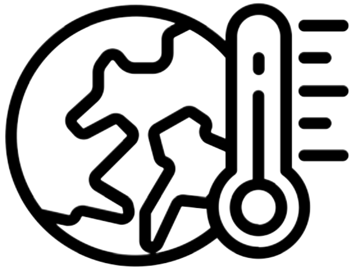
ESG & Climate Risks in India:

An introduction for finance professionals

House rules

- Videos & mics
- Chat box for questions or technical assistance
- Mark attendance through the chat box
- Technical difficulties due to other programs
- Mentimeter ready on your phone/web browser
- ‘Raise hand’ during Q&A
- Introduce yourself during Q&A



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Part 1

Setting the scene

Global developments

- Current global temperature is at 1.02-degree Celsius
- The international business and finance community has committed to meet Net Zero targets to limit temperature rise within 1.5 degree Celsius
- COP26, November 2021 - another landmark event. Its outcomes include:
  - Developed countries have committed to mobilize a total of $100 billion per year of International climate finance from 2020 until 2025
  - Developed countries to double the collective share of adaptation finance
  - Commitment to a process to agree on long-term climate finance beyond 2025

Mobilising finance | Mitigation
Collaboration | Adaptation

Global developments

Global developments – multilateral agreements & goals

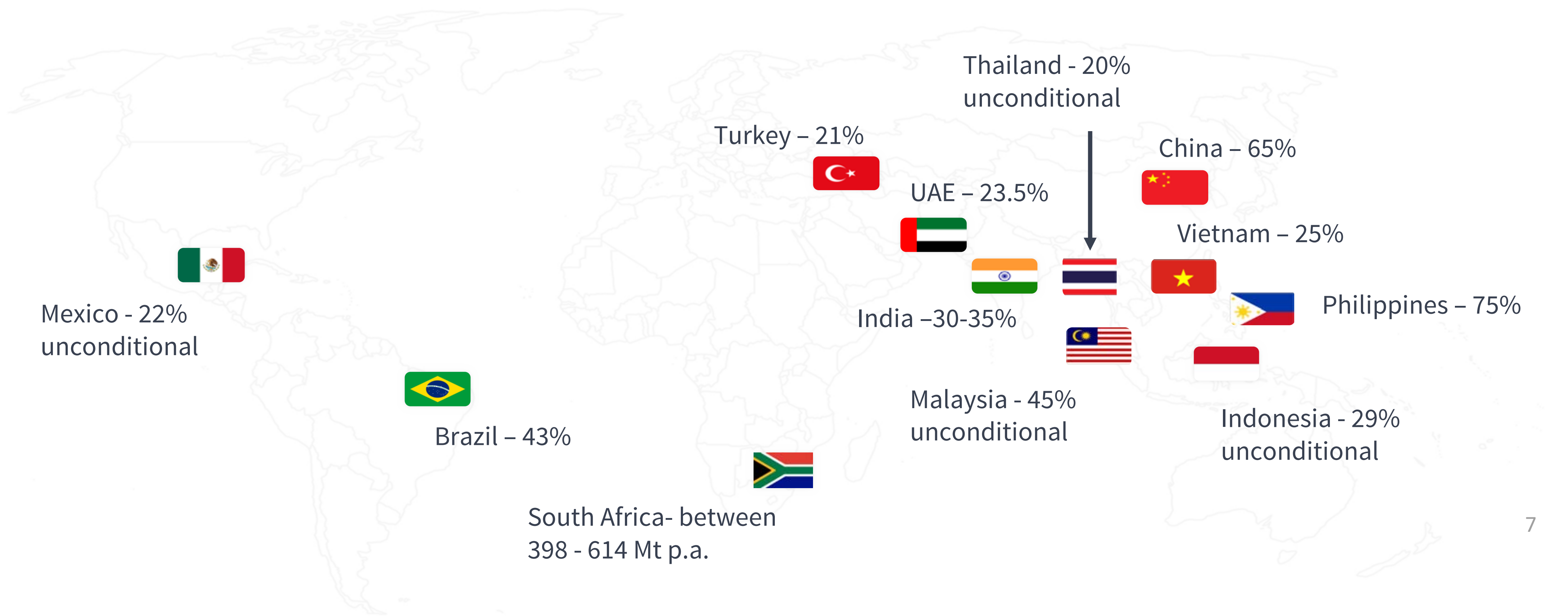
$5-7 trillion
needs to be invested per year till 2030

$3.9 trillion
per year by the emerging markets till 2030

$2.64 trillion
per year by India alone till 2030

(Standard Chartered, 2020, WEF,2021, OECD 2021)

NDC commitments on GHG reduction: select emerging markets

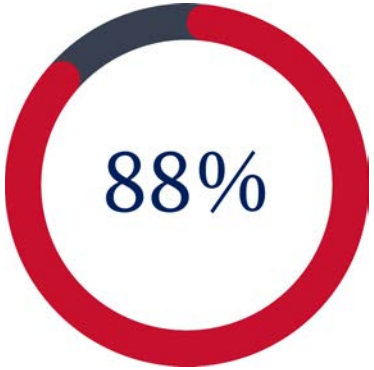


(Nationally Determined Contributions (NDCs))

Global net-zero targets

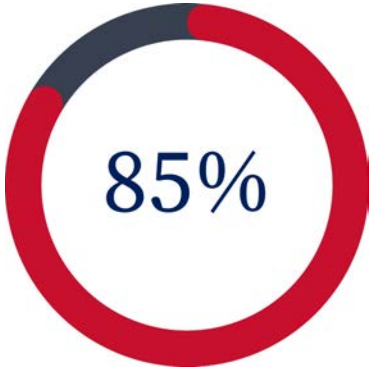
Global net zero coverage

Emissions



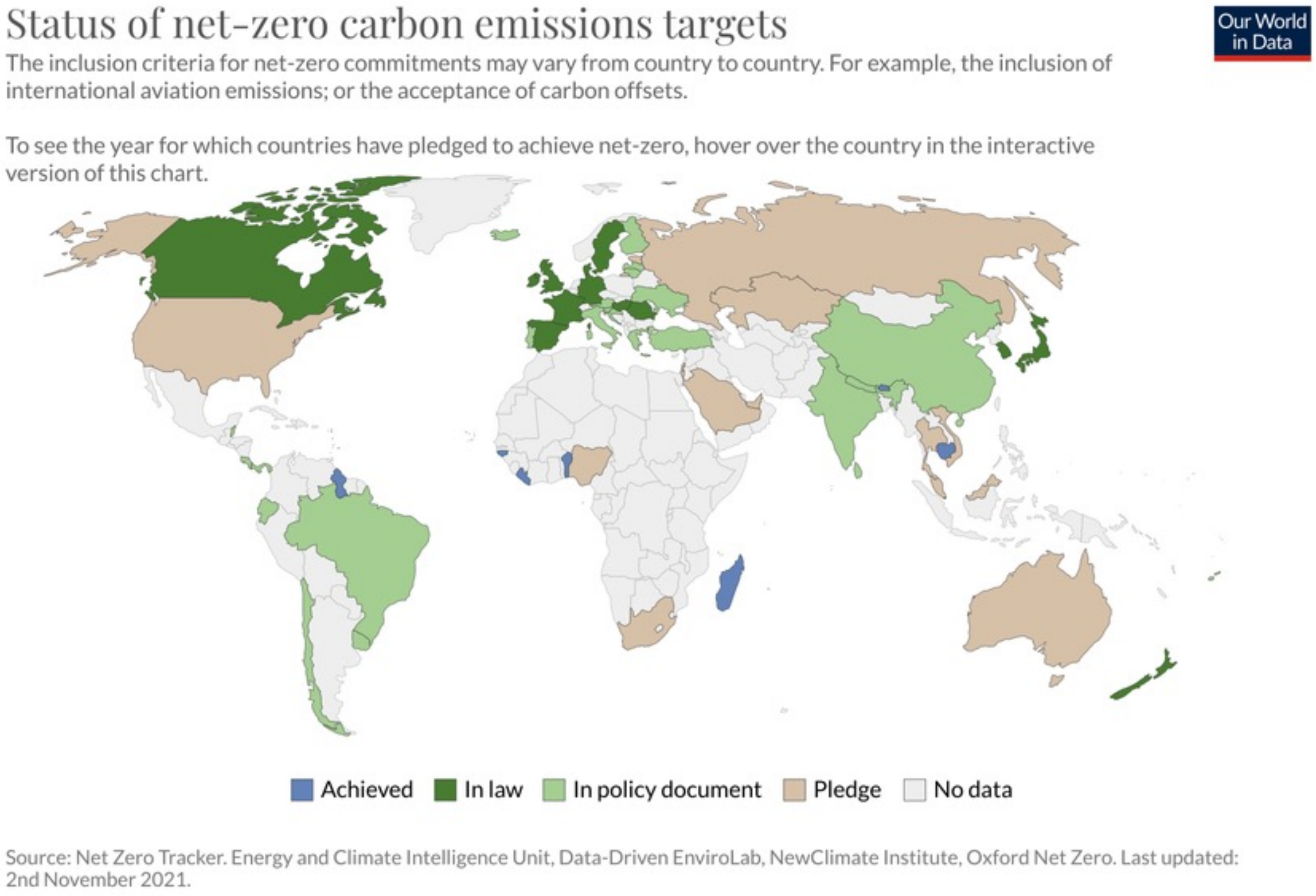
GDP (PPP)

Population



135
Out of a total 198 countries targets net-zero

~20%
of the global economy with net zero targets enshrined in law



(Net Zero Tracker, 2021)

Net zero targets - India

Indian companies with Net-zero targets by 2030-2031

TATA CONSULTANCY SERVICES

Reliance Industries Limited

Infosys

JSW Energy

wipro

HDFC BANK

FAME - 2

268749 Total No. of Vehicles

Rs. 987.08 Cr Total Incentive

CII IGBC launches 'Mission on Net Zero'

(Businessline, 2021)

IGBC targets all buildings to become Net Zero by 2050

(Bizzbuzz, 2021)

Global developments

Global developments – networks for practitioners

UN environment programme finance initiative
UN-Convened, Industry-led Net-Zero Banking Alliance

GLASGOW FINANCIAL ALLIANCE FOR NET ZERO

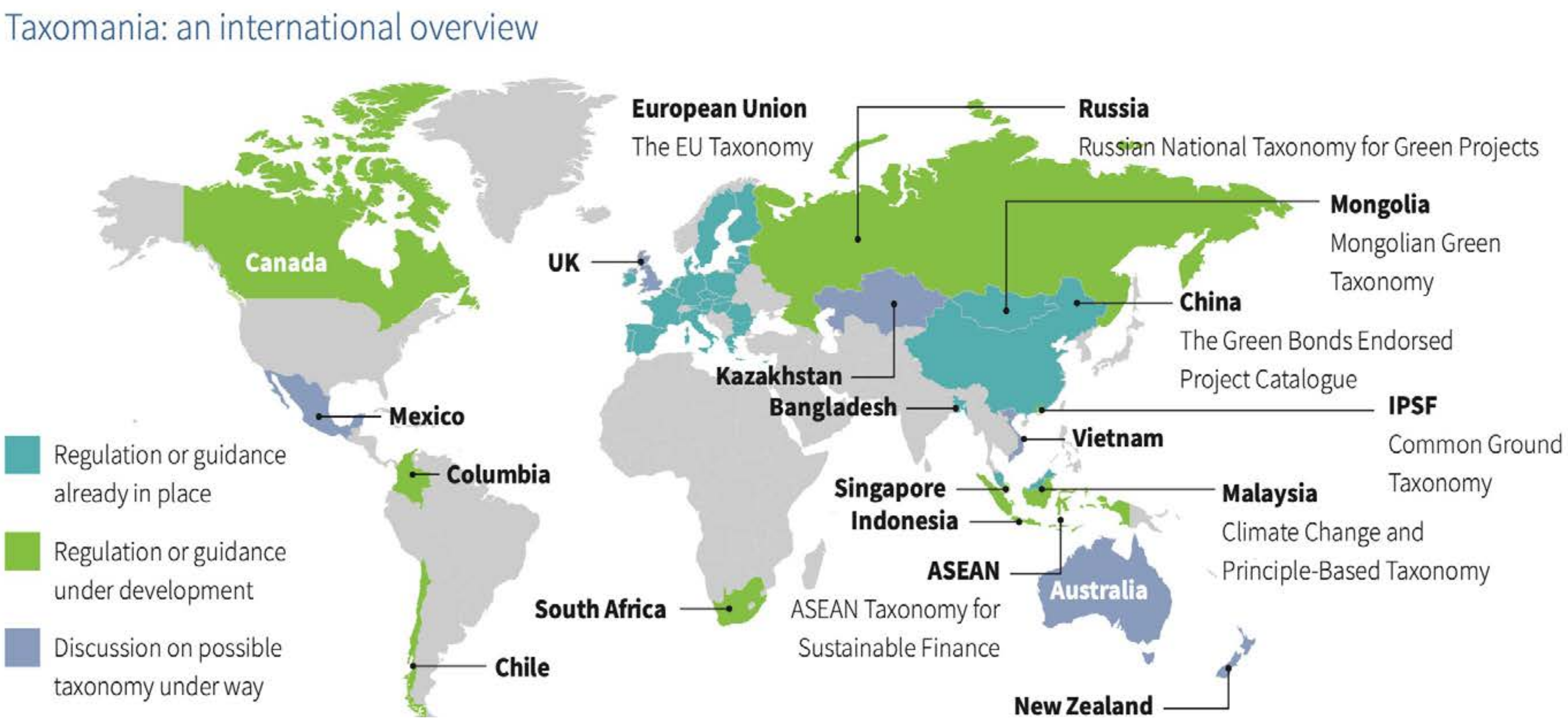
RE 100

LCTPi
Low Carbon Technology Partnerships initiative

IIGCC
The Institutional Investors Group on Climate Change

Climate Action 100+
Global Investors Driving Business Transition

“Taxomania”



(Climate Bonds Initiative, 2021)

ASEAN TAXONOMY BOARD

International Platform on Sustainable Finance

Common Ground Taxonomy – Climate Change Mitigation

India is also developing a sustainable finance taxonomy

Global developments

Global developments – regulatory guidance

NGFS
Central Banks and Supervisors Network for Greening the Financial System

PRI
Principles for Responsible Investment

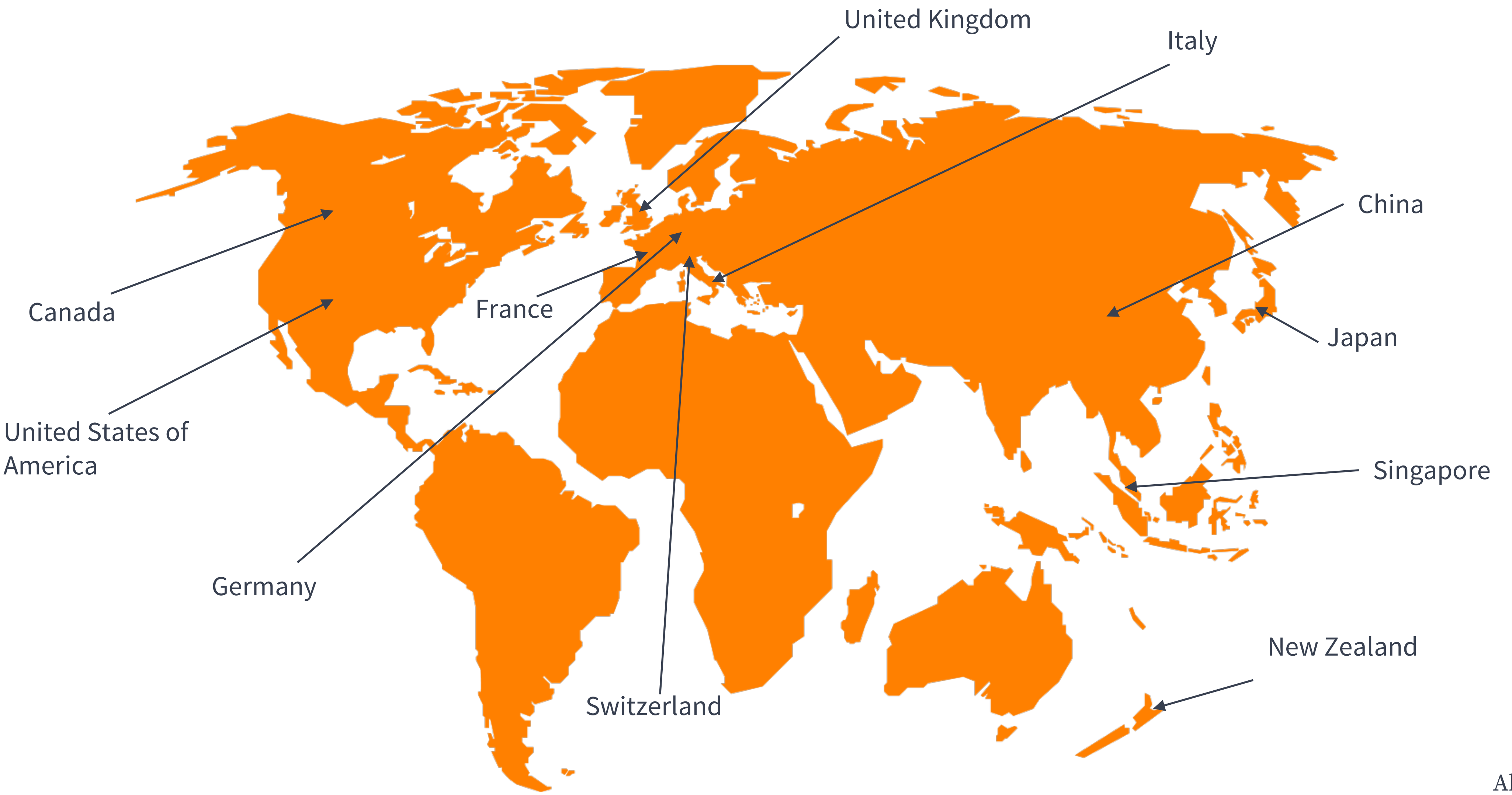
TNFD

Basel Committee on Banking Supervision

UNEP FINANCE INITIATIVE
PRINCIPLES FOR RESPONSIBLE BANKING

TCFD
TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

Mandatory climate-related financial disclosures



Recent developments – COP26

COP26: New global climate deal struck in Glasgow

(BBC, 2021)

