Preparing for a new climate

Building resilience in the mining sector

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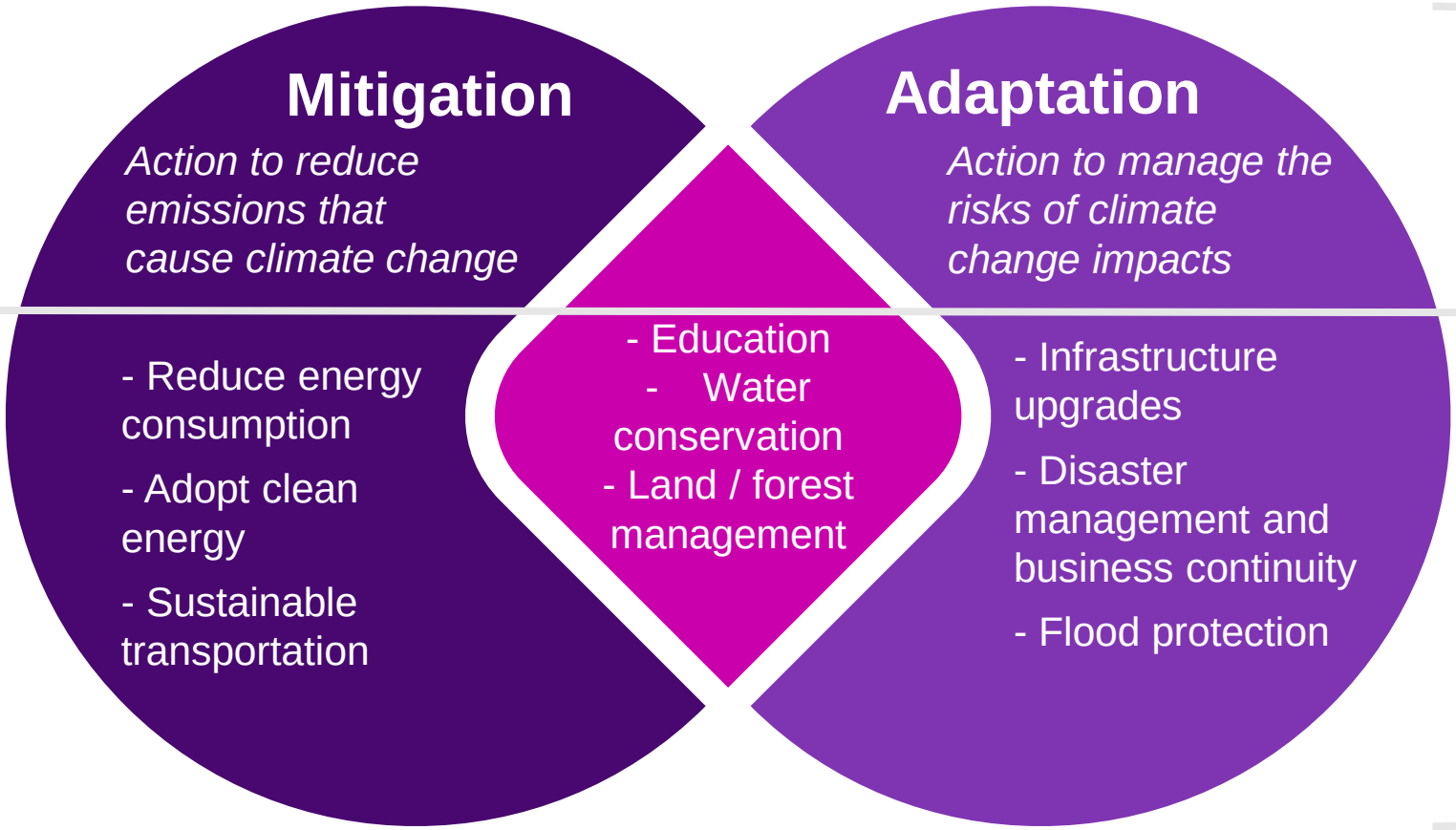
Introduction and drivers for action on climate change

Climate action requires mitigation and adaptation

Definition

Examples of actions



Actors

Private sector

Governments

Civil society

Typology of climate risk

Climate risk drivers

Physical
The immediate risks arising from weather-related events and slow onset climate changes

Transition
The financial risks arising from the transition to a lower-carbon economy

Liability
The risk of legal actions for failure to adequately respond to physical and transition risks

