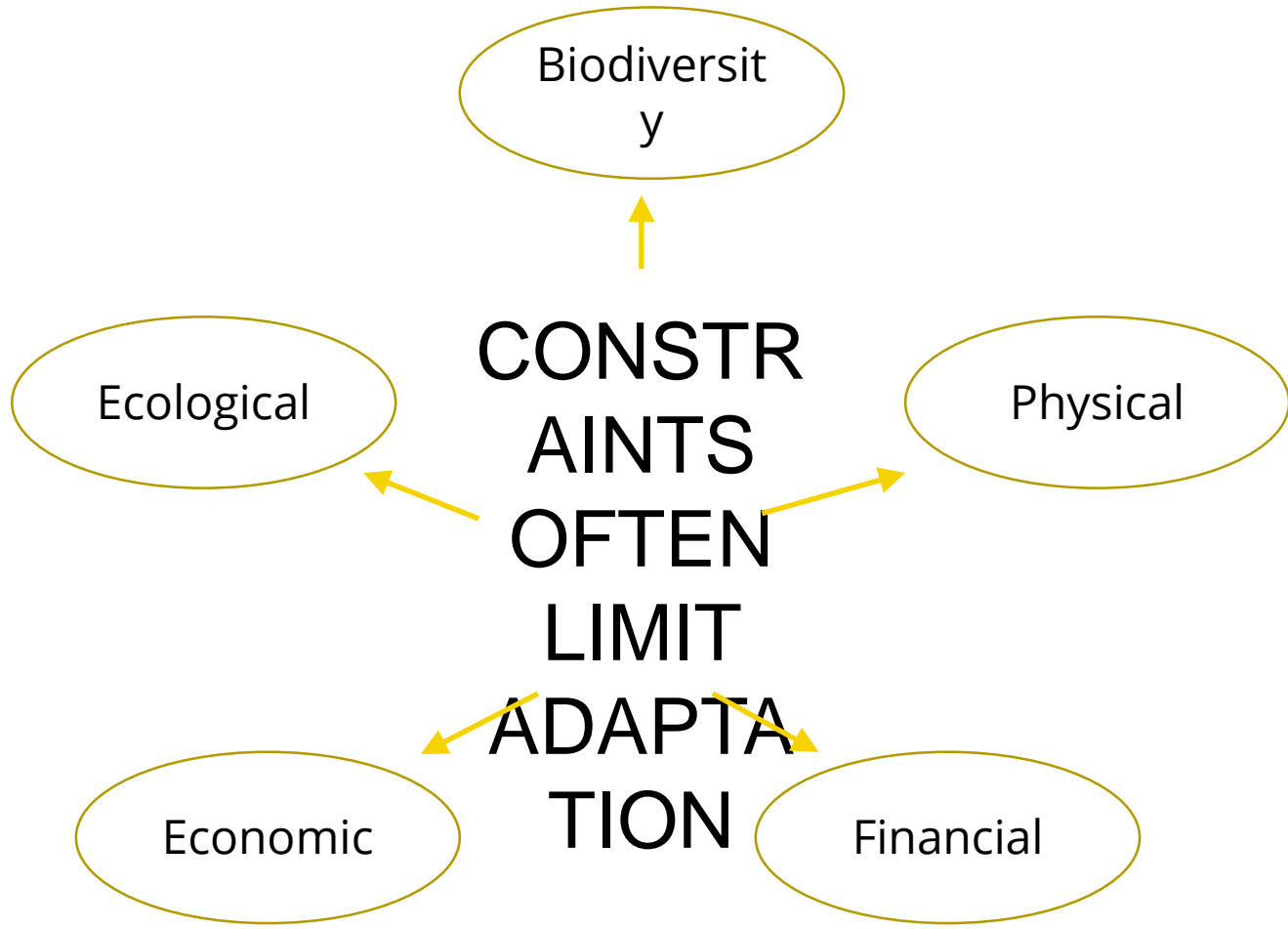
Excludable and rival benefits affecting individual stakeholders

Tendency to be initiatives which take advantage of opportunities or adjustments which reduce, manage, or transfer risk.

Non-excludable and non-rival benefits affecting multiple stakeholders.

Tendency to be governance processes, infrastructure projects, and ecosystem restoration initiatives

# ADAPTATION IS NOT ALWAYS POSSIBLE



# ASSESSING RESILIENCE



## BANKS SHOULD BE EQUALLY CONCERNED ABOUT RESILIENCE AS THEY SHOULD BE ABOUT EXPOSURE

Characteristic	Features that reflect potential for resilience
Capitals and assets	Capitals, assets, and resources that can be utilised to respond to changing circumstances (i.e. the resources to enact change).
External environment	Ecosystem, macroeconomic, and institutional conditions providing space for adaptation to occur (i.e. enabling environment for change to occur).
Knowledge and information	Ability to collect, analyse and utilise knowledge and information in support of adaptation activities (i.e. knowing what change should occur).
Innovation	Culture that rewards and enables experimentation in order to take advantage of new opportunities (i.e. knowing how to enact change).



together possible™

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