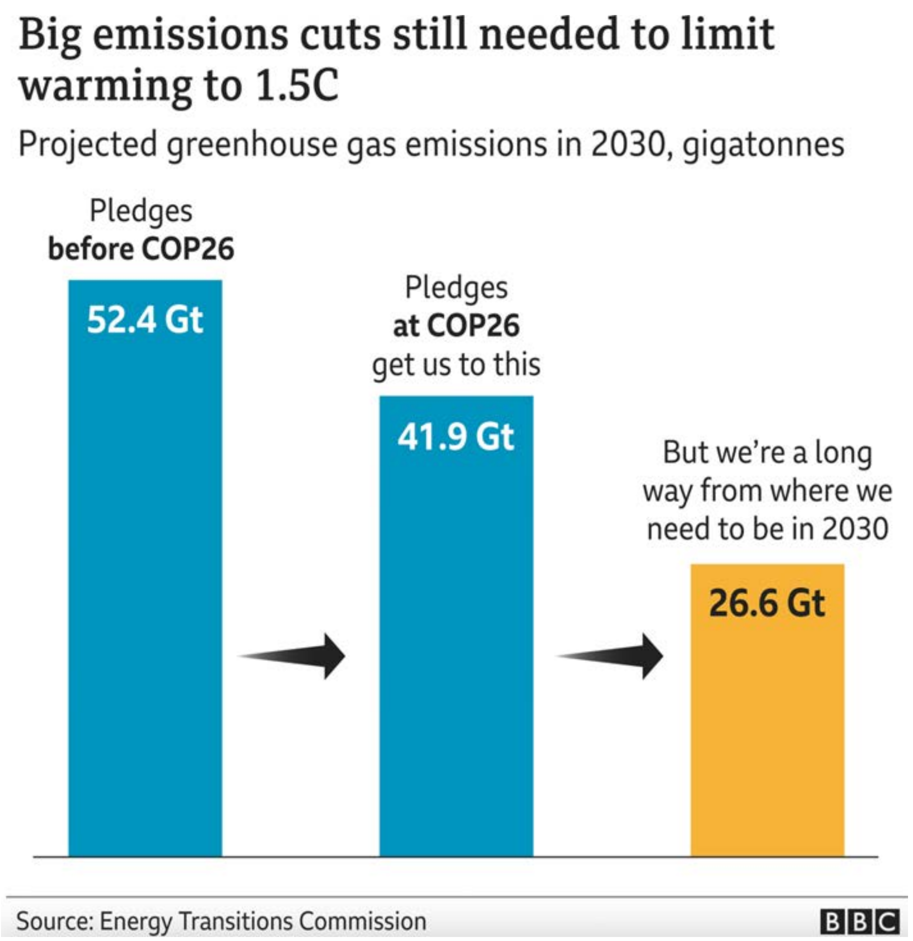
CFLI
CLIMATE FINANCE LEADERSHIP INITIATIVE

Glasgow Climate Pact

- Re-visiting emissions-cutting plans next year to try to keep 1.5C target reachable
- The first ever inclusion of a commitment to limit coal use
- Increased financial help for developing countries

RBI commits to integrate climate-related risks into financial stability monitoring

(The Hindu, 2021)



Take home point 1:

Countries all over the world are introducing increasingly stringent climate policies and ambitious net-zero targets. New policies will shape markets, and therefore the viability of loans and investments

Global risk landscape

Environmental risks **+ Debt crises + Geo-economic confrontations**

1. climate action failure
2. extreme weather
3. biodiversity loss

Long term

0 5 10

Short and medium term

Environmental risks **+** **Technological risks** **+** **Societal risks**

Technological risks:

1. digital inequality
2. cybersecurity failure

Societal risks:

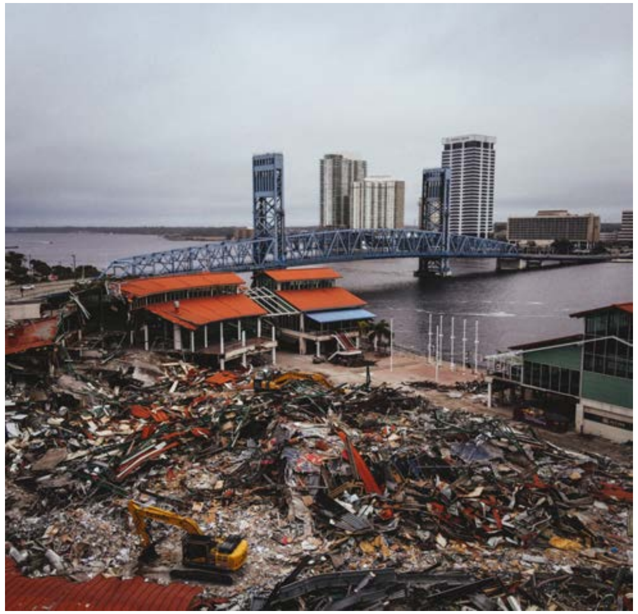
1. social cohesion erosion
2. livelihood crises
3. mental health deterioration

Environmental risks are expected to be the **top global risk** over the **next decade**

(World Economic Forum, 2022)

Global risk landscape

auctusESG



Most severe risks on a global scale over the next 10 years

Economic | Environmental | Geopolitical | Societal | Technological

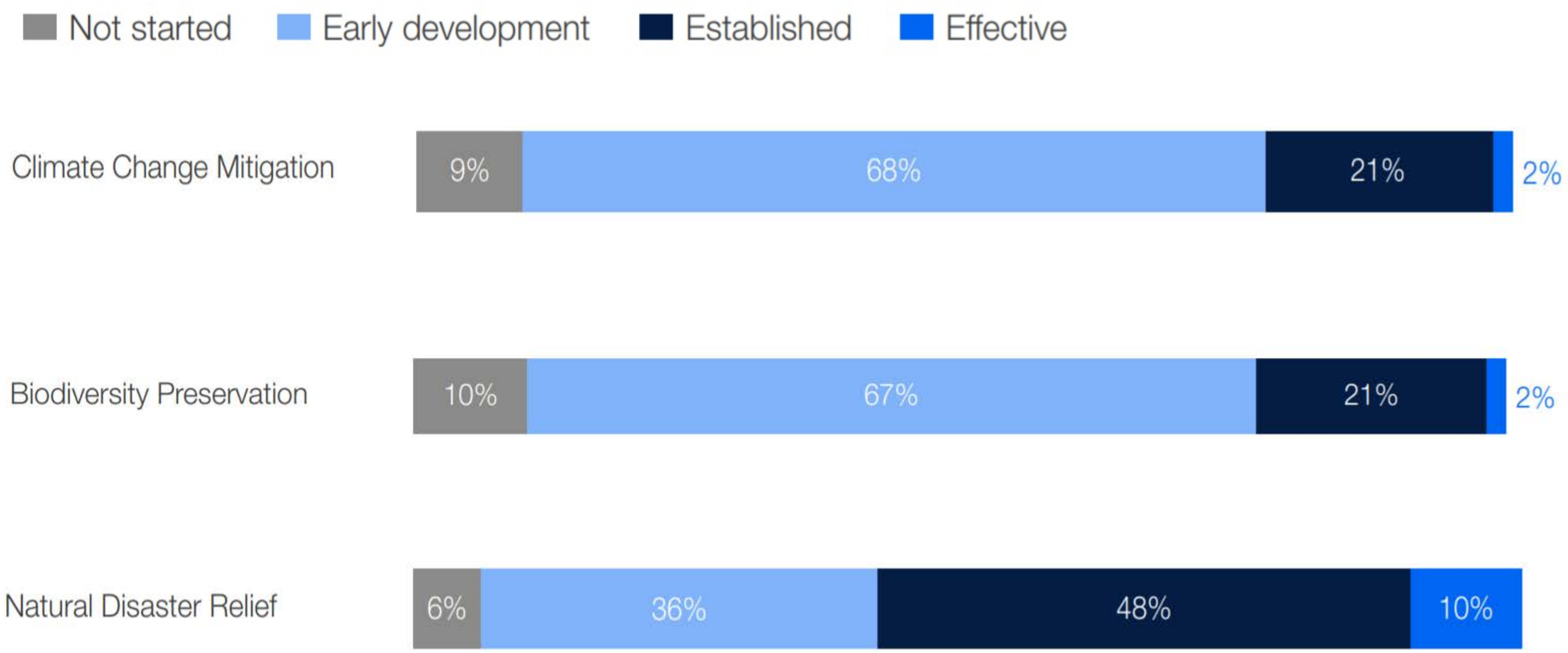
1st	Climate action failure	6th	Infectious diseases
2nd	Extreme weather	7th	Human environmental damage
3rd	Biodiversity loss	8th	Natural resource crises
4th	Social cohesion erosion	9th	Debt crises
5th	Livelihood crises	10th	Geoeconomic confrontation

- "Climate action failure is considered to be most critical risk globally in both, short term (2-5 years) and long term (5-10 years)"

(World Economic Forum, 2022)

Global risk landscape

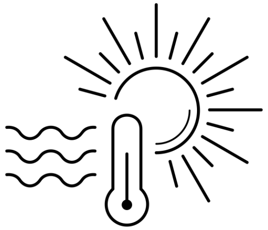
Current state of international risk mitigation efforts against "environmental risks"



(World Economic Forum, 2022)

Climate risks facing India

The human and economic costs of climate impacts in India are already immense.



Heatwaves

Heavy rain events

Rising sea levels

Tropical storms

INR 6 lakh crore of Indian debt at risk

Rs. 3. 83 trillion at risk - SBI

Rs. 1. 79 trillion at risk - HDFC

Climate risks facing India

95% of Indian coastal districts are extreme-level hotspots

In 2020, cyclone Amphan caused damages worth **$ 13 billion**

Cyclone Tauktae caused damages to the tune of **$ 1.5 billion**

Cyclone Yaas costed **$ 1.5 billion** in damages in 2021

Climate change: physical impacts

Rainfall patterns

An extra two heatwaves (12–18 days at high temperatures) each year by 2064.[i]

Higher temperatures

Water flow in the Ganges and Brahmaputra to fall by 17.6% and 19.6% respectively by mid-century (compared to end of previous millennium).[ii]

Sea-level rise

Sea levels to rise by 20–30 cm by end-century (compared to current levels).[iii]

Storms and cyclones

Cyclones in the Bay of Bengal are projected to nearly double by 2070–2100, compared to 1961–1990.[iv]

Climate change: economic impacts

GDP

GDP in 2100 to be reduced by:

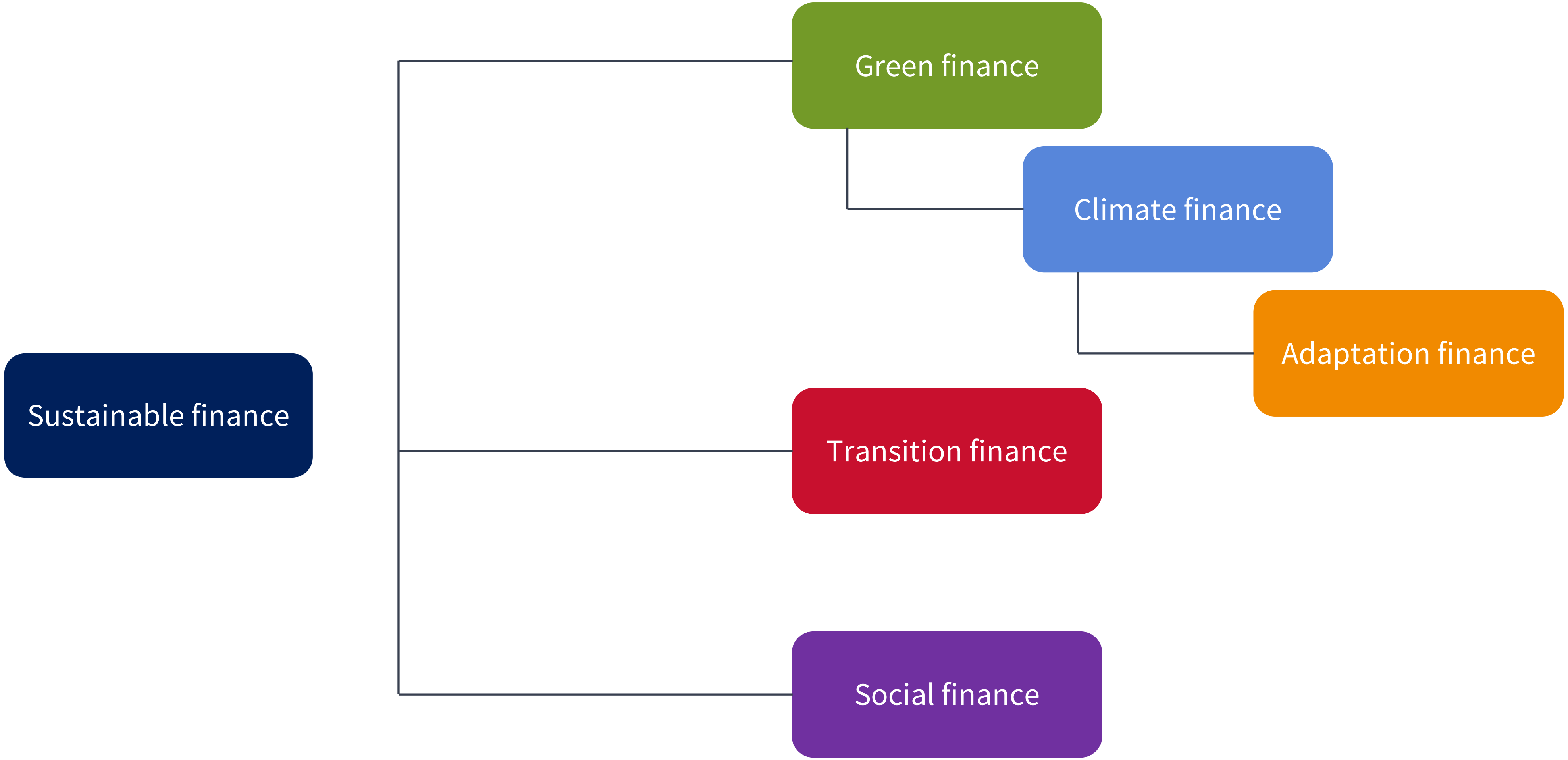
- 10% at 3°C of global warming due to declining agricultural productivity, sea-level rise and increased health expenditure.[v]
- 2.6% at <2°C global warming and up to 13.4% at over 4°C of global warming due to declining labour productivity from temperature and precipitation changes.[vi]
- 90% at 3°C of global warming, based on the historical relationship between temperature and GDP.[vii]

(ODI, 2021)

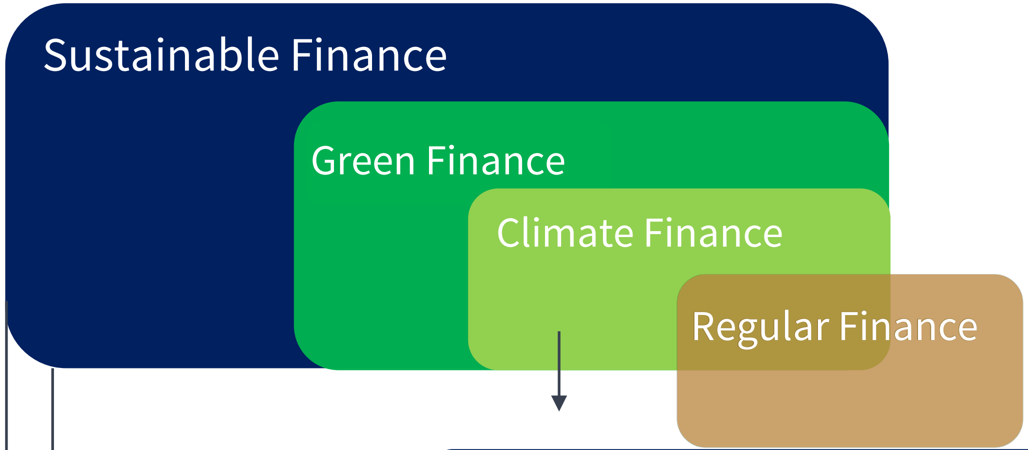
Take home point 2:

Countries all over the world, including India, are already feeling the impacts of climate change. Without rapid action to reduce emissions, we face a much more severe climate crisis and consequently greater economic and financial damages

The world of sustainable finance



The world of sustainable finance



OECD – *"Finance for achieving economic growth while reducing pollution and greenhouse gas emissions, minimizing waste and improving efficiency in the use of natural resources."*

Government of Germany – *"Strategic approach to incorporate the financial sector in the transformation process towards low-carbon and resource-efficient economies, and in the context of adaptation to climate change."*

World Bank – *"International public finance that has the explicit objective of supporting mitigation and/or resilience-building activities, and which typically has some degree of concessionality."*

No definition readily available by any supranational organizations like the World Bank or IFC

European Union – *"Sustainable finance generally refers to the process of taking due account of environmental, social and governance (ESG) considerations when making investment decisions in the financial sector, leading to increased longer-term investments into sustainable economic activities and projects."*

Swiss Federal Ministry of Environment – *"Financial products and services, under the consideration of environmental, social and governance factors throughout the whole risk management and decision-making process, provided to promote responsible investments which create a positive environmental, social and governance impact."*

The language of sustainable finance

Transition Finance

"Transition finance is industry inclusive (spanning green to brown) and aims to offer especially high-emitting companies financing for the shift towards a climate-neutral, or even positive, status quo." *(Nordea Sustainable Finance Advisory, 2021)*

Adaptation Finance

"Adaptation finance is used to implement adaptation actions and plans. It can come from different sources, incl. public and private sources, and international (e.g., development banks and funds) and domestic (government spending) sources." *(UNEP Adaptation Gap Report 2020)*