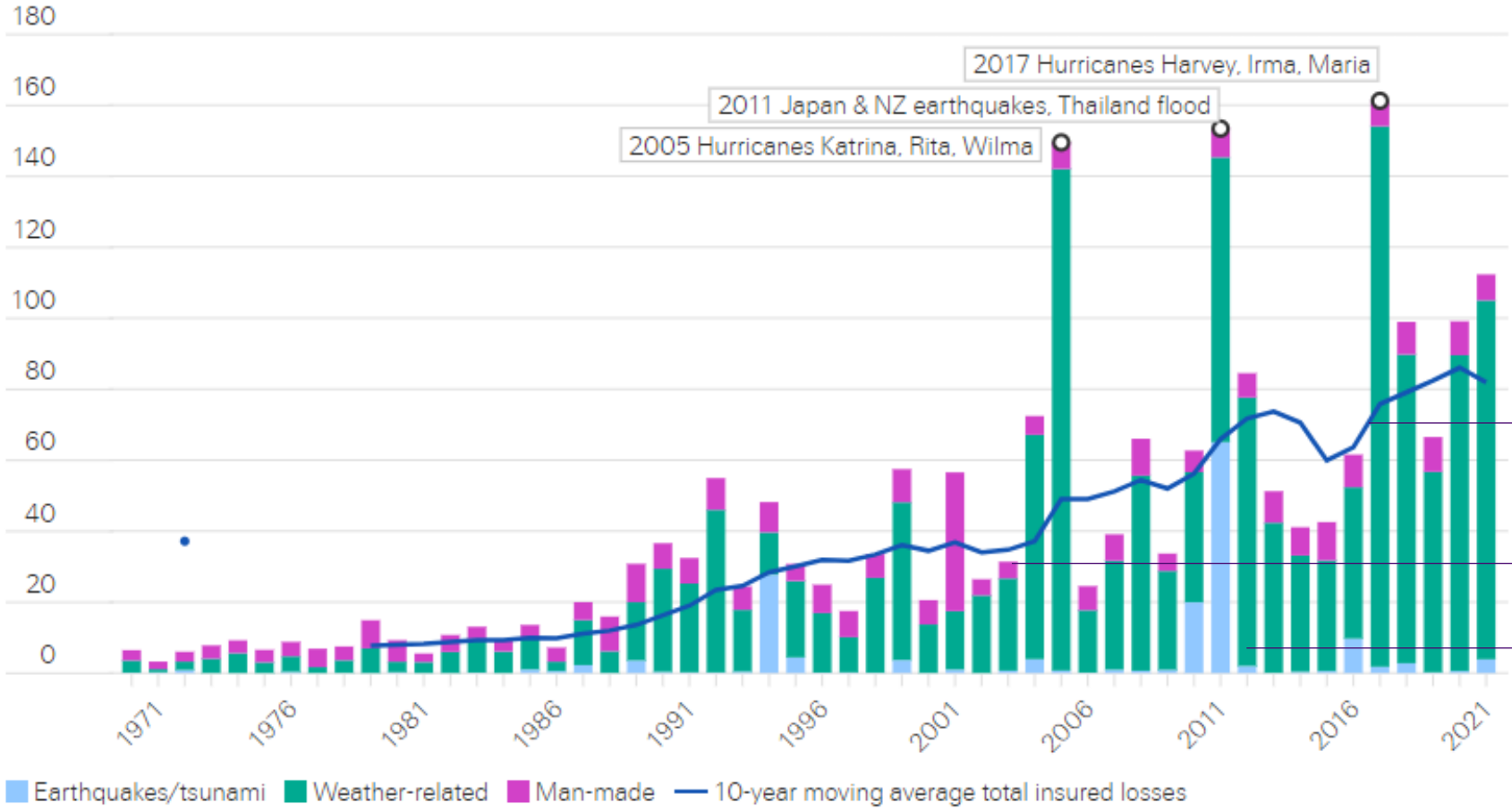
Effective management of systemic climate risks includes adaptation and mitigation

What are physical climate risks?

Chronic risks - from changes in long-term average conditions	Acute risks - resulting from changes in frequency and severity of weather events
Sea-level rise, temperature change, glacial melt, salt water intrusion, aridity, ocean acidification, seasonal shifts.	Wind storms, wildfires, drought, flooding, heatwaves, coastal flooding and storm surges.

Physical climate risk is driving economic loss

Attribution science shows fingerprints of climate change



Graph shows Insured losses only. Source: Swiss Re (2023)

$250bn economic losses in 2021

60% uninsured

Rainfall during hurricane Harvey **20% more** intense

2003 heatwave **570 more deaths** in Paris & London

Hurricane Sandy: **3 x more** likely

Key drivers for action on climate change

Climate change impacts

Frequency and severity of climate-related loss and disruption

Regulatory landscape

National policies, industry standards, ESG and climate-related disclosure frameworks