Social Finance

"Social finance supports actions that address specific social issue and seek positive social outcomes for certain social groups. Such projects can include promoting affordable basic infrastructure, access to essential services, such healthcare, affordable housing, employment generation through SME financing and microfinance, food security, socioeconomic advancement and empowerment" *(ICMA)*

However, no cohesive and/or universal definition is available yet

Sustainable finance

"Sustainable finance generally refers to the process of taking due account of environmental, social and governance (ESG) considerations when making investment decisions in the financial sector, leading to increased longer-term investments into sustainable economic activities and projects." *(EU)*

- Debt products where the underlying theme/goal is sustainability-related
  - Sustainability-linked loans
  - Sustainability-linked bonds,
  - Green bonds
- Sustainability imperatives include
  - reducing GHG emissions,
  - securing food, water and forest systems
  - redefining transport and waste management

COVID—19 boost

Sustainable funds & ESG indices outperformed their traditional counterparts during the COVID-19 pandemic, demonstrating their resilience and debunking the myth ESG compromises profit or growth *(Bloomberg NEF, Vivid Economics, 2020)*

Debt

- Green/Social/Sustainability/Climate/ Transition bonds,
- ESG funds
- Green deposit
- Green loans

Equity

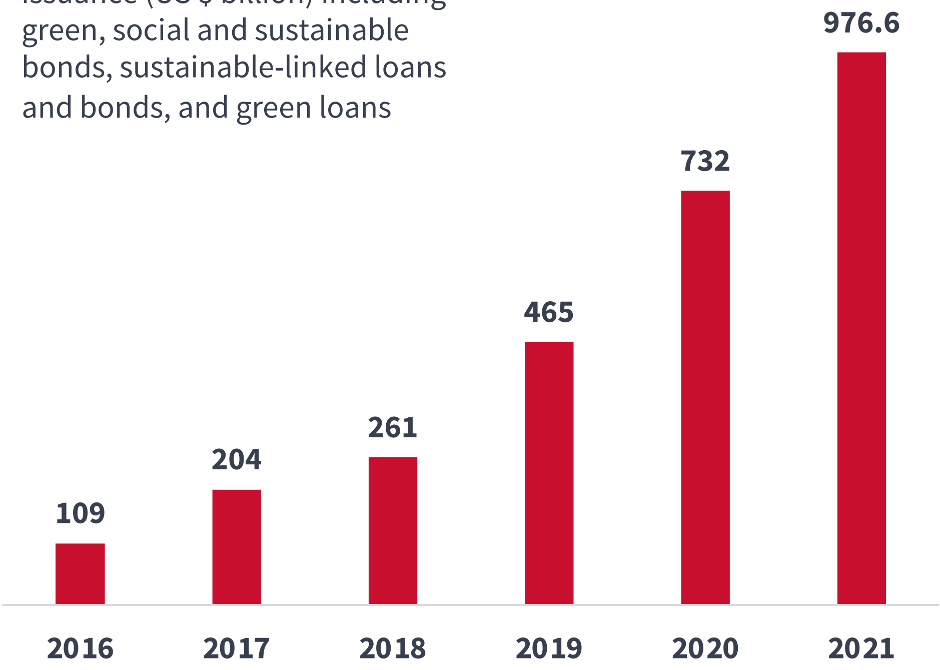
- Green Indices-based Mutual Funds,
- ETFs and Stocks,
- Socially Responsible Investments

Rise of sustainable finance

$976.6 billion
combined sustainable debt issued globally in 2021

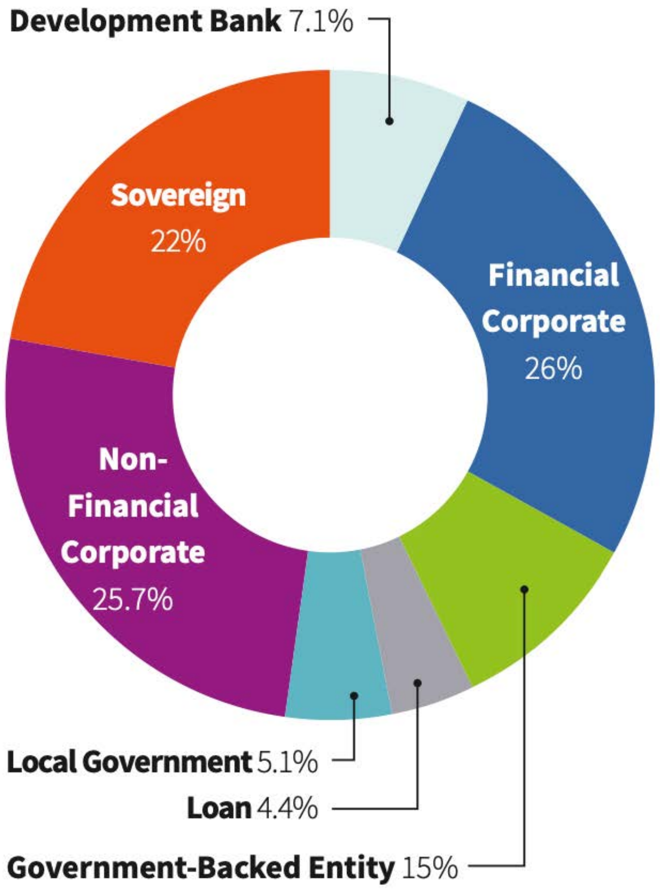
$517.4 billion
green bonds issuance globally in 2021

Global sustainable debt issuance (US $ billion) including green, social and sustainable bonds, sustainable-linked loans and bonds, and green loans

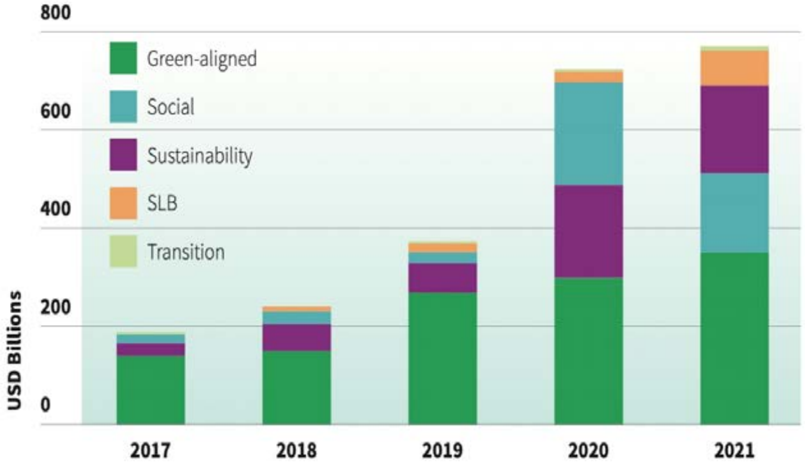


(Climate Bonds Initiative, 2021)

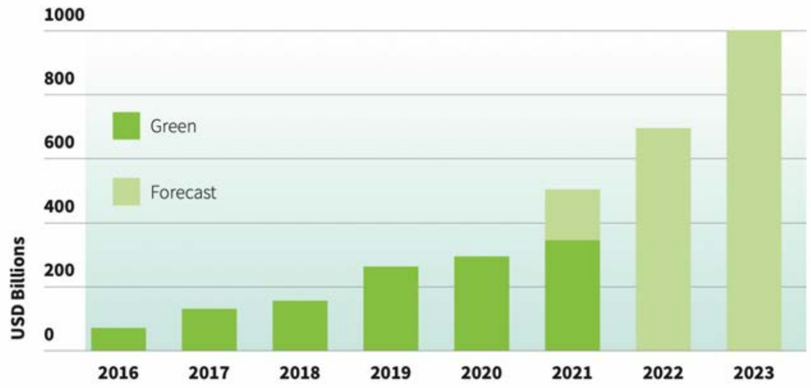
Sovereign issuers boost Q3 2021 green volume



Strong growth puts market on track for record levels at end of 2021



Annual trillion in green bonds within reach by 2023



Types of sustainable finance offerings

Green/Social/ Sustainability Bond

- Green bonds are fixed-income instruments, generally certified for green end-use
- Bond proceeds used towards green/ social/ SDG-aligned projects
- ICMA's Green/Social/Sustainability Bond Principles offer guidelines to
  - streamline the use of proceeds,
  - evaluation and selection process,
  - management of proceeds,
  - reporting

Sustainability-Linked Loan

- General corporate-purpose loans used to incentivize borrowers' commitment towards sustainability goals
- APLMA, LMA and LSTA's Sustainability Linked Loan Principles offer guidelines and recommendations

Other Products

- Blended Finance: When concessional funding from public/philanthropic fund is used to raise private capital and meet the financing of SDG goals
- Green Retail products like green fixed deposits offer solutions for the retail customers
- Green Securitization using Asset Backed Securities (ABS)

Sectors

- Renewable energy, energy efficiency, decarbonisation
- Sustainable infrastructure
- Water, soil or biodiversity conservation & reduced resource extraction
- Affordable healthcare, WASH & education
- Climate-smart agriculture to reduce land-use degradation

Sustainable finance offerings - examples

IRFC raised $500 million by green bond issuance by listing it exclusively on IFSC's exchanges. Aim was to promote low-carbon transportation

A cement company issued a 10-year dollar denominated sustainability linked bond targeted towards reducing 22% of carbon emissions

HDFC's green housing retail loan book is about $ 2.7 billion across 300 certified green building projects.

Toyota ABS securitized loans for electric and hybrid vehicles. The first green ABS issuance by Toyota was $ 1.75 billion & financed the purchase of 39,900 vehicles

Take home point 3:

Sustainable finance encompasses lucrative lending opportunities in India, while ESG can help mitigate potential non-financial risks.

ESG – introduction

Environmental

Social

Governance

ESG is “the consideration of environmental, social and governance factors alongside financial factors in the investment decision-making process.” *(MSCI)*

ESG vs sustainability

- More specific
- More measurable
- More holistic

ESG’s importance for lenders

- Set of standards to gauge desirable characteristics on E, S & G, non-financial risks and resilience to shocks, which impact the business’ cash flows, thus impacting lenders

Lending to ESG-smart businesses

=

ESG-smart lending

ESG – key parameters

- Emissions
- Natural resources, land-degradation & biodiversity
- Waste & effluents
- Water-use
- Pollution
- Environmental compliances

- HSE, labour safety
- Labour relations
- Gender, diversity & social inclusion
- Local communities, NGOs, CSOs
- Product transparency
- Supplier relations

- Board transparency & diversity
- Management structure
- Key management compensation
- Ethical conduct, bribery, corruption
- Financial & non-financial disclosures
- Audit & controls

ESG gains global traction

Shell: Netherlands court orders oil giant to cut emissions

(BBC, 2021)

Governments and Big Oil were first. The next wave of climate lawsuits will target banks and boards

(CNBC, 2021)

Exxon loses board seats to activist hedge fund in landmark climate vote

(Reuters, 2021)

Climate risk is starting to worry banks and regulator

(Moneycontrol, 2021)

Singapore to consider climate risks in stress test for financial institutions

(S&P Global, 2020)

How central banks are tackling climate change risks

(World Economic Forum, 2020)

Will focus on climate-related risks, says Reserve Bank of India

(Business Standard, 2021)

Bangladesh Bank Makes Green Finance Mandatory

Central Bank Of Bangladesh Makes It Mandatory For Banks & NBFC's To Disburse 2% Of Sustainable Financing To Green Financing

(Taiyang News, 2021)

ESG factors now part of lending decision by top banks globally: Crisil CEO

(Business Standard, 2021)

Banks take up gauntlet against climate risks

Reducing exposure to ESG risks and identifying and improving

(ING, 2021)

Top Indian companies committed to Science Based Targets initiative (SBTi)

(CSR Journal, 2021)

Vietnam Launches Climate-Smart Maps and Adaptation Plans

(OpenGovAsia, 2021)

ESG Integration at the bank level

ESG/climate considerations to cover the bank's activities like (but not limited to)

Defining and identifying risks

- Materiality considerations
- Vulnerability, hazard and exposure
- Geographic and business model-related considerations
- Policies in place

RMS processes & frameworks, risk measurement, integration into CAM/ICAAP/ERM, risk mitigation strategies

Risk weightages and loan pricing

Risk governance

From prudential regulation's perspective

Disclosures of KPIs and progress

Developing a portfolio of suitable sectors in the loan book

Incorporating into branch network

Data systems and processes

Internal capacity building and training

Proliferation of ESG investment strategies

	EXCLUSIONARY SCREENING	POSITIVE SCREENING	ESG INTEGRATION	IMPACT INVESTING	ACTIVE OWNERSHIP
DEFINITION	Excludes, from the investment universe, companies, sectors or countries involved in activities that do not align with the moral values of investors or with global standards around human rights, labor practices, the environment and anti-corruption	Tilts portfolio toward one of following: **Best in class:** companies outperforming peers in ESG measures **ESG momentum:** companies improving ESG measures more quickly than peers **Thematic investing:** companies solving specific ESG challenges (climate change, gender diversity, etc.)	Incorporates ESG data, alongside traditional financial analysis, into the securities selection process	Targets a measurable positive social and/or environmental impact. Investments are generally project specific	Entails engaging with companies and voting company shares on a variety of ESG issues to initiate changes in behavior or in company policies and practices
COMMON OBJECTIVES	**Align** portfolios with investors' moral and ethical values **Mitigate** ESG risks **Influence** a company to change its business model or stop an objectionable practice	**Mitigate** ESG risks **Achieve** higher returns **Support** a business model that aims to solve an environmental or social problem **Improve** or maximize a portfolio's ESG score	**Mitigate** ESG risks **Achieve** higher returns	**Generate** and measure specific social and/or environmental benefits that align with purpose	**Influence** company strategy for long-term value creation **Help** company management capture value by mitigating risk or seeking opportunities **Advance** ESG disclosure and practices
INVESTMENT CONSIDERATIONS	Introduces tracking error and potentially impacts performance	Securities selection is based predominately on ESG scores and ratings. Sourcing quality ESG data remains a challenge	Sourcing quality ESG data remains a challenge. Securities selection is based on quantitative and qualitative assessment of ESG factors, requiring analyst expertise. A long-term mindset is necessary as it is difficult to time the occurrence of a negative event resulting from an ESG issue	Investments may be illiquid and investment returns could aim to be at or above the market rate	A significant ownership stake is needed to exert influence. Substantial resources are also needed to engage with companies. Active ownership is crucial for index strategies
IMPACT CONSIDERATIONS	Generally can't impact companies in which you don't own shares, but well-coordinated divestment campaigns can be effective	Rewards companies that have higher ESG scores with capital. Impact is generally targeted around specific sectors or themes (e.g. climate change, gender diversity, etc.)	No deliberate impact strategy as the primary objective is to achieve higher returns and/or mitigate ESG risks	Impact is highly targeted on specific outcomes	Broad impact due to continued engagement with company management on ESG issues

STATE STREET GLOBAL ADVISORS

(State Street Global Advisors, 2019)

ESG: Potential implications for India

US $84 billion
of Indian bank debt at risk from climate-related extreme weather events *(Bloomberg, 2021)*

₹7 trillion
may be lost by Indian companies in 5 years, but they may make ₹2.9 trillion too *(Business Insider, 2021)*

- India's dependence on foreign capital, foreign businesses and capital imports, means Indian FIs cannot ignore the global ESG buzz
- India's climate vulnerabilities, as seen by its ranking on climate and SDG indices that still needs to improve, is an added imperative

Centre forms expert committee for sustainable climate finance

(Business Standard, 2021)

RBI joins climate change fight

(Times of India, 2021)

IFSCA constitutes panel for development of sustainable finance hub

(Business Standard, 2021)

COP26 developments – implications for ESG

Initiatives by Indian banks & financial institutions

Axis Bank forms environmental, social and governance committee

The committee will provide specialised focus, oversight and guidance relating to ESG

(Business Today, 2021)

CLIMATE CHANGE FUND

In keeping with the commitment of NABARD to address impact of climate change the "Climate Change Fund" was created out of the profit of NABARD during 2016-17 for facilitating attempts to address impacts of climate change especially towards fostering sustainable development. NABARD contributes annually from its profit towards the corpus of the fund.

Institution of the "Climate Change Fund" is a unique initiative of NABARD as a Development Financial Institution to foster sustainable development and contribute meaningfully towards national priorities.

NABARD

IFC lends $250 million to HDFC Ltd to boost green housing finance

Green housing is regarded as a luxury market in the country, but has climate benefits. IFC said its partnership with HDFC would help change perceptions about the market.

(usiness Standard, 2021)

Sustainability framework

RBL Bank has made a strategic commitment towards Sustainable Development. This commitment is driven by the Board and senior management. The implementation is overseen by the Environmental & Social and Governance (ESG) Committee. Regular updates are provided to Bank's board.

The objectives of the Sustainability Framework are as follows:

- Setting strategic Environmental & Social (E&S) objectives, such as offering new products that address sustainability
- Incorporating E&S risk considerations into all financing activities and building client awareness on this subject
- Excluding financing clients whose business activities do not meet the Bank's principles. The Bank has adopted the IFC Exclusion List
- Communicating E&S expectations to all staff, clients and other external stakeholders
- Committing to improving the overall E&S performance of its portfolio through enhanced risk management
- Committing to continually building capacity of Bank's staff to identify E&S risk
- Development and delivery of financial products and services that enable more sustainable agricultural practices and results in resource conservation/ enhancement of resource efficiency
- Running financial inclusion programme for marginalized, economically weaker and business-wise less attractive sections in various States

RBL BANK
apno ka bank

SBI, EIB to invest up to €100 mn in Indian SMEs focused on climate change

(Economic Times, 2021)

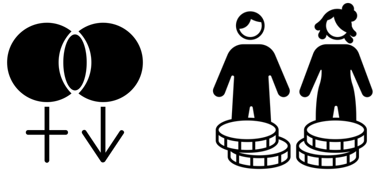
NABARD provided Rs 1,236 crore from its Rural Infrastructure Development Fund for Assam in FY21

(The Economic Times, 2021)

GESI-smart ESG for India

Emerging developments that may influence ESG decision-making

Risks to, and opportunities from, Indian women as employees, customers & in local communities - ESG-smart lending in India should be GESI-smart as well



Gender parity can boost India's GDP by 27%: WEF co-chairs

(IMF, 2018)

In India's Villages Women SHG members provide vital banking services during the COVID-19 crisis

(World Bank, 2020)

For Women in India, Small Loans Have a Big Impact

(IFC, 2018)

Women getting more credit conscious, also default less than men: Credit bureaus

(Economic Times, 2020)

Women handle loans better than men: Key trends across auto, personal loan segments

(Financial Express, 2020)

The country could add up to $770 billion—more than 18%—to its GDP by 2025, simply by giving equal opportunities to women, according to an April 23 report by the McKinsey Global Institute.