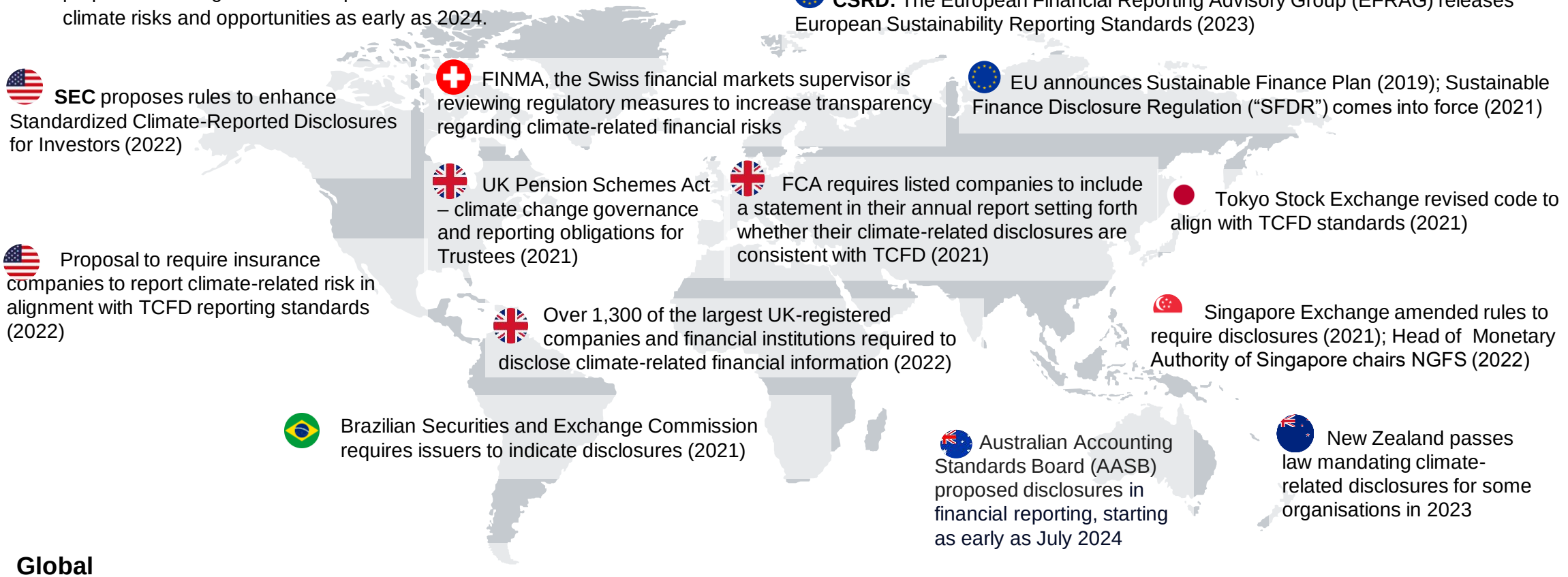
Investor expectations

Investor guidelines and evolving investor sentiment on ESG issues including climate change

Broader stakeholder expectations and impacts

Value chain interdependencies, evolving customer demands, stakeholder pressure and legal action against companies

Growing wave of climate disclosure and reporting requirements



Canadian Securities Administrators (CSA) proposed new regulation will require disclose climate risks and opportunities as early as 2024.

CSRD: The European Financial Reporting Advisory Group (EFRAG) releases European Sustainability Reporting Standards (2023)

SEC proposes rules to enhance Standardized Climate-Reported Disclosures for Investors (2022)

FINMA, the Swiss financial markets supervisor is reviewing regulatory measures to increase transparency regarding climate-related financial risks

EU announces Sustainable Finance Plan (2019); Sustainable Finance Disclosure Regulation ("SFDR") comes into force (2021)

UK Pension Schemes Act – climate change governance and reporting obligations for Trustees (2021)

FCA requires listed companies to include a statement in their annual report setting forth whether their climate-related disclosures are consistent with TCFD (2021)

Tokyo Stock Exchange revised code to align with TCFD standards (2021)

Proposal to require insurance companies to report climate-related risk in alignment with TCFD reporting standards (2022)

Over 1,300 of the largest UK-registered companies and financial institutions required to disclose climate-related financial information (2022)

Singapore Exchange amended rules to require disclosures (2021); Head of Monetary Authority of Singapore chairs NGFS (2022)

Brazilian Securities and Exchange Commission requires issuers to indicate disclosures (2021)

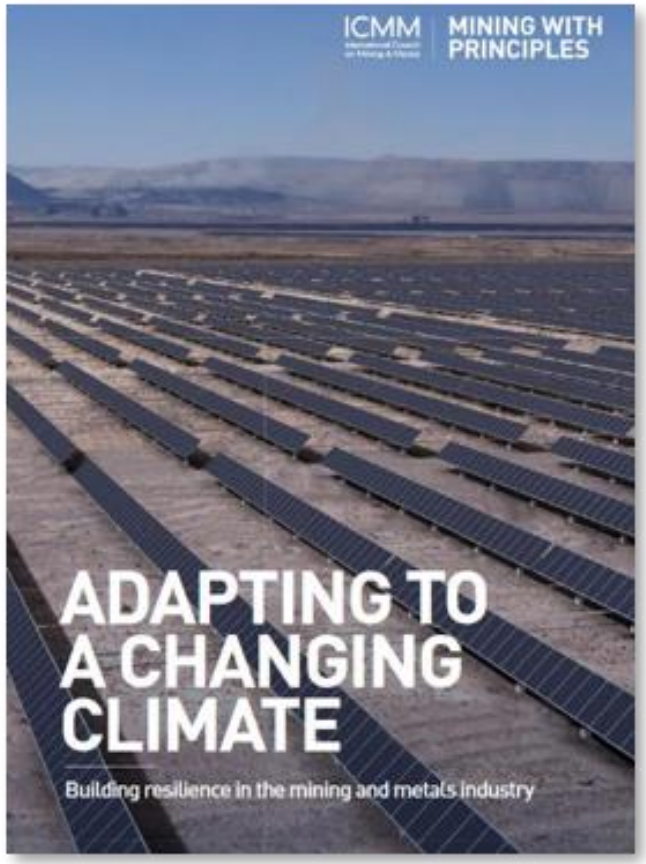
Australian Accounting Standards Board (AASB) proposed disclosures in financial reporting, starting as early as July 2024

New Zealand passes law mandating climate-related disclosures for some organisations in 2023