(McKinsey report, 2018)

Gives license to operate, but is not without its challenges

An ESG-smart approach can improve our social license to operate, ability to operate in the natural ecosystem, and in a fair and responsible manner; however, mainstreaming ESG is not without its share of challenges

1. Lack of standardization & uniform definition
2. Varied interpretations
3. Skewed finance flows
4. Data inconsistencies
5. Lack of incentives
6. Nascent understanding

Take home point 4:

There is a booming market for sustainable finance; there are tremendous financial and non-financial risks associated with 'unsustainable' finance.

Polls!

Head to www.menti.com
OR
Open the Mentimeter app

Enter meeting code – **4151 9096**

OR

Scan this QR code!

Part 2

ESG & Climate Risks

Climate-related financial risks

"Climate-related financial risks refer to the potential risks that may arise from climate change or from efforts to mitigate climate change, their related impacts and their economic and financial consequences" *(Basel Committee)*

Climate change: IPCC report is 'code red for humanity'

(BBC News)

Box 1 Disastrous flooding in Mumbai

Greater Mumbai is home to over 20 million people and is one of the most densely populated cities in the world. It is the financial capital of India with a large commercial and trading base. However, most of the coastal city lies less than 15 m above sea level (D'Monte, 2017) and almost a quarter lies below or at mean sea level (Kumar et al., 2008). It is therefore one of the most vulnerable port cities in the world, facing a wide range of climate-related risks including storm surge, flooding, coastal erosion and sea-level rise (Murali et al., 2020).

Climate change is certainly not the only driver of environmental risk in Mumbai. The city was originally built on a series of islands hugging the coast. However, its lakes, rivers, mudflats, wetlands, mangroves, woods and coastline have gradually been built over to serve a growing population and economy. The increase in hard surfaces and loss of tree cover has prevented rainfall from seeping into the groundwater. Instead, it runs rapidly over the asphalt and concrete, pooling in low-lying parts of the city instead of flowing into the sea (Patankar et al., 2010; Sen and Nagendra, 2019). Poor sewage and drainage systems exacerbate the health risks of flooding, which include diseases such as malaria, diarrhoea and leptospirosis (Kumar et al., 2008).

Mumbai is already experiencing catastrophic floods. Hallegatte et al. (2013) rank major coastal cities according to flooding risk, and place Mumbai fifth in the world with annual losses of $284 million. In July 2005, flooding killed 5,000 people and caused economic damage totalling $690 million (Nagendra, 2017). Floods will only get worse when combined with the heavier rains, higher sea levels and more severe storms associated with climate change. Hallegatte et al. (2013) project that annual losses from flooding will reach $6.1 billion per year in 2050. Most of these losses are uninsured and borne by individuals or small businesses (Patankar and Patwardhan, 2016).

Source: ODI, The Costs of Climate Change India: A review of the climate-related risks facing India, and their economic and social costs (2021)

MUMBAI NEWS

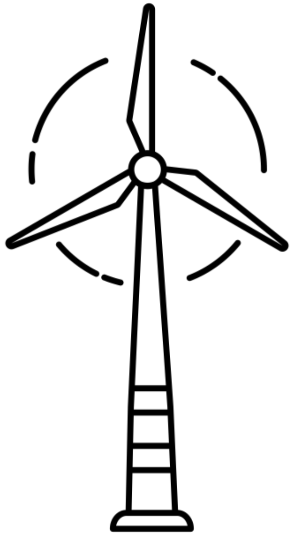
Since 2019, Maharashtra spent ₹ 14K-crore as compensation for extreme weather events

The number is, however, a gross underestimation of the total cost of recent climate disasters in the state, officials and experts pointed out

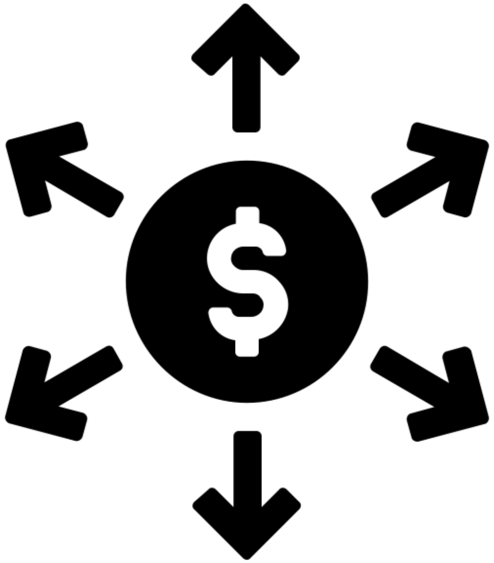
Source: Hindustan Times, 2021

Climate-related financial risks

Physical risk



Transition risk



Liability risk

Exposure for banks

Climate risk impact seen through the lens of traditional risk categories

Risk type	Potential impacts of climate risk
Credit risk	Credit risk increases if climate risk drivers reduce borrowers' ability to repay and service debt (income effect) or banks' ability to fully recover the value of a loan in the event of default (wealth effect).
Market risk	Reduction in financial asset values, including the potential to trigger large, sudden and negative price adjustments where climate risk is not yet incorporated into prices. Climate risk could also lead to a breakdown in correlations between assets or a change in market liquidity for particular assets, undermining risk management assumptions.
Liquidity risk	Banks' access to stable sources of funding could be reduced as market conditions change. Climate risk drivers may cause banks' counterparties to draw down deposits and credit lines.
Operational risk	Increasing legal and regulatory compliance risk associated with climate-sensitive investments and businesses.
Reputational risk	Increasing reputational risk to banks based on changing market or consumer sentiment.

(Basel Committee on Banking Supervision, 2021)

Physical risks

"Economic costs and financial losses resulting from the increasing severity and frequency of extreme climate change-related weather events, longer-term gradual shifts of the climate, and indirect effects of climate change" *(Basel Committee, 2021)*

Heatwaves

Droughts

Floods

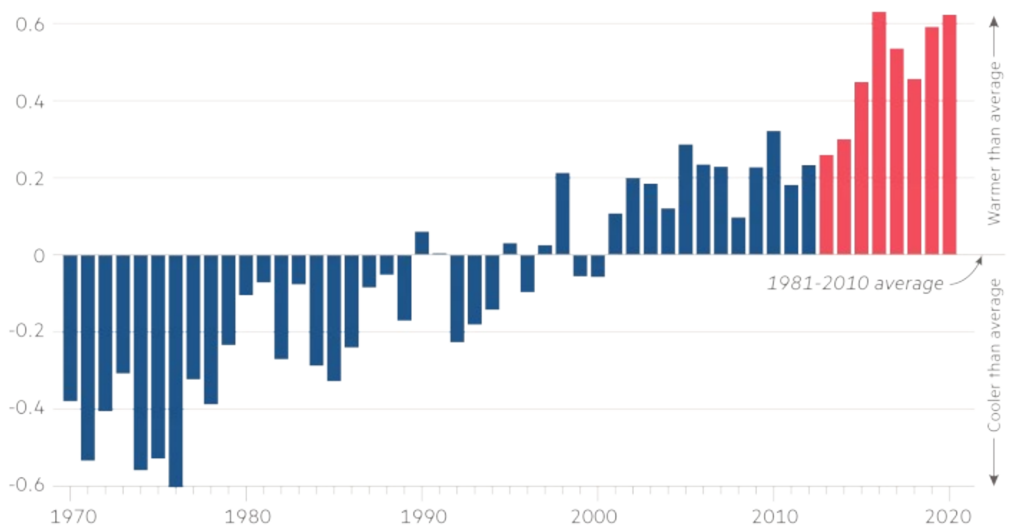
Heavy rainfall

Storms

Wildfires

8 of the 10 warmest years on record have occurred in the past decade

Annual global average surface temperature, relative to 1981-2010 (C)



Source: Copernicus Climate Change Service/ECMWF
© FT

It's official: July was Earth's hottest month on record

(National Oceanic and Atmospheric Administration, 2021)

Types of physical risks

Acute physical risks

"Acute physical risks are generally considered to consist of: lethal heatwaves, floods, wildfires and storms, including hurricanes, cyclones and typhoons as well as extreme precipitation."

(Basel Committee on Banking Supervision, 2021)

Chronic physical risks

"Chronic physical risks are generally considered to include - rising sea levels, rising average temperatures, and ocean acidification".

(Basel Committee on Banking Supervision, 2021)

Systemic
Increasing
Regressive
Nonlinear
Spatial
Non-stationary
Under - prepared

Extreme precipitation

Change of likelihood compared to 1950–81 of an 1950–81 50-year precipitation event

≤1x | 1–2x | 2–3x | 3–4x | >4x

Increase in average annual temperature

Shift compared to preindustrial climate

°C

0–0.5 | 0.6–1.0 | 1.1–1.5 | 1.6–2.0 | 2.1–2.5 | 2.6–3.0 | 3.1–3.5 | 3.6–4.0 | 4.1–4.5 | 4.6–5.0 | 5.1–5.5 | 5.6–6.0 | 6.1–6.5 | 6.6–7.0 | >7.0

2020 2030 2050

(McKinsey Global Institute, 2021)

Impact of physical risks

Impact on banks & financial institutions

Direct impact

- Exposure to businesses
- Exposure to individuals and households
- Exposure to countries that face climate shocks

(IMF, 2019)

Indirect impact

- Through the effects of climate change on the wider economy
- Through feedback effects within the financial system

(IMF, 2019)

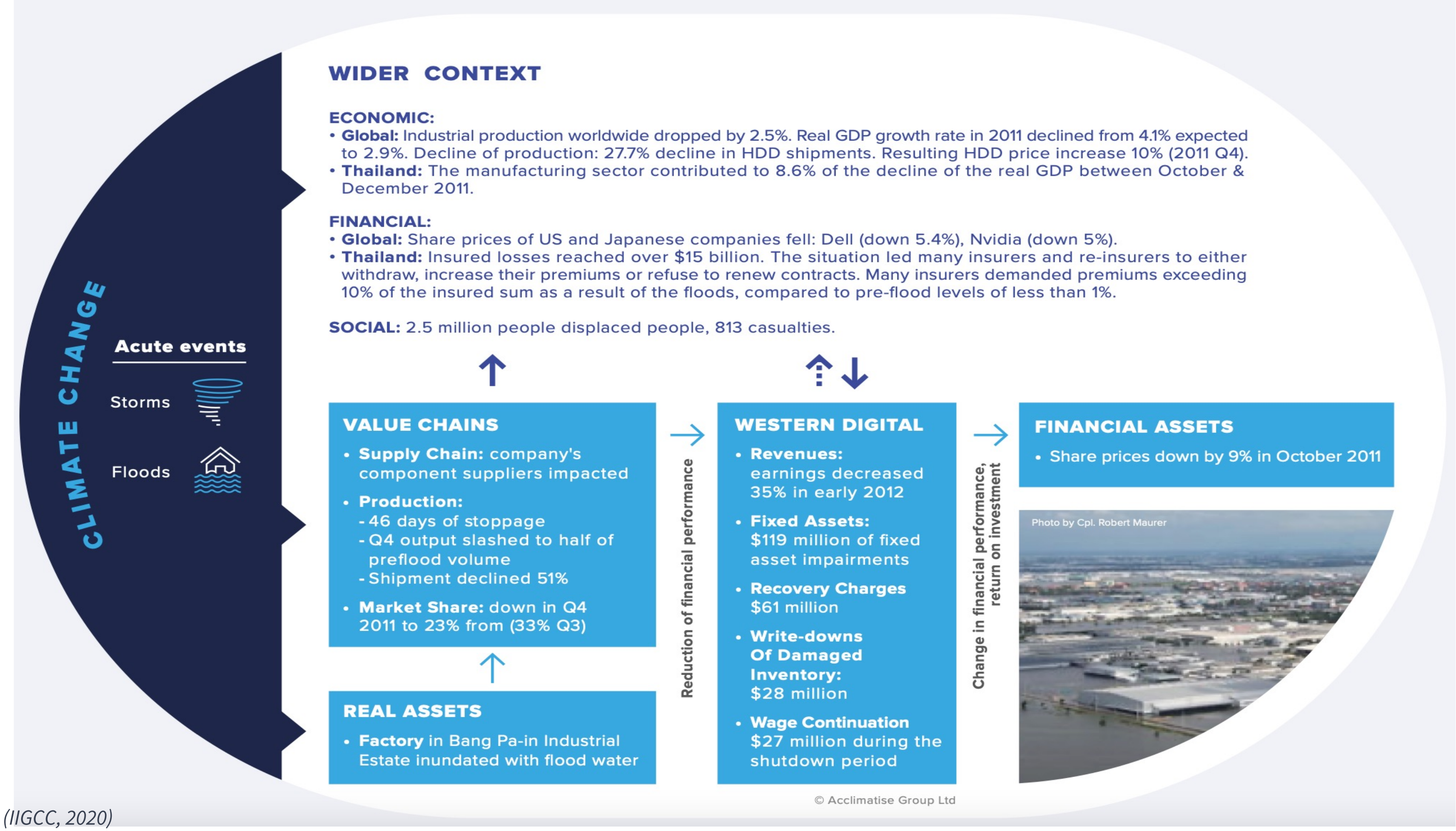
- Increased risk of default
- Falling asset quality
- Falling asset value
- Changing prices
- Broken supply chains

> *"Rising sea levels and a higher incidence of extreme weather events can cause losses for homeowners and diminish property values, leading to greater risks in mortgage portfolios"*

Case Study

Physical risks

Impact of 2011 Thailand flood: Western Digital



(IIGCC, 2020)

Activity 1

Itaú Unibanco – Physical Risks in the Agricultural Sector

- Selected a portfolio with about 130 rural producer clients in the bank's corporate sector, representing a risk of about R$ 4 billion (about US $713 million)
- Within the portfolio of 130 clients, a sample set of 14 clients were chosen -
  - Having larger credit exposure
  - Representing relevant states
  - Representing relevant crops
  - Have different credit qualities i.e., different ratings

- Agricultural activity impacted in 2 ways
  - Gradual incremental changes in temperature
  - Change in frequency and intensity of extreme weather events
- Chose only one scenario (4 degrees C) and time horizon (2040s)
- Assessment of changes in revenue, changes in cost and qualitative impacts
- Present day balance sheet projected to include climate change impacts
- Climate adjusted balance sheet used to calculate projected rating

Total impact of physical risk = Impact of incremental changes + Impact of extreme events

In breakout rooms…

- Identify the physical risks that may materialize in this sector
- Chalk out a rough strategy to correlate these physical risks to traditional financial risks for a bank

<u>Please nominate 1 person from your group to present the findings in 30 seconds – 1 minute!</u>

Take home point 5:

The impacts of climate change pose a major financial risk to investments and loans in India.

Break

Please return in 10 minutes!

Transition risks

"Transition risk arises as markets shift towards a low-carbon economy, and derives from regulatory and policy change, disruptive technologies, and new business models which could result in adjustments to the value of companies, assets or investments." *(Norton Rose Fulbright)*

Policy changes

Shifts in market preference

Changes in norms & technology

Types of Transition Risks

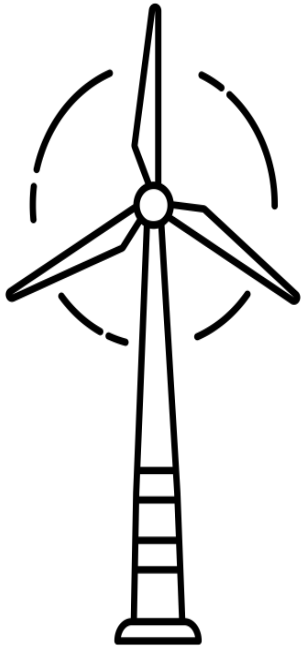
- Policy change
- Tech innovations
- Market pressures from changing consumer demand

India's updates from COP26

India's priorities

'Net-zero carbon emissions by 2070': PM announces India's 5 commitments at COP26

(Times of India, 2021)



- Raise the non-fossil fuel-based energy capacity of the country to 500 GW by 2030.
- By 2030, 50% of the country's energy requirements would be met using renewable energy sources
- Reduce the total projected carbon emission by one billion tonnes between now and the year 2030
- The carbon intensity of the economy would be reduced to less than 45% by 2030
- Become carbon neutral and achieve net zero emissions by the year 2070

(Hindustan Times, 2021)

Policy changes - implications

Changes in policy

Devaluation of company assets

and/or

Rise in company costs

Companies' profitability affected

Inability to pay loans

Banks' balance sheet affected

Transition risk example 1: Coal

Ipek Genscu, Research Fellow, ODI

Transition risk example 2: Renewable energy quotas

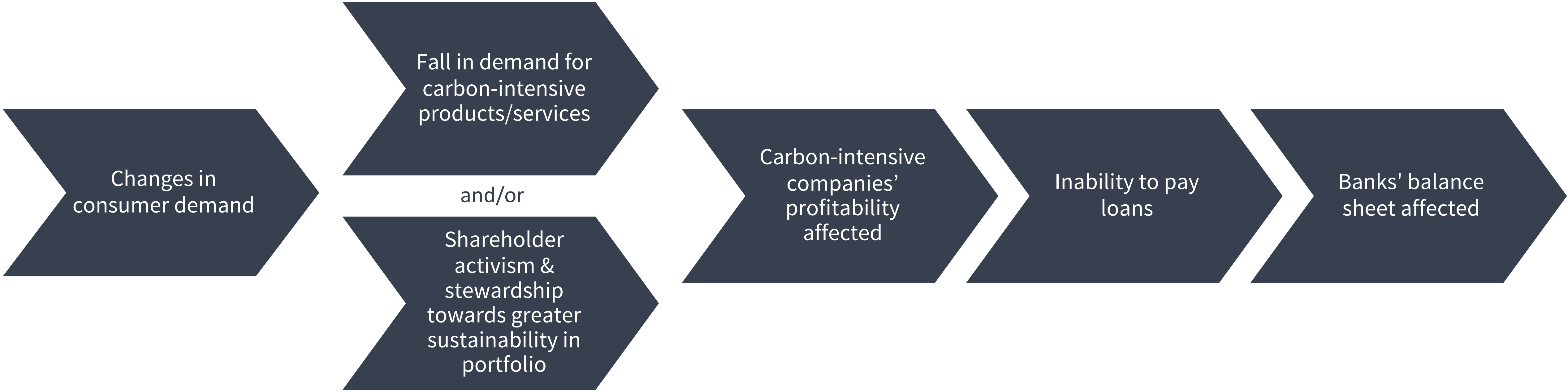
Dr Irving Mintzer, Professor, School of Public Policy, University of Maryland