Global

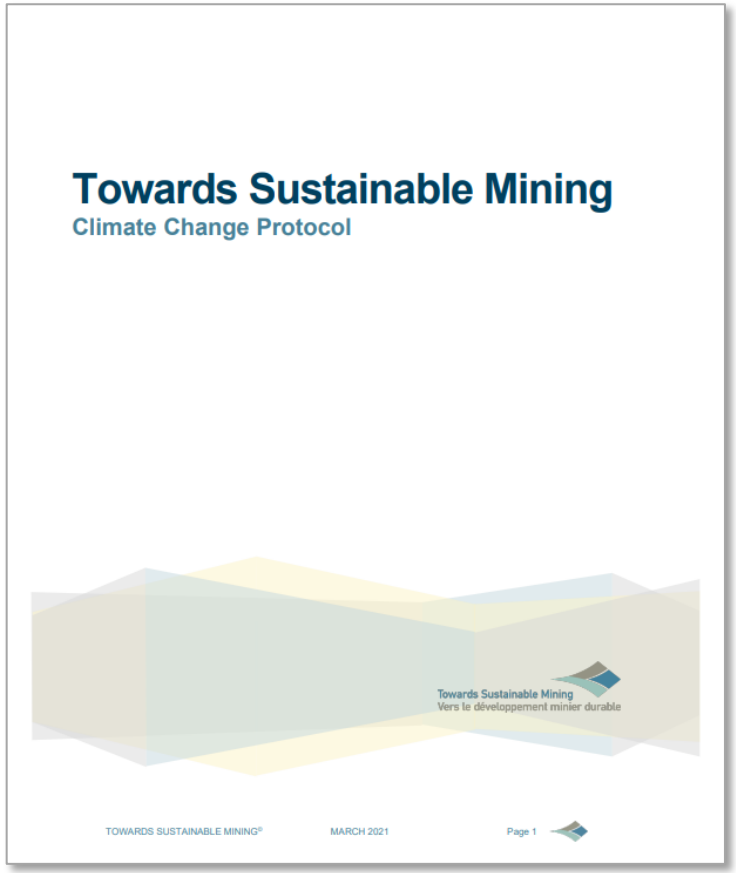
The International Sustainability Standards Board (ISSB) published two final standards (2023) Taskforce on Nature-related Financial Disclosures (TNFD) (2023).

Industry guidance and support



https://www.icmm.com/en-gb/guidance/environmental-stewardship/2019/adapting-to-a-changing-climate

https://globaltailingsreview.org/global-industry-standard/



https://mining.ca/resources/guides-manuals/tsm-climate-change-protocol/

https://mining.ca/wp-content/uploads/2021/10/MAC-Climate-Change-Guide-June-2021.pdf

Potential climate liability risks for the mining sector

Director's Liability Risk

Failing to consider climate in decision-making

1

Greenwashing Liability Risk

Signing off on misleading information in corporate filings

2

Regulatory Risk

Failing to comply to new environmental standards, legislations or technology e.g. disclosure standards, scope 3 emissions

3

Contractual Liability

Net-zero commitments requiring change in supplier contracts

4

Supply Chain Risk

Links between climate change, human rights and biodiversity

5

Inadequate Disclosure of Risk

Non-disclosure or lack of disclosure of climate-related risks

6

Physical risks facing the mining sector

Physical climate risks facing mining and metals

Mining & metals companies are particularly exposed to changing climate risks for several reasons

- Reliance on long-lived and capital-intensive **fixed assets**
- Operate in **regions** that are highly vulnerable to climate extremes and climate change
- Extensive product **transportation networks** and reliant on deep and complex **supply chains**
- Depend on **workforces** and **communities** that are vulnerable to a changing climate
- Manage complex **environmental permitting** arrangements, and **social licence** to operate, which can be undermined by the effects of a changing climate