Technological change - implications

Lowering cost of renewable energy

Dr Irving Mintzer, Professor, School of Public Policy,
University of Maryland

Shifts in market preference – implications



Market developments that impact banks

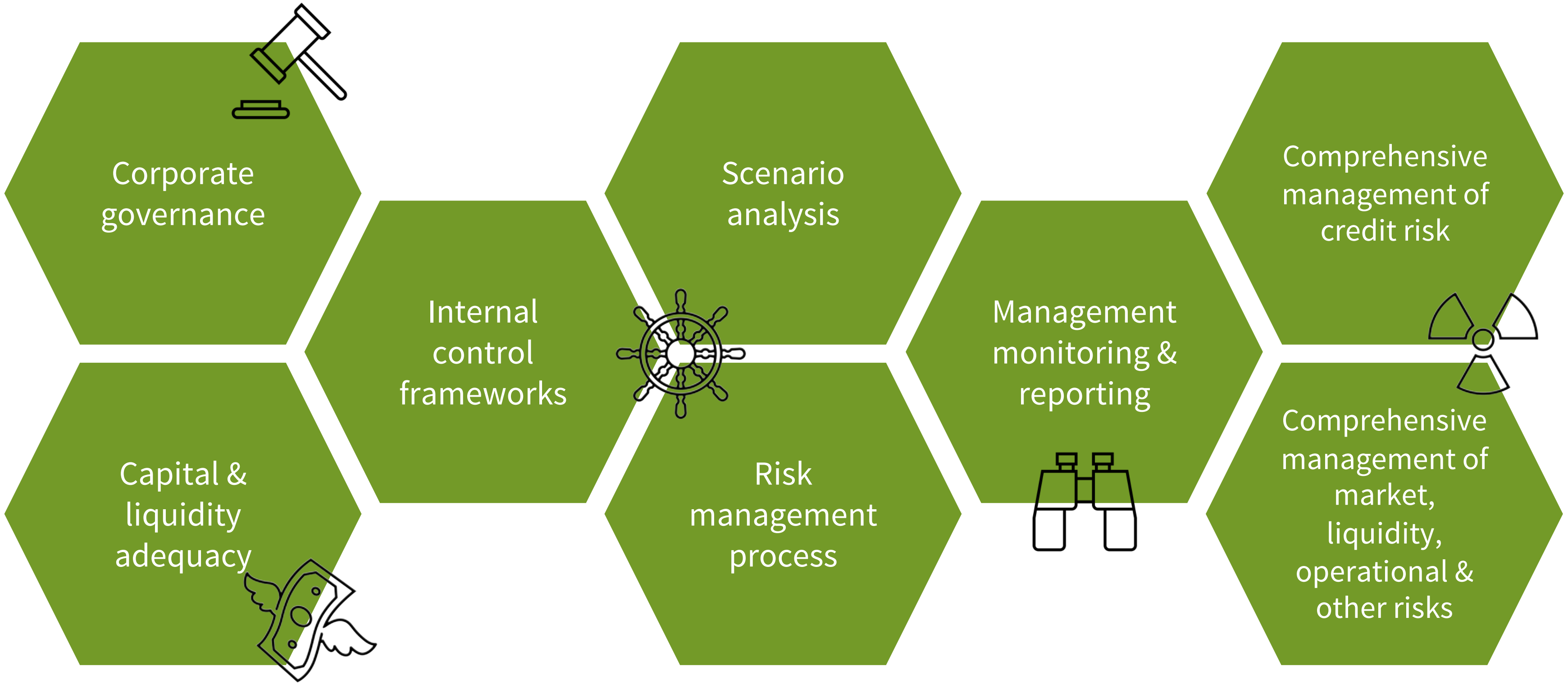
COP26 coalition worth $130 trillion vows to put climate at heart of finance

(Reuters, 2021)

- Finance firms managing $130 trillion join net-zero pledge
- Carney says the money is there, but needs mechanisms
- Investors want scale, transparency and public commitment
- Kerry says pledges give only 60% chance of securing 1.5C

Basel Committee
on Banking Supervision

Principles for effective climate risk management and supervision



Implications of international market pressures

Sarah Colenbrander, Director of Programme – Climate and Sustainability, ODI

Disorderly & unjust transitions

Prashant Vaze, Senior Policy Fellow, Climate Bonds Initiative

Take home point 6:

New climate policies within and beyond India pose a major financial risk to carbon-intensive assets and businesses.

Social risks

"The social risks are a phenomenon which must be evaluated from the viewpoint of society and not from that of an individual, having two essential dimensions: economic inequality and the inequal distribution of the resources among society members" (Rohde I., Rohde K. 2015)

Health, safety and working conditions

Data security

Stakeholder opposition

Labour rights

Customer privacy

Diversity, inclusion & equal opportunities

Human rights

Social risks

Types of social risks

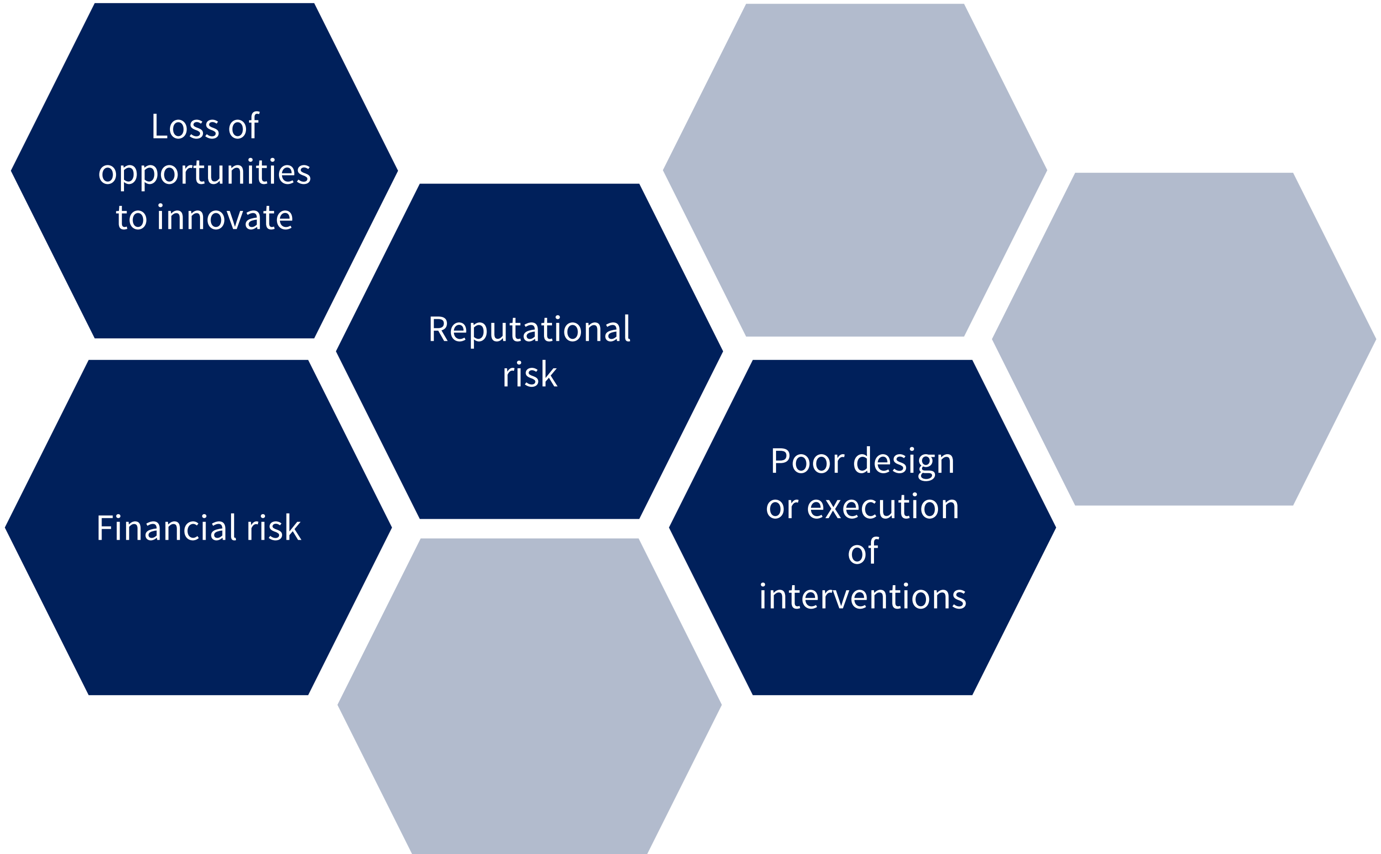
Health, safety & working conditions

Impact on local communities & stakeholder opposition

Diversity, inclusion & equal opportunities

Social risks

Lack of diversity, financial and social exclusion



Social risks

Lack of diversity, financial and social exclusion

Relocation of Federal Agency Hurt Diversity, Watchdog Finds

(The New York Times, 2021)

'Gender Lens' Funds Let Investors Put Money on Women Leaders

(THE WALL STREET JOURNAL, 2021)

UK firms grapple with ethnicity pay gap reporting

(The New York Times, 2021)

Most big companies fail to fully detail board diversity despite SEC pressure

(CFO DIVE, 2021)

75% of senior execs say they'd leave their company for one that values diversity

(CNBC, 2017)

More inclusive financial systems can magnify the effectiveness of fiscal and monetary policies.

(IMF, 2018)

Pinterest agrees to spend $50 million on reforms to resolve discrimination allegations.

(The New York Times, 2021)

The shareholders had reported racial discrimination and retaliation against employees for speaking out. **Reputational risk** to the company and shareholders demanded accountability on the same. In return, along with the settlement, Pinterest agreed to spend $ **50 million** on improving its diversity and equity

Lending to sectors with social risks

Sectors with greater exposure to social risks

Metals & Mining

Oil & Gas

Power

Impact of not carefully managing social risks

ESG: Social gets some airtime in commodities

ESG was at the forefront of the discussion at the TXF Global Commodities event in Geneva. But it wasn't just climate change and carbon neutrality on people's minds. The 'S' portion of ESG is typically less focused on in the commodities world, despite having interesting implications for portfolio risk, and is gaining prominence.

(TXF News, 2021)

To stop a scrapyard, some protesters in a Latino community risked everything

(The Washington Post, 2021)

ESG concerns grow as miners rank environment, social issues and decarbonization as top risks for 2022

(Yahoo Finance, 2021)

Illegal mining in the Amazon hits record high amid Indigenous protests

(Nature, 2021)

Australia: Police Will Not Remove Indigenous People Occupying Adani Mine Site

The police recognised the traditional owners' right to practice their culture at the site, potentially setting up a standoff.

(Wire, 2021)

The energy transition needs metals. But it needs social awareness too

(World Economic Forum, 2021)

Gold Mine Workers Face Higher Risk of Death

Much of it is related to road traffic injuries.

(Manufacturing Business Technology Magazine, 2021)

Impact of not carefully managing social risks

Tesla faces claims of toxic suppliers and potential child labor

(Fortune, 2021)

Bernd Deeken: Investors demand more from the 'S' of ESG

(Portfolio Adviser, 2021)

Facebook To Pay $650 Million For Settlement Against Digital Privacy Violation

(Republic world, 2021)

The 'social' in ESG is in the spotlight for litigation risk

(Canadian Lawyer, 2021)

In December 2020, a lawsuit was filed on behalf of current and past Black federal employees claiming systemic racism and discrimination against the Public Service of Canada.

The suit, filed in the Federal Court, claims damages for the wrongful failure to promote, intentional infliction of mental suffering, constructive dismissal, wrongful termination, negligence, and in particular, violations of employment law, human rights law and Charter breaches. It also seeks, among other things, the appointment of a Black Equity Commission and an apology from the prime minister.

Native Americans win ruling to join lawsuit against Lithium Americas project

(Reuters, 2021)

How Petra Diamonds Ended Up in a Human Rights Mess

(JCK, 2021)

Some data have shown that socially responsible investments can perform better over the long run. The MSCI KLD 400 Social Index has returned an average of 16.88% a year over the past decade, compared with 16.68% for the MSCI USA Investable Market Index.

(Wall Street Journal, 2021)

Social risks - Example

Social risks in Automobile Industry – Maruti Suzuki workers uprising in 2012

What?

July 2012 Manesar, Haryana	2700 contract workers 900 permanent workers 100s of trainees & apprentices	Lockout for more than 1 month

Why?

- Wage disparity between contractual & permanent workers
- Steep increase in work contract
- 25% decline in real wages since 2000 with reduced breaks
- Arbitrary dismissal of workers

Impact

Rs. 2500 Cr Loss in Revenue	38%, Market share reduced from 55.5 %	5.4 % Fall in net profits in 2012

Maruti faces prolonged shutdown after worker riot

(The Hindu, 2012)

Case Study

Social risks

Women's rights issues in the palm oil industry

"The government had permitted a palm oil company to establish and expand its plantations in the area. The company had cleared and drained peatlands, an important carbon sink, and planted oil palm trees on land villagers had been using for decades. In the process, it had completely disregarded how its actions violated the villagers' land rights, led to the loss of livelihood for the village women, who had mostly farmed the land, and contributed to the global climate crisis."

(Human Rights Watch, 2021)

The Fruits Of Their Labour: Abuse In The Palm Oil Industry

(Human Rights Pulse, 2021)

THE GREAT PALM OIL SCANDAL

LABOUR ABUSES BEHIND BIG BRAND NAMES

(Amnesty International, 2016)

(Forest500, 2019)

Activity 2

In breakout rooms, discuss…

- What are some of the social risks for lenders that arise out of loans to beauty and cosmetic companies sourcing palm oil?

- What could be some of the mitigants? What could be some of the checkpoints, that you as a risk manager, would look at?

Please nominate 1 person from your group to present the findings in 30 seconds – 1 minute!

Take home point 7:

Unless social risks are identified and carefully managed, they pose a major financial and reputational risk to investors and lenders.

Governance risks

"Governance refers to the actions, processes, traditions and institutions by which authority is exercised and decisions are taken and implemented. Governance risk applies the principles of good governance to the identification, assessment, management and communication of risks." *(The International Risk Governance Council)*

Corporate governance

Ethical management

Board composition

Transparency

Cyber risk

Executive pay

Objectives

- Responsible
- Transparent
- Fair
- Accountable

Types of governance risks

Board action

- Board oversight
- Board diversity

Management action

- Executive compensation

Governance risks

Board action

Oversight

Diversity

- TCFD and the Board's oversight process
- Insights from Harvard Law School article
- Advantages and disadvantages of strengthening governance through Board oversight
- Developments from EU FIs on Board governance wrt climate
    - Findings from ECB's Guide on climate risks
    - ING Netherland's Board governance structure
    - Examples from the US and India

Deutsche Bank pays nearly $125m to resolve US bribery and fraud claims

(Financial Times, 2021)

Company boards are being held to higher levels of accountability and transparency

(Fortune, 2021)

ESG & Cognitive bias inside the boardroom: ESG is here to stay and will continue to disrupt business models

(Financial Express, 2021)

Governance risks

Board action

Oversight

Diversity

More corporate directors agree action needed on board diversity

(Financial Management, 2021)

- Lack of diversity, including women representation (GESI-goals)
- Diversity and innovation linkage
- Lack of ESG/climate experts on Boards – technical diversity
- Corporates unprepared with concrete plans to meet pledges

SFIO chief pulls up independent directors for washing hands of frauds

(Business Standard, 2021)

Governance risks

Management action

Is executive compensation linked to ESG performance?

Are management KPIs linked to ESG performance?

International developments

Firms plan to link investment in social good to CEO salary

(Economic Times, 2021)

Shareholders push Facebook for change, Facebook pushes back

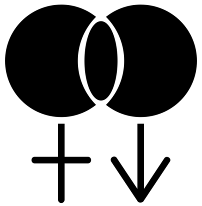
(S&P Global, 2018)

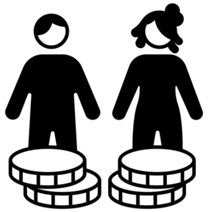
GESI within governance

Equal Opportunities

Equal Outcomes

- Compliant with diversity and inclusion regulations
- Glass ceiling challenges to growth in the workplace
- Minimal discrimination - maximum brand reputation
- Realize the economic opportunity of GESI-inclusion





Take home point 8:

Unless governance risks are identified and carefully managed, they pose a major financial and reputational risk to investors and lenders.

Polls!

Head to www.menti.com
OR
Open the Mentimeter app

Enter meeting code – **4151 9096**

OR

Scan this QR code!

Consequences of ESG & climate risks

Climate Risks

- Physical Risks
  - Chronic
  - Acute
- Transition risks
  - Policy
  - Technology
  - Market pressures

Impact on economic sectors & macroeconomy

- Damages to property
- Business interruptions
- Effects on household and business incomes
- Feedback across economy through product and labour markets

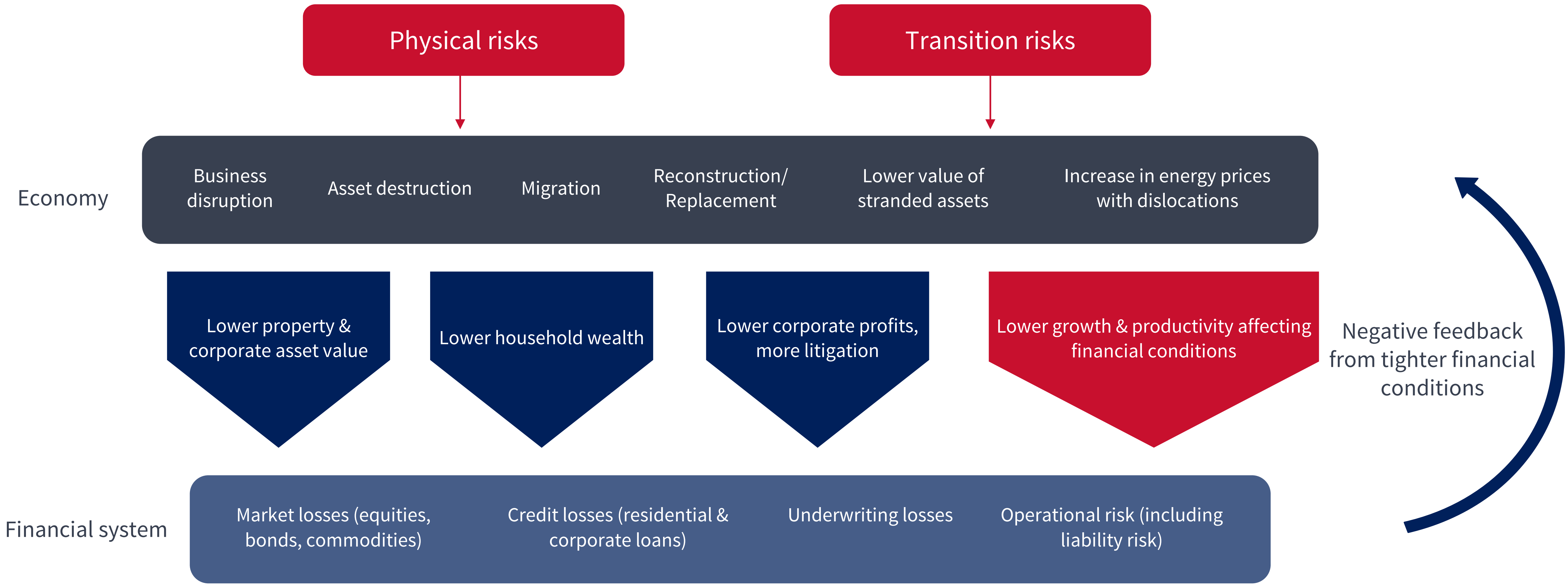
Impact on financial institutions & markets

- Credit & market risk
- Liquidity risks
- Operational risks
- Amplification through interconnectedness and correlated exposures

Feedback loop that may adversely affect economic and financial stability

(Financial Stability Oversight Council, 2021)

Consequences of ESG & climate risks



(IMF, 2019)

Why climate risks matter for banks

Dr Rathin Roy, Managing Director, ODI

Q&A

End of Day 1

Day 2

Part 3

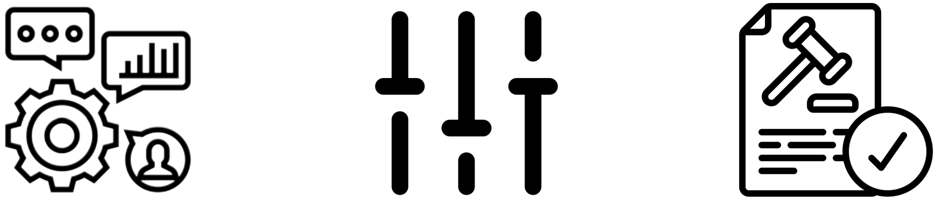
ESG & Climate Risks Management

Need for ESG & climate risk assessment

Growing demand for ESG skills

Imminent regulation

Reducing exposure



Why financiers cannot ignore climate risks

Frequency & variation of extreme events (M-o-M monsoons)

Sluggish growth in bank deposits of late

Uninsured natural disaster losses in India

Millennial consumers' trends (EU survey, India)

What does temperature rise imply for India?

2^{o} Celsius rise

- Unpredictable monsoon, already a reality
- Will lead to major flood & drought patterns

2.5^{o} Celsius rise

- Glacial melting may destabilize north India’s glacier-fed rivers and regions
- Impact on irrigation and food yields for a population expected to touch 1.5bn by 2030

4^{o} Celsius rise

- Increased frequency of extreme monsoons
- Shifts to new climate regimes in coastal India & increased droughts in dry-regions

Climate change-related financial risks (CRFR)

1

Overview of risk identification and exposure mapping, risk quantification methodologies and tools, and ways in which banks may look at impact of CRFRs on their portfolio

2

Climate-related financial disclosures, focusing on TCFD

3

Opportunities for financiers arising out of climate risks

To be covered in this session

To be covered in subsequent sessions

Both "**financing of green.....**" and "**greening of finance.....**" require alignment with climate-related financial risks

Conceptual considerations towards risk identification/exposure mapping

Identifying the level of risk

Level of risk in a geography depends on hazard (events), vulnerability (susceptibility) & exposure (location)

Vulnerability depends on nature of resources, transport, SCM, labour, etc.

Hazard refers to chronic and sudden climate-related events

Exposure in terms of sub-sectors covered in the portfolio

Physical Risk Drivers

- Link disruption caused by hazards to real assets and economic activities, that impact financial flows
- Look at probability and severity of hazards

Transition Risk Drivers

- Link risk elements to economic factors that impact financial flows
- Assess how, and to what level, sectors in the portfolio might be affected

Top-Down Approach

Approaches risk at an aggregate level, and then “pushes down” or attributes aggregated measures of risk to component parts

Bottom-Up Approach

Approaches risk at the component level, and aggregates individual measures of risk to provide a consolidated view

(Basel Committee, 2021, UNEP FI 2020)

Other considerations in context of risk identification/exposure mapping

- Institutionalize a risk classification system for rank ordering of exposures
- Difference between traditional and climate risk classifications
- May consider the use of risk mitigants

- Detailed understanding of portfolio with regard to locations, risk drivers, clients, etc.,
- Identify a particular sector or geography to start with

- Work with limited granular/historical data and scarcity of empirical models
- Combine qualitative and quantitative approaches

- Models with granular data - for pricing, valuation & underwriting purposes
- Models with sparse data - for strategic planning & portfolio allocation

(Basel Committee, 2021, UNEP FI, 2020)

Exposure mapping & impact on counterparties

Transmission channels of CRFR to banks

- Microeconomic vs. macroeconomic transmission channels

→

- Microeconomic: Impacts bank's borrowers; transmits CRFR to bank's traditional risks, impacting its financial position
- Macroeconomic: Impacts economic system & parameters in which the bank functions, transmitting CRFR to the bank

Ways in which it impacts counterparties & banks

- Business interruption basis locations or transition events
- Damage to, or new guidelines for, real assets like buildings
- Loss of income, jobs and/or human productivity
- Disaster recovery, food supply loss, etc.

→

- Flow impact (cash flows, income or costs), which hits ability to earn and repay, or realize the asset's income potential
- Stock impact (asset valuation), which hits collateral or asset values, asset impairments, pricing of securities, etc.

(Basel Committee, 2021, UNEP-FI, 2020)

UK PACT ODI Climate Bonds auctusESG

Exposure mapping and measurement: Heatmaps

Heat-maps

- Heat-maps combine risk classification systems with risk grading criteria to score exposures
- Screens whole portfolios across sectors or geographies

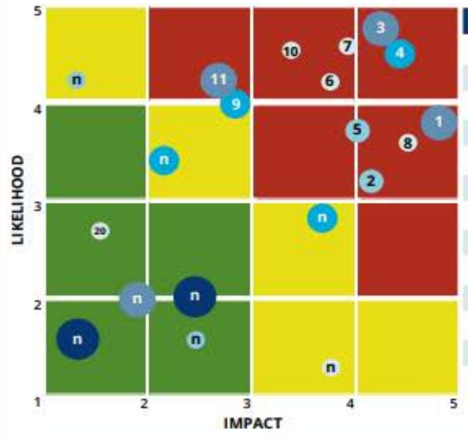
Benefits

- Insight into total portfolio exposure
- Early indication of where higher risks may lie within a portfolio
- Focus for deep-dive analyses of risk ‘hotspots’

Challenges

- Would require granular data to be more location-specific
- Data on smaller borrowers may be unavailable
- Historical horizon of available data is a determinant

TCFD: Heat-map based on prioritization criteria



#	Risk	I	L	V	S
1	Supply chain disruption	4.8	3.7	3.8	4
2	Customer preference shift	4.1	3.3	3.5	2
3	Copper price rise >10%	4.3	4.7	2.3	4
4	Work stoppage > 1 week	4.4	4.5	4.1	3
5	Economic downturn	4.0	3.7	3.5	2
6	Supplier consolidation	3.8	4.2	3.2	1
7	Local competitors enter	3.9	4.5	3.6	1
8	New substitutes available	4.5	3.6	4.2	1
9	Cost of capital rise >5%	2.9	4.0	2.9	3
10	Tighter emission standards	3.4	4.6	2.9	1
11	Exchange rate fluctuations	2.7	4.1	2.7	4
n	...	...	...	...	...
20	Impairment of assets	1.6	2.7	1.6	1

I = Impact L = Likelihood V = Vulnerability S = Speed of Onset

LEGEND

Dots represent risk #1 - #n

Dot size and color reflect speed of onset:

Very Low Low Medium High Very High

ILLUSTRATIVE RATING SCALES FOR CRITERIA

Rating	Impact	Likelihood	Vulnerability	Speed of Onset
5	Extreme	Frequent	Very High	Immediate
4	Major	Likely	High	Rapid
3	Moderate	Possible	Medium	Medium
2	Minor	Unlikely	Low	Slow
1	Incidental	Rare	Very Low	Very Slow

Heat-map based on exercise with 39 FIs: UNEP-FI’s report

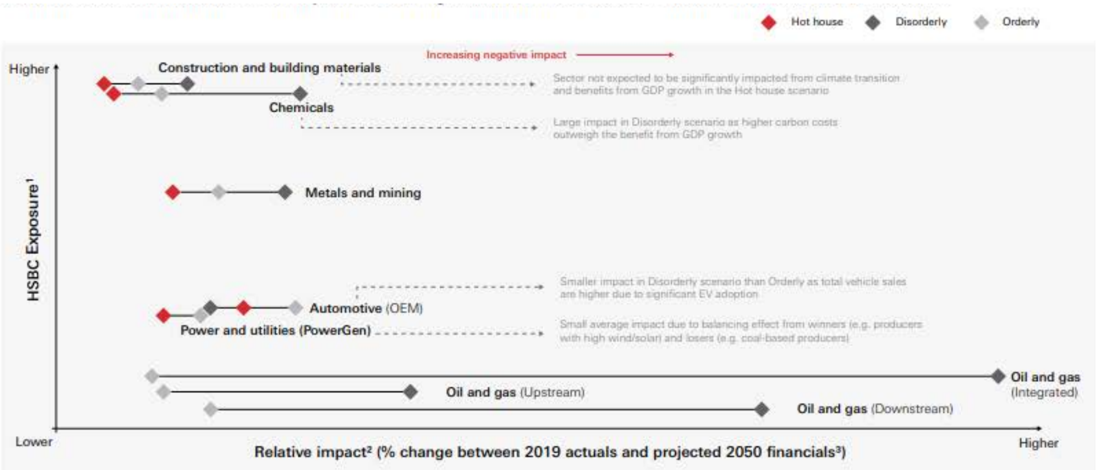
Sector	Direct Emissions Cost	Indirect Emissions Cost	Low-Carbon CapEx	Revenue	Overall
Oil & Gas	High	Low	Moderately High	High	High
Agriculture	Moderate	Moderate	Moderate	Moderate	Moderate
Real Estate	Moderately Low	Moderate	Moderate	Moderately Low	Moderate
Power Generation	Moderately High	Moderate	Moderately High	Moderate	Moderately High
Metals & Mining	Moderately High	Moderately High	Moderate	Moderately Low	Moderate
Industrials	Moderate	Moderately High	Moderate	Moderately Low	Moderate
Transportation	Moderately High	Moderate	Moderate	Moderate	Moderate
Services and Technology	Low	Moderately Low	Moderately Low	Low	Low

(TCFD, 2020, Basel Committee, 2021, UNEP-FI, 2020)

Examples: Transition risk heat-maps of select banks

Banks have generally first focused on transition risk drivers, rather than physical risks
(Basel Committee, 2021)

HSBC, UK



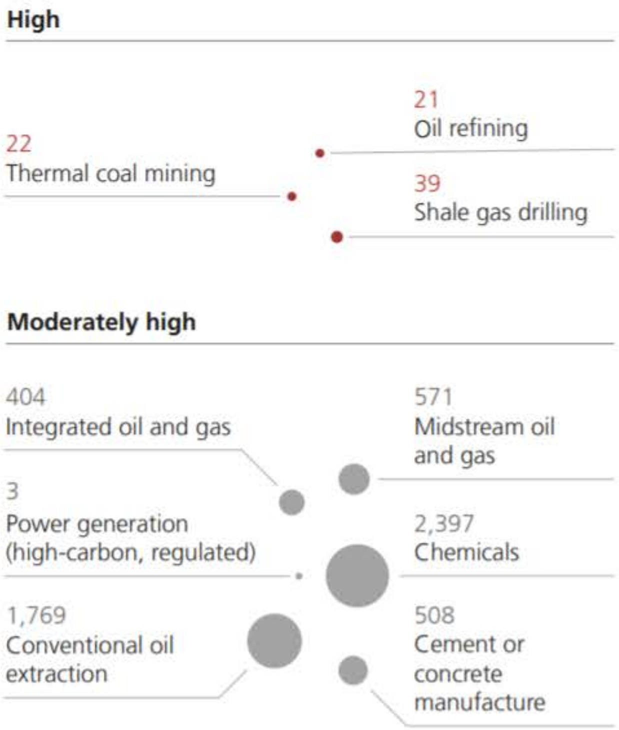
ING, Netherlands

High risk	Medium risk	Low risk
• Coal • Oil and gas • Shipping and aviation • Construction (includes cement) • Freight transport • Livestock • Aluminium production	• Agriculture (includes fishing and crops) • Automotive • Electronics • Retail stores (includes warehouses) • Metal mining • Iron and steel production	• Real estate • Telecommunication carriers • Rail systems • Renewable power generation • Natural gas extraction • Financial institutions

DBS, Singapore

Sectors	Subsectors
Agriculture	Agriculture, Food & Beverage (F&B) upstream, F&B midstream and Rubber
Chemicals	Chemicals
Energy	Oil & Gas and Power
Mining and metals	Coal, Metal (ferrous) and Metal (non-ferrous)
Real estate and transportation	Auto upstream, Auto midstream, Aviation, Real estate and Shipping

UBS, Switzerland

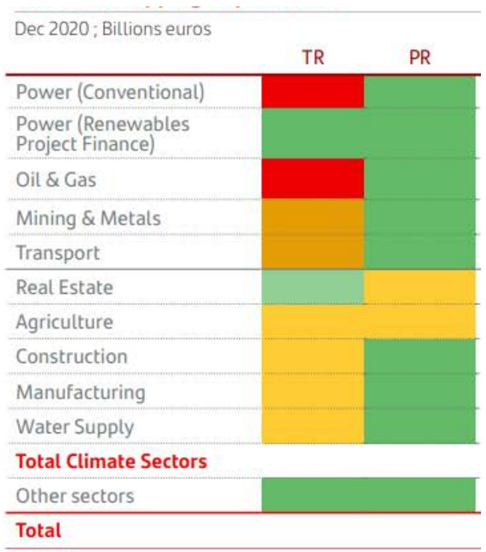


(HSBC TCFD Update 2020, ING Climate Risk report 2020, UBS Climate Strategy report 2021, DBS Sustainability report, 2019)

Examples: Physical risk heat-maps of select banks

In line with the observation in the previous slide, physical risk heat-mapping has generally followed transition risk heat-mapping, resulting in physical risk heatmaps covering both types of risks

Banco Santander, Spain



Danske Bank, Denmark

Industry	Physical risk assessment	Transition risk assessment
Agriculture	High	High
Commercial property	High	High
Personal customers	High	Medium
Private housing co-ops	High	Medium
Construction & building materials	Medium	High
Metals and mining	Medium	High
Pulp & paper, chemicals	Medium	High
Shipping, oil & gas	Medium	High
Consumer goods	Medium	Medium
Utilities and infrastructure	Medium	Medium
Hotels, restaurants and leisure	Medium	Low
Transportation	Low	High
Automotive	Low	Medium
Capital goods	Low	High
Pharma and medical devices	Low	Low
Retailing	Low	Low
Services	Low	Low
Social services	Low	Low