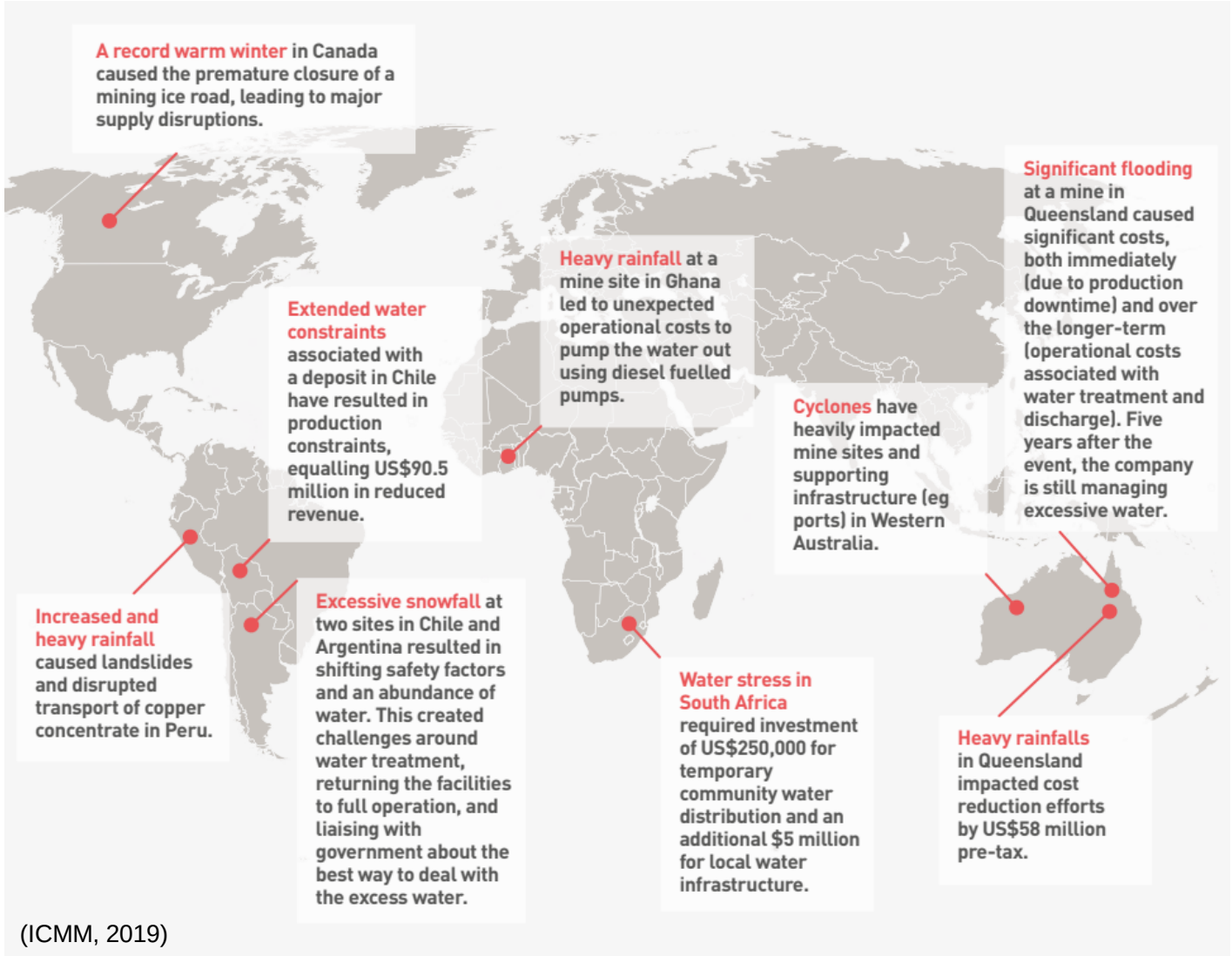
Photo by Jéan Béller on Unsplash

Neil Palmer/International Centre for Tropical Agriculture; Kompas/Hendra A Setywawan;

Impacts of extreme weather and climate change are already being felt

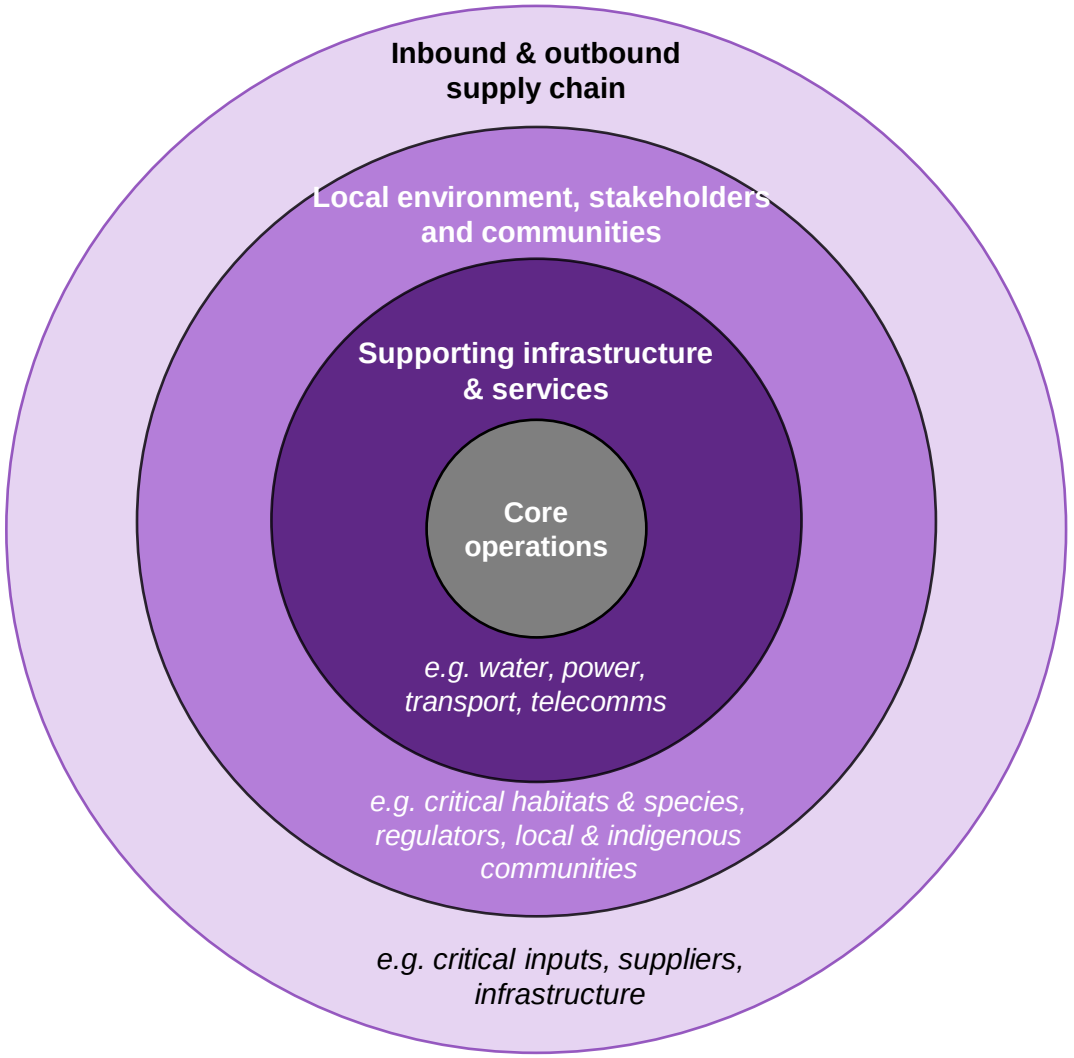
Examples from mining companies

- Disruption
- Loss of revenue
- Increased costs (CAPEX, OPEX)
- Work with communities, governments on responses



(ICMM, 2019)

An integrated systems approach



Risks may be:

- Direct
- Indirect
- Interconnected

More than one hazard can interact to lead to a risk

Potential for consequences across H&S, environment, community, reputation, legal and financial

A changing climate often creates a change in existing risk profiles

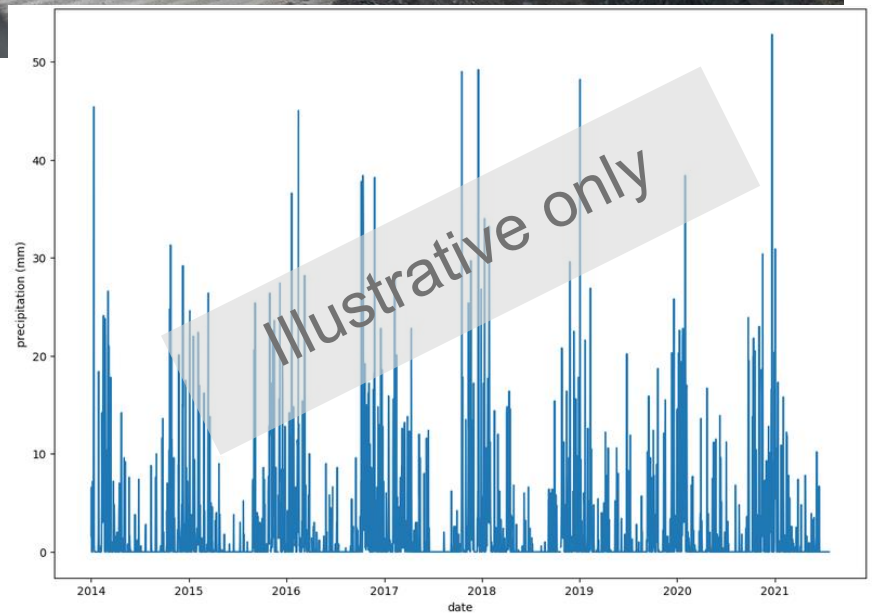
Case study 1: Core operations

Wet weather impacts on truck movements

The presence of water in the mine sites due to low, heavy or continuous rainfall poses threats to production, through impacts to truck movements and shovel operations

Mining company response

- Operational data: Highly-granular and well-maintained historical weather records, associated production data and losses
- Statistical analysis to understand impacts of rainfall volumes, durations and frequency on truck movements and therefore production
- Improved utilisation of **forecasts** (weather, seasonal and potentially decadal) and climate projections to inform production profiles
- Amendments to seasonal **preparedness plans** and **early warning** protocols



Case study 2: Supporting infrastructure and services

Desalination plants in South America

Desalination plants are increasingly common in water-stressed regions

However, the threat of algal blooms are being exacerbated by ocean acidification and warming driven by climate change

Algal blooms damage desalination plant equipment and operations, and have led to plant shutdowns

Mining company response

- Legal review of **third-party contracts with plant operators**
- Seek to influence operators to **implement controls:** bio dispersants and chlorination (post-intake), relocation of water intake