Citibank, USA

	2018	2019	2020				Climate Risk	
			as of September 30, 2020					
$ in Millions	Total $ Amount	Total $ Amount	Total $ Amount	% of Total Exposure	Funded	% of Funded Exposure	Transition Risk	Physical Risk
Energy & Commodities[1]	**49,698**	**53,317**	**51,035**	**6.6%**	**16,244**	**4.7%**		
Integrated Oil & Gas	13,513	12,883	13,886	1.8%	3,797	1.1%	High	Moderate
Oil & Gas Exploration & Production	12,803	15,682	14,228	1.8%	4,950	1.4%	High	Moderate
Oil & Gas Storage & Transportation	7,005	6,967	7,273	0.9%	1,856	0.5%	High	Moderate
Oil & Gas Refining & Marketing	9,255	9,611	7,409	1.0%	2,988	0.9%	High	Moderate
Oil & Gas Equipment, Services, and Drilling	4,361	5,562	5,285	0.7%	1,156	0.3%	High	Low
Other	2,762	2,611	2,954	0.4%	1,498	0.4%	High	Moderate
Power	**27,200**	**34,349**	**28,408**	**3.7%**	**6,665**	**1.9%**		
Alternative Energy	1,595	2,052	2,621	0.3%	1,065	0.3%	Low	Moderate
Electric Utilities	7,655	13,056	6,744	0.9%	2,521	0.7%	High	Moderate
Gas Utilities	1,745	1,667	1,554	0.2%	704	0.2%	High	Moderate
Independent Power Producers & Service Operators	2,872	2,679	3,446	0.4%	609	0.2%	High	Moderate
Multi-Utilities	11,265	12,942	11,767	1.5%	1,352	0.4%	High	Moderate
Other	2,068	1,952	2,275	0.3%	414	0.1%	Low	Moderate
Transportation	**74,583**	**78,588**	**79,863**	**10.3%**	**39,911**	**11.6%**		
Autos	48,175	48,604	51,039	6.6%	24,191	7.0%	High	Low
Automobile Manufacturers	16,421	15,355	16,429	2.1%	7,689	2.2%	High	Low
Auto Parts & Equipment	2,107	2,544	10,405	1.3%	4,493	1.3%	High	Low
Auto-Related Financing, Leasing, and Rentals	18,528	17,899	19,947	2.6%	9,900	2.9%	Low	Low
Other	11,119	12,806	4,258	0.6%	2,110	0.6%	Low	Low
Aviation	9,726	11,558	10,934	1.4%	6,104	1.8%	High	Moderate
Shipping & Maritime Logistics	10,384	10,583	10,848	1.4%	7,379	2.1%	High	Moderate
Logistics	6,297	7,842	7,043	0.9%	2,237	0.7%	Moderate / High	Moderate
Industrials	**58,974**	**68,055**	**67,072**	**8.7%**	**22,968**	**6.7%**		
Building Products & Related	8,072	8,885	8,380	1.1%	2,756	0.8%	High	Moderate / Low
Capital Goods	39,432	44,321	43,988	5.7%	13,613	4.0%	Moderate / Low	Moderate / Low
Paper Forest Products & Packaging	6,858	7,288	6,848	0.9%	3,587	1.0%	Moderate	High

(Danske Bank TCFD Progress Update 2021, Citigroup's TCFD report, 2020, Banco Santander Climate Finance report, 2020)

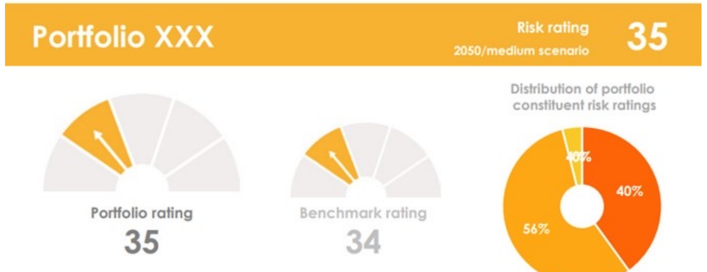
Exposure mapping and measurement: Other methods

Climate Risk Scores

- Provides quantitative/semi-quantitative scores
- Scores can be aggregated to develop portfolio-level, sector-level or geography-level risk scores

Indicators of Greenness/KPIs

- KPIs to measure carbon intensity, energy efficiency, energy labels, collateral in hazard-prone regions, gap of the portfolio with global/national climate targets, etc.



Portfolio description	XXX portfolio
Year of analysis	2016
Number of securities	25
Total value of portfolio	XXX EUR million
Asset classes covered	Listed companies
Benchmark description	278-listed-company sample

BNP Risk Sectoral division	Operations Risk Score	Heat Stress	Water Stress	Floods	Sea Level Rise	Hurricanes & Typhoons	Market Risk Score	Supply Chain Risk Score	Total Score
Utilities	41	51	52	26	9	13	29	67	46.4
Technology Hardware & Equipment	41	39	52	25	10	22	63	60	51.8
Transportation	40	39	46	26	17	18	38	57	44.8
Semiconductors	39	39	52	24	9	18	72	66	52.5
Pharma Biotch & Life Science	37	41	45	24	9	20	62	60	47.8
Materials	36	46	45	23	8	11	55	49	43.1
Automobiles & Components	35	33	37	26	8	28	59	23	37.6
Capital Goods	33	40	44	22	6	15	59	37	38.7
Food & Staples Retailing	25	29	37	20	8	11	26	17	20.7
Total	**36**	**40**	**44**	**24**	**9**	**18**	**51**	**45**	**41.5**

Example of observed practice: Climate-related and environmental key performance indicators

The ECB observed an institution which had integrated the following climate-related and strategy of reducing exposure to transition risks measurable: i) the carbon emission footprint of its assets; ii) the average energy label of its mortgage portfolios; and iii) the number of homes that saw an energy label improvement thanks to its financing. In addition to these KPIs, the institution stresses

Strategic pillars	Metric	2022 targets	2020 targets	2019 targets	2019 results[1]
We are committed to helping our clients become more sustainable	▸ Renewable energy commitment as a % of energy portfolio	26%[2]	20%	14%	14%
	▸ Sustainable financing	EUR 7.5 billion	EUR 3.0 billion	EUR 1.5 billion	–[3]
	▸ Sustainable investments (client assets)	EUR 30 billion[4]	EUR 22.5 billion[5]	EUR 14.5 billion	EUR 20.6 billion
We provide our clients with insight into their sustainability performance	Clients rated on our CASY[6] sustainability rating tool				
	▸ Commercial Banking	100%	100%	100%	42%
	▸ Corporate & Institutional Banking	100%	100%	100%	84%
We help our clients invest to make their homes and real estate more sustainable	▸ Average energy label (residential properties)	70% rated A-C	63% rated A-C	61% rated A-C	60% rated A-C
	▸ Average energy label (commercial properties)	47% average A	31% average A	23% average A	26% average A

(BNP Paribas TCFD report, 2019, ABM Amro Integrated report, 2019, Basel Committee, 2021, UNEP-FI, 2020, ECB, 2020)

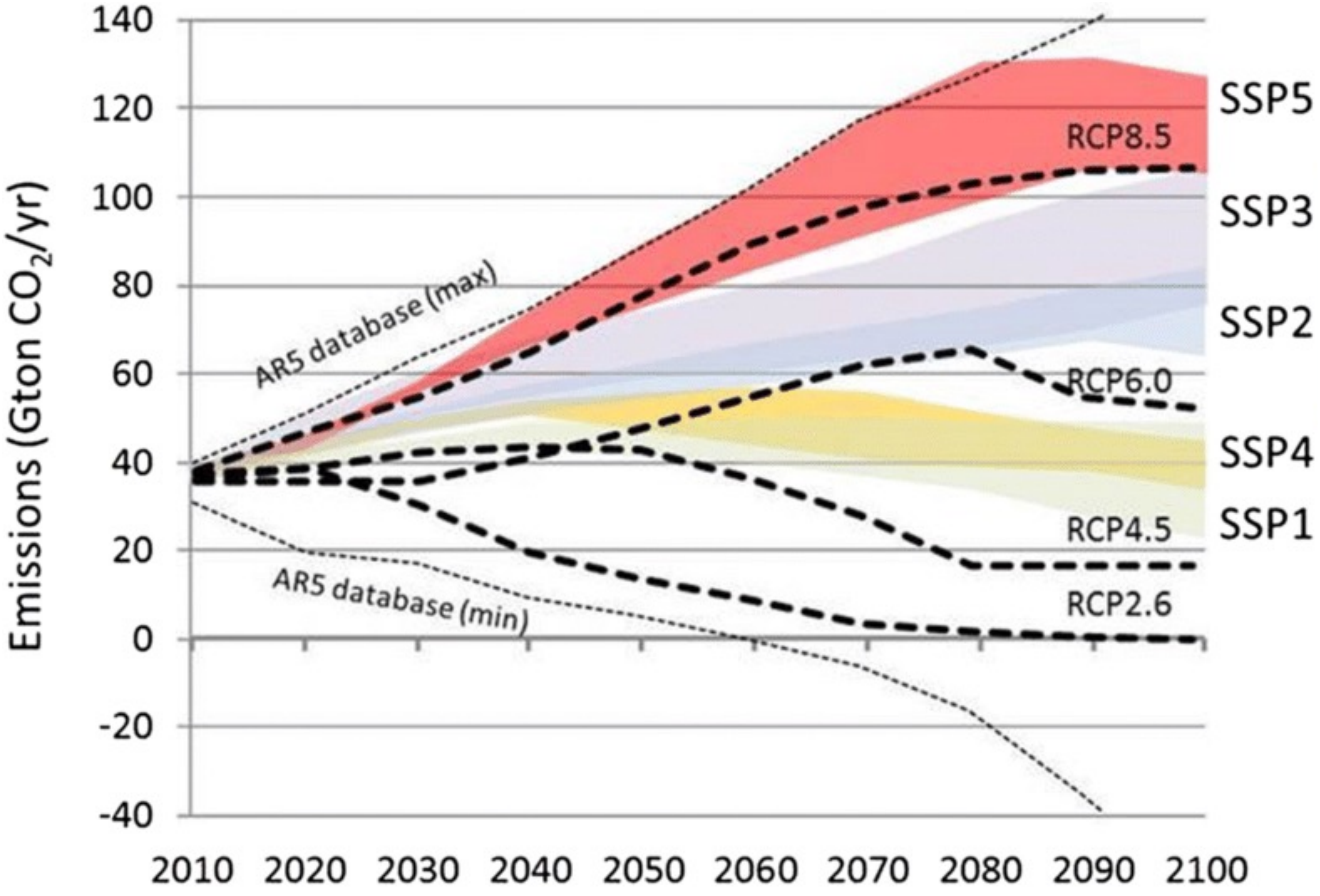
Before moving to scenarios, what are pathways?

RCPs?

SSPs?

IPCC AR5/AR6

Why?



RCP8.5: ~5°C

RCP6.0: 3-3.5°C

RCP4.5: 2-3°C

RCP2.6: < 2°C

(Ho, Emily, Budescu, David, Bosetti, Valentina, Keller, Klaus Keller, 2019, *Not all carbon dioxide emission scenarios are equally likely: a subjective expert assessment,* Climatic Change Journal Springer/IPCC AR5, Carbon Brief 2018)

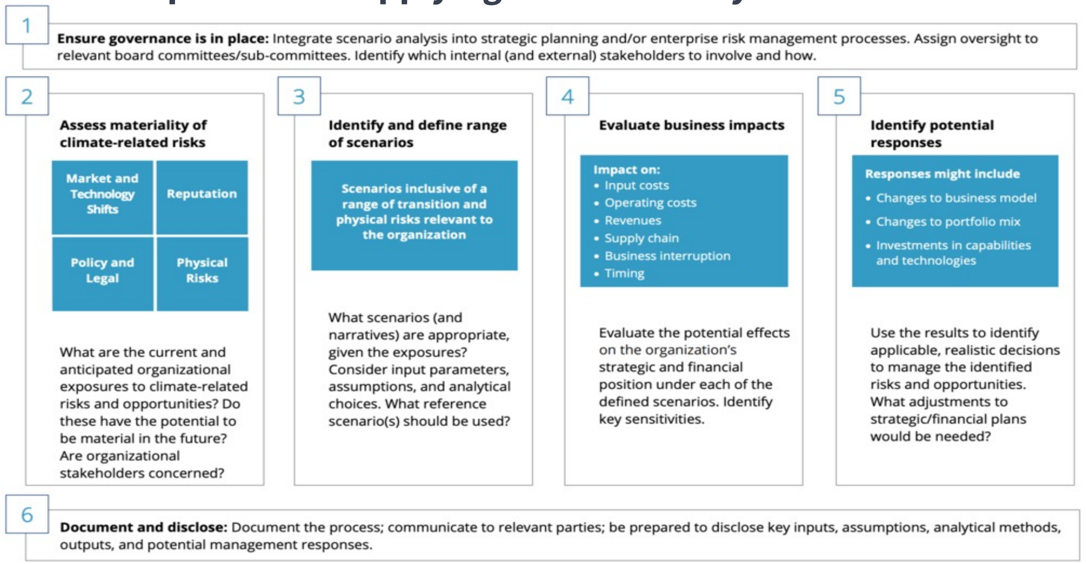
Risk measurement & quantification: Scenario analysis

- A methodology to develop a range of plausible future paths on climate change
- Helps understand how climate risks impacts economic variables, and their resultant financial implications
- Enables better preparedness amongst banks, and helps analyse tail-risks

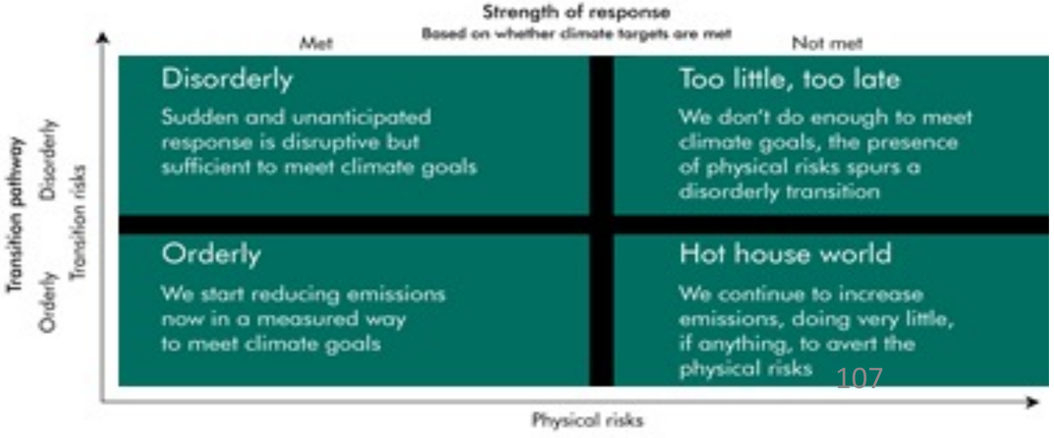
1. Identify physical & transition risk scenarios
2. Link scenario's impacts to financial risks
3. Assess borrower's sensitivity to these risks
4. Calculate potential losses at an aggregate level

- Starting point for a bank – specific hazards for PR, and specific sectors for TR
- Considerations to be mindful of, when a bank develops a scenario

TCFD's process for applying scenario analysis to climate risks



NGFS's high-level framework for scenario analysis



(TCFD 2021, Basel Committee, 2021, UNEP-FI 2020, & OBR, UK Government, 2019)

Scenario analysis

David Carlin, TCFD and Climate Risk Program Lead, UNEP-FI

Risk measurement & quantification: Stress testing & sensitivity analysis

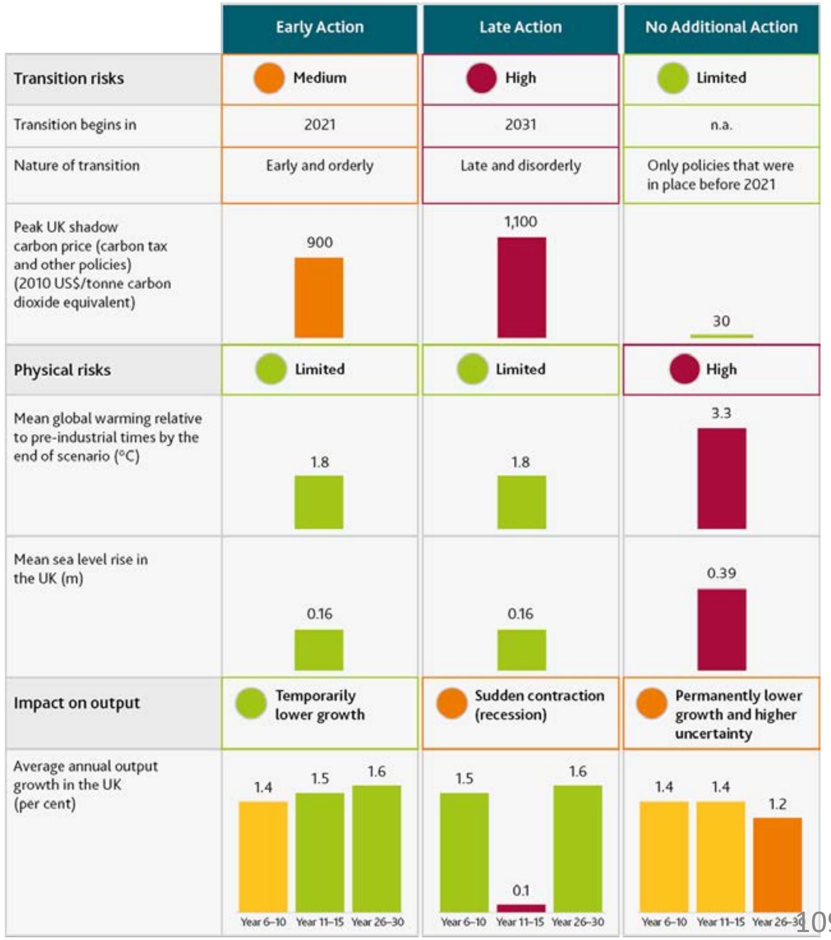
Sensitivity Analysis for climate impacts

- Assess the effect of one variable, across scenario-runs, on economic outcomes
- Often used to assess impact of policy-related transition risks
- Helps develop a range of potential climate-economic impacts

Stress Testing for climate impacts

- Helps assess the bank's near-term resiliency to climate shocks
- Mostly uses capital adequacy as a target
- Difference between climate stress test and normal stress test
- Limited predictive capacity of historical events
- Examples from Colombia and the UK

Climate risk stress test of UK banks by BoE, using NGFS scenarios: Initial results of 2021 Climate Biennial Exploratory Scenario



(Basel Committee, 2021 & Bank of England, 2021, World Bank, 2021)

Climate stress tests

Prashant Vaze, Senior Policy Fellow, Climate Bonds Initiative

Risk measurement & quantification: Climate VAR and Correlation

Climate VAR

- Risk measure estimating the loss due to climate risk to a portfolio or market, in a specific time horizon
- Applies traditional VAR approaches to assess impact of climate events on balance sheet
- Research on $2.5tn global AUM found 1.8% C-VAR

Correlation

- Measures strength of association of two variables
- May not define their causal relationship
- Value may be skewed owing to outliers