Algal blooms off South America's coast
Photo: mercopress.com

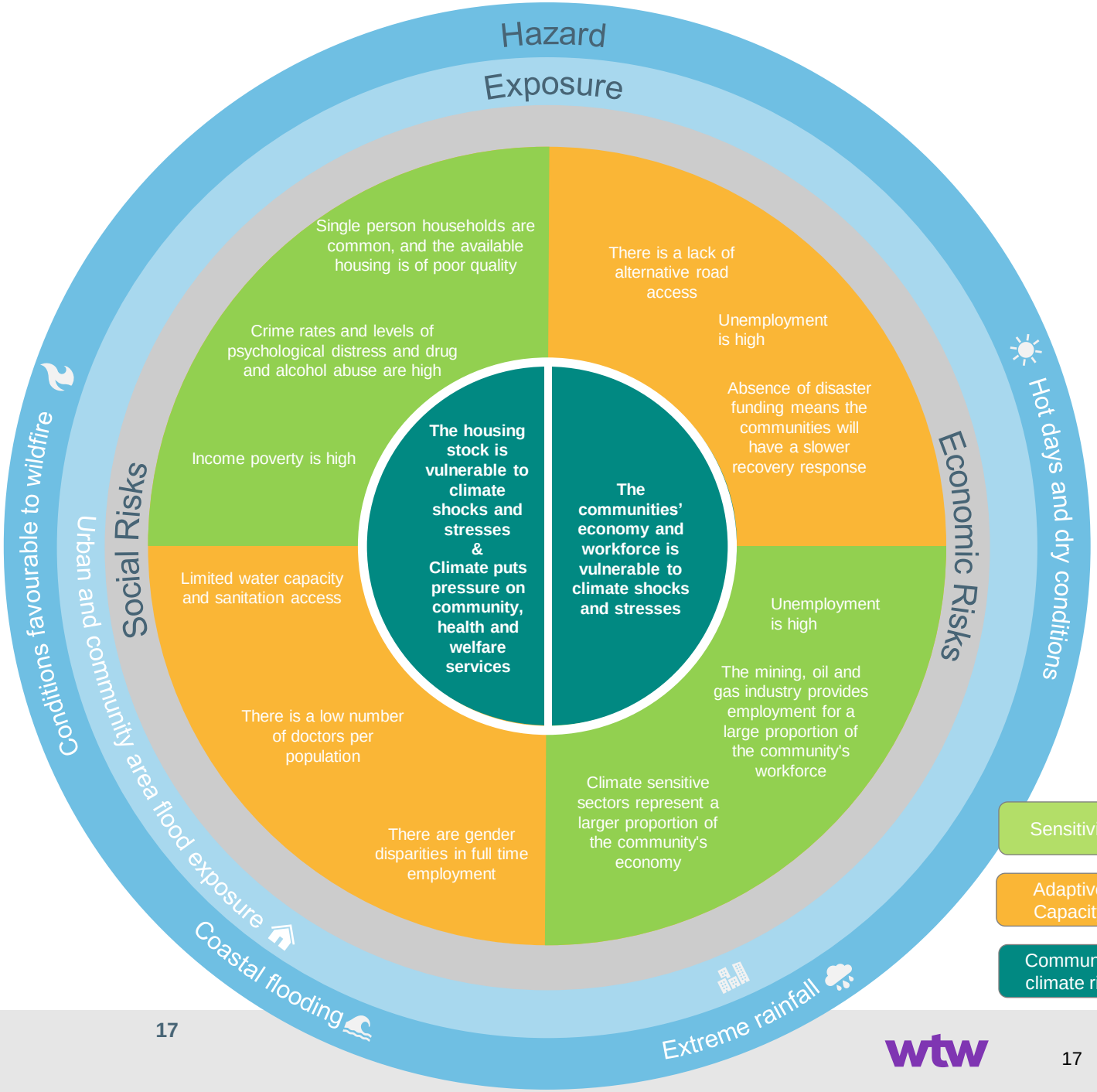
Case study 3: Communities

Climate-induced challenges host communities

Many mining communities are already particularly vulnerable to climate change due to their direct reliance on the natural environment, often remote locations, sparse populations and minimal infrastructure

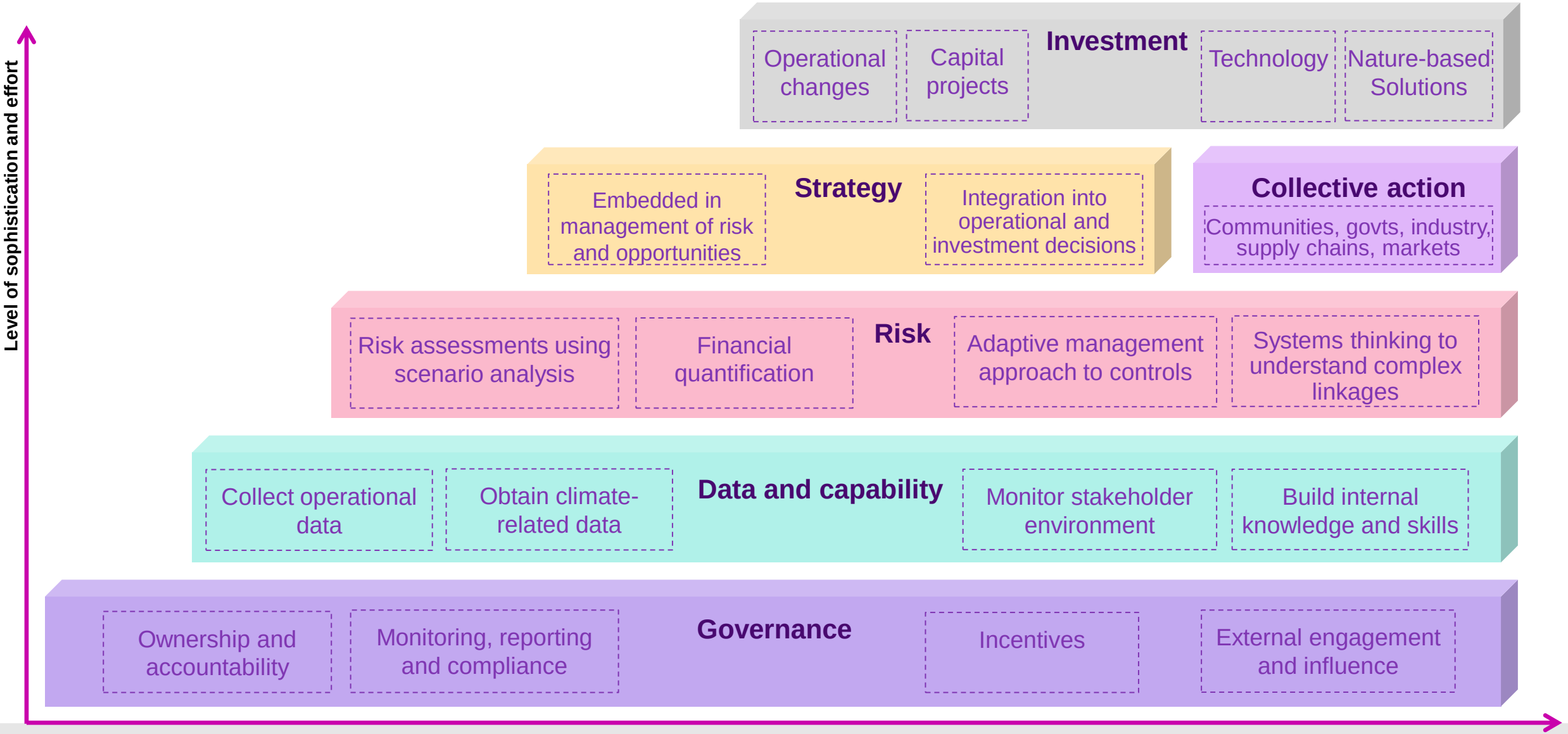
Mining company response

- Desk-based study (**index**) to understand the potential physical climate risks and vulnerabilities affecting neighboring communities and indigenous groups
- Integration of climate vulnerability within existing **'BaU' processes** – human rights assessments
- Inform community **engagement** activities
- Identify potential **interventions** to support community resilience



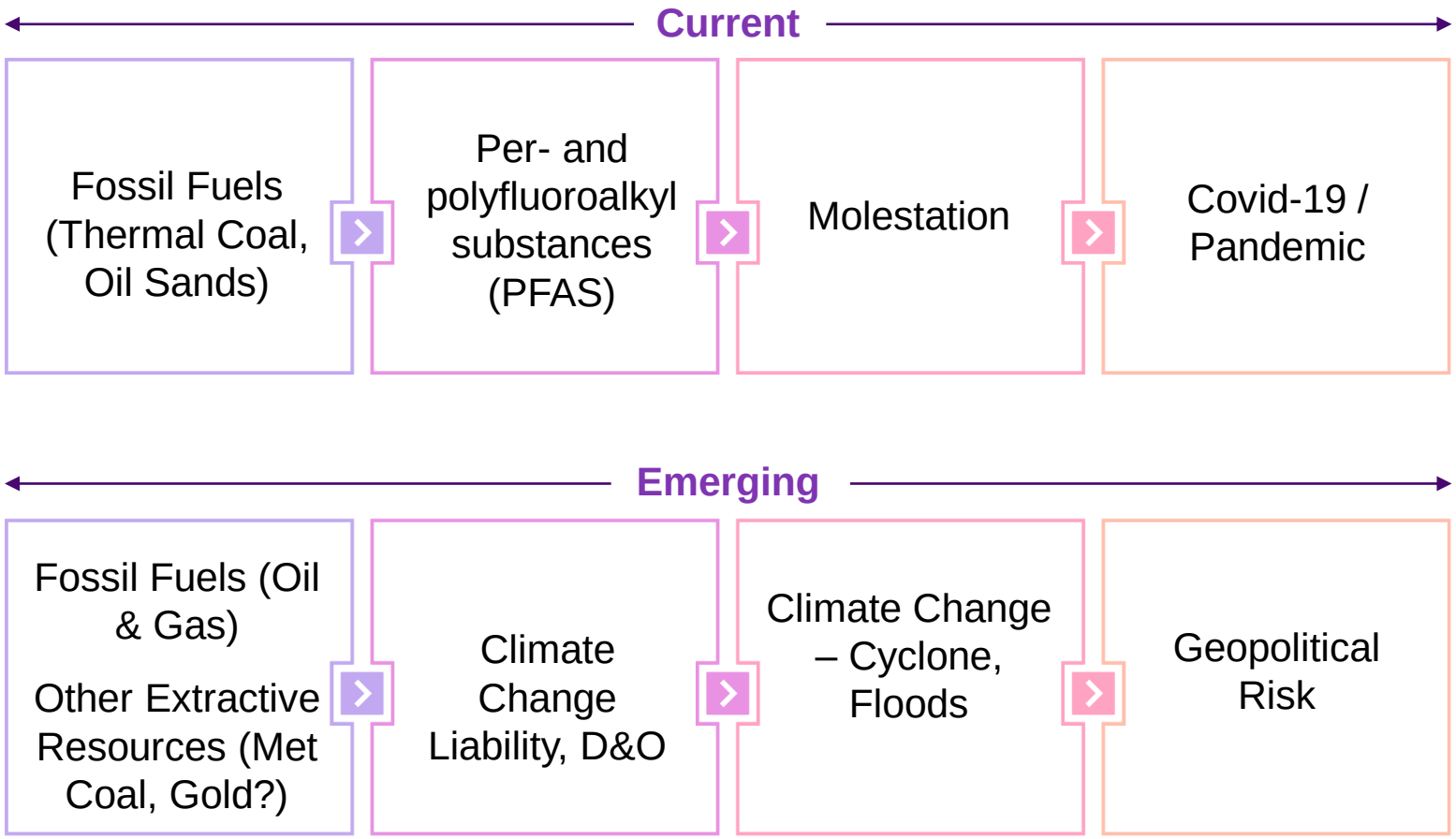
Strategic response

Building blocks for climate resilience



Uninsurable Industries & Risks

Current & Emerging



Thank you and any questions?

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