(Basel Committee, 2021, UNEP-FI, 2020, Dietz, S et all, 2016, 'Climate value at risk' of global financial assets, Nature, Yang, Lu et all, 2021, Climate value at risk and expected shortfall for Bitcoin market, Climate Risk Management)

Models to assess economic impacts of climate change

Integrated Assessment Models

- Suite of tools that combine interactions between socio-economic systems using pathways, to see how our choices impact natural systems (climate system)
- Shift in emphasis from "what happens if?" to "how do we get to?"
- Commonly used by banks, despite limited capturing of financial impacts
- Probability allotted to extreme events that have not occurred before may be less

Input Output models

- Traces impact of climate shocks on the forward and backward linkage of an industry (supply chain or distribution network)

Macroeconomic modelling

- Capture the phenomena that a climate shock in an economic sector would lead to behavioural changes amongst the impacted agents

Agent-based models

- Allows economic agents to interact with each other
- Allows simultaneous changes on multiple variables

Other models

- CGE models allow complex behavioural interactions among sectors
- DSGE models integrate uncertainty in agent decision-making

(Basel Committee, 2021, Carbon Brief, 2018)

Example of tool to assess climate impacts

Green RWA's Climate Extended Risk tool

- Facilitates calculation of expected and unexpected credit losses
- Unexpected losses calculated using metrics like POD or LGD
- Screenshot shows amounts in lending portfolio labeled high-risk

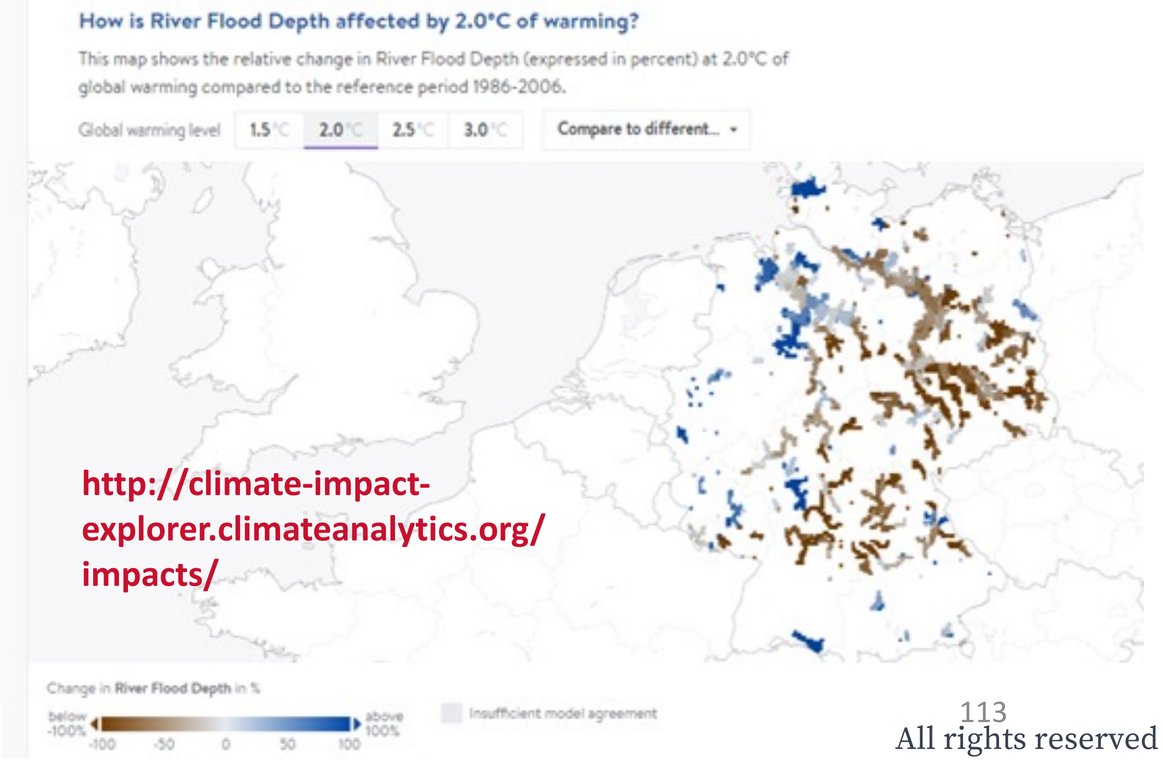
Lending book

industry_sector / industry_subsector / counterparty_name	Total	Total high stake|americas	high stake|americas		
			Americas	Brazil	Canada
	ead	ead	ead	ead	ead
Total industry_sector	15,350,000,000.00	5,920,000,000.00	460,000,000.00	110,000,000.00	540,000,000.00
Basic Materials	2,340,000,000.00	790,000,000.00		110,000,000.00	310,000,000.00
Agriculture & Fisheries	340,000,000.00	130,000,000.00			80,000,000.00
Forestry & Paper Products	570,000,000.00	220,000,000.00			50,000,000.00
Mining	1,430,000,000.00	440,000,000.00		110,000,000.00	180,000,000.00
Consumer Goods & Services	2,700,000,000.00	740,000,000.00	20,000,000.00		
Durable Goods & Services	920,000,000.00	440,000,000.00	110,000,000.00		
Energy	2,380,000,000.00	1,190,000,000.00	[illegible]		[illegible]
Oil & Gas Exploration & Production	1,540,000,000.00	750,000,000.00	[illegible]		20,000,000.00
ARC Resources Ltd.	20,000,000.00	20,000,000.00			20,000,000.00
BP P.L.C.	120,000,000.00	120,000,000.00	120,000,000.00		
CONTINENTAL RESOURCES INC	50,000,000.00	50,000,000.00			
Cimarex Energy Co	50,000,000.00	50,000,000.00			
DEVON ENERGY CORP	110,000,000.00	110,000,000.00			

https://www.greenrwa.org/the-cerm

Climate Analytics' Climate Impact Explorer tool

- Projections of future climate impacts for different GHG scenarios
- Developed by Climate Analytics, Potsdam Institute, ETH Zurich, etc.
- Screenshot shows river flood depth risks at 2°C warming scenario



http://climate-impact-explorer.climateanalytics.org/impacts/

Disclaimer: Tools are shown only as an example; the consortium does not endorse any specific tool)

Example of tool to assess CRFRs: Transition and physical risks

UK PACT ODI Climate Bonds Initiative auctusESG

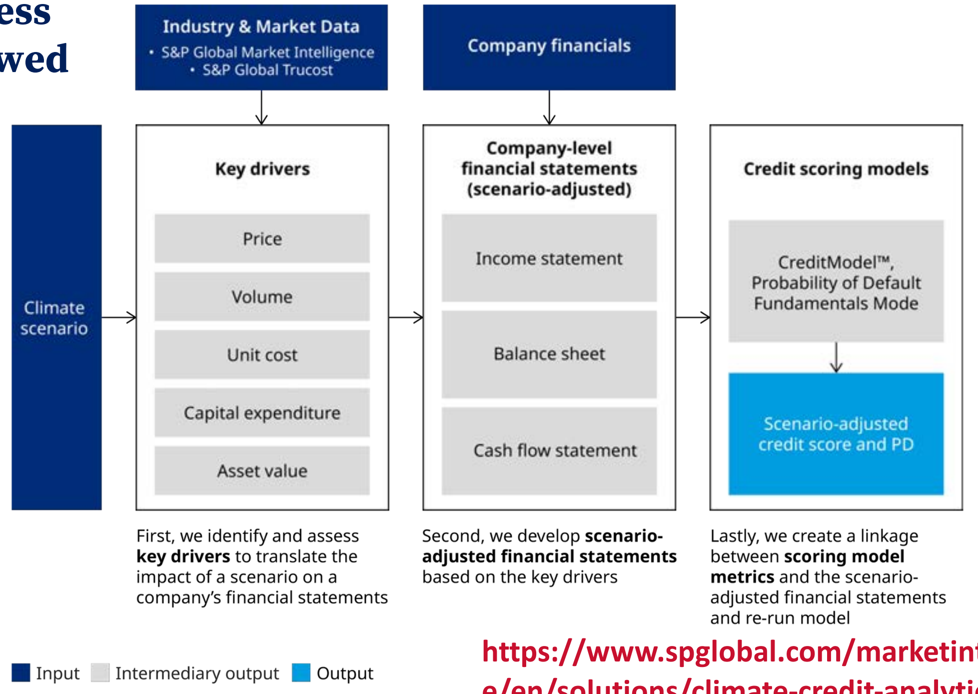
Oliver Wyman & S&P Global's Climate Credit Analytics tool

- Performs stress test and scenario analysis based on NGFS scenarios
- Converts scenarios into financial drivers, to forecast financials
- Generates outcomes for loan and debt asset classes

KNMI Netherlands's Climate Explorer tool

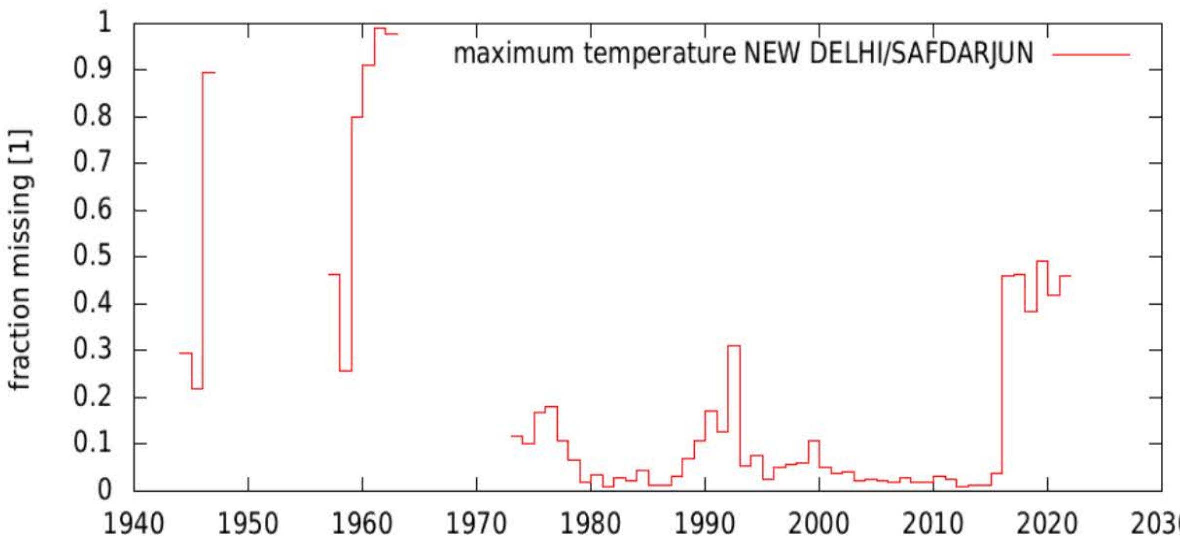
- Focus on extreme precipitation, although it covers most events
- Users can select climate event, time horizon & location coordinates
- Spatial resolution within the range offered in the market

Process followed



https://www.spglobal.com/marketintelligence/en/solutions/climate-credit-analytics

Maximum temperature time-series for Delhi



http://climexp.knmi.nl/start.cgi

Disclaimer: Tools are shown only as an example; the consortium does not endorse any specific tool)

CRFR's impact on traditional risks in a bank's portfolio

Credit risks

Physical: Wealth erosion as damage to real assets impacts its valuation & income potential; SCM disruptions & loss of productivity, impacting ability to repay

Transition: Leads to stranded assets, credit-related losses & worsening financial position; MNCs in India particularly impacted

Market risks

Physical: Consumption shock causing business disruptions or changing demand patterns, impacting financial metrics & financial market volatility

Transition: May cause higher cost of carbon, disrupting demand-supply dynamics and hiking the cost of capital

Liquidity risks

Physical: Worsening financial metrics & credit rating hits ability to raise funds; Also, deposit withdrawals may occur

Transition: Reduced fundraising from traditional channels due to transition risk perceptions

Other risks

Reputation: Negative branding for funding climate-sensitive sectors in age of social media

Operations: Disruptions & damage to transport & telecom networks or office infrastructure

Others: IT risks to data centers owing to evolving energy regulations; Risk of compliance costs owing to penalties

(Basel Committee, 2021, ECB, 2020)

Impact of physical risk event on a bank's portfolio sector, resulting in CRFR

Banco Bradesco SA, Brazil

- 3rd largest bank in Brazil and Latin America
- Significant exposure in construction/property sector
- Heavy rains, flood & landslide risk in south-east Brazil

- UNEP-FI pilot on its retail mortgage and flood risk
- Used climate events data from Swiss RE's CatNet
- Data on postal code and coordinates of funded assets
- Leveraged UNEP-FI's tool to calculate future impacts

Annual Probability of Flood Occurrence		Depreciation in Property Value
2020	**2040s (4°C scenario)**	**2040s (4°C scenario)**
2% (1 in 50 years)	4.8% (1 in 20 years)	4.5%
1%	2.4%	2.5%
0.5%	1.2%	1.3%

Question for participants to discuss later: How would property value depreciation impact your portfolio?

(UNEP-FI, 2020)

CRFR's impact on bank's portfolio – key metrics for credit risk

Probability of default

- Shows likelihood the counterparty would fail to repay
- Can be at firm-level or sector-level
- ECB research: POD for an average EU bank could be 7.1% higher by 2050, unless drastic climate action occurs
- Research on 41 Polish banks from 2013-2019 found certain sectors to be of high-risk, with positive dependency on carbon and coal price *(ECB's Climate Risk & Financial Stability report)*

Loss given default

- Shows recovery value of the asset, in case of default
- Extreme climate events damage real assets, impacting collateral and recovery values
- Models must consider locations, other risk-mitigants, seniority of exposure, recovery costs, etc.
- LGD has received less attention than POD, wrt climate

	Clean	Agriculture	Mining	Manufacturing	Energy	Construction	Transport
Climate-related financial variables							
CARBON	0.00717	0.0104	-0.0125	0.0220***	0.0254*	-0.00241	0.0496***
COAL	0.00205	0.000761	-0.00264*	0.000683	0.0200***	0.0047	0.00577
R2	0.122	0.29	0.352	0.194	0.348	0.134	0.279

(UNEP-FI, 2020, ECB, 2021, Risk.net, 2021, S&P, 2021)

Integration into existing risk management processes

Integration into ERM framework

- Include climate risks as drivers of existing risk categories in the ERM
- No research supporting separate climate risk category
- Conduct climate due diligence
- Climate-related responsibilities in 3 lines of defense in risk management
- Include climate risks in materiality assessment

Integration into CAM

- Financing conditions borrowers need to meet, as per results of ESG/climate risk assessment conducted for new applications, to be included in CAM
- Use these results for climate-related adjustments in covenants, credit rating, collateral valuations, capex requirements and pricing of loans
- Follow colour coding, as per the results obtained, for monitoring

Integration into ICAAP

- Include climate issues in normal risk identification process
- Include climate risks in stress tests, to check capital adequacy
- Integrate climate-related risks into financial stability monitoring
- Look at materiality of climate risks
- Undertake systematic mapping of potential climate risks

(ECB, 2020, Basel Committee, 2021, CEP, 2018, UNEP-FI, 2020,)

ESG/Climate-related adjustments to a company's financials

Examples from Robeco & Erasmus University

Robeco's Value-Driver Adjustment (VDA) approach

- Managing of material long-term ESG/climate issues
- How these connect to changes in strategy, revenue drivers, innovations, competitive advantage, etc.
- Translate into adjustments to financial value drivers
- Integrate into fair valuation models
- Arrive at fundamental credit score/rating
- Element of judgement call, probabilities & scoring

Erasmus University's case-study: McDonald's

- Understanding the dynamics of new-age sectors
- Assess risks in context to business model, long-term value drivers, competitive positioning, sustainability & business strategy
- Impact of material risks on financial value drivers
- Emissions, deforestation, carbon footprint, health, work, etc., & impact of regulations, taxes & growing consumer awareness
- Impact on sales growth, COGS, margins, cost of capital & ROC

Value Driver adjustments	Before ESG/climate analysis	After ESG/climate analysis
Sales growth	3%	2% (-100bp)
EBIT margin	43%	40% (-300bp)
WACC	6.2%	7% (+80bp)
Fair value	$184	$129 (-~30%)

First Rand Group – ESG & climate risk integration

Madeleine Ronquest, Head of Environmental and Social Risk, First Rand Group

Take home point 9:

Scenario development and stress testing allows financiers to assess their exposure to risks and introduce appropriate risk management strategies.

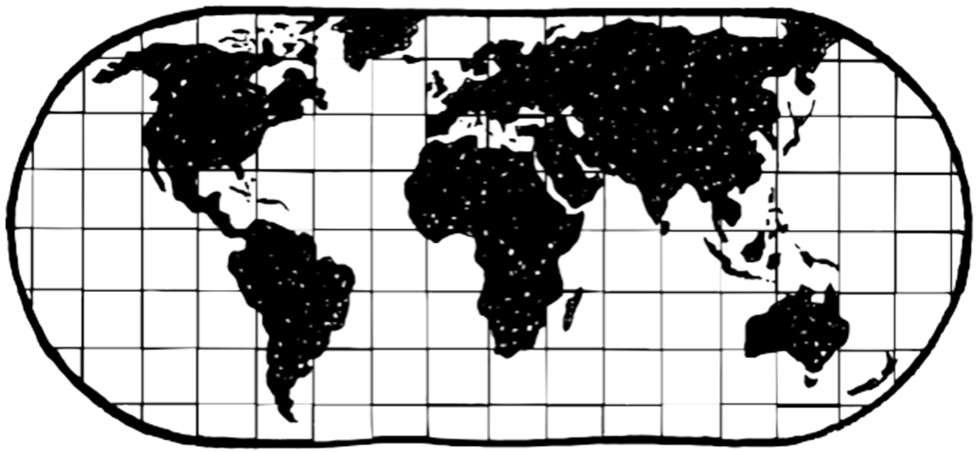
Part 4

Standards & Disclosures

Non-financial reporting & disclosures

Global developments

1992	UNEP – Finance Initiative
1997	Global Reporting Initiative
2003	Equator Principles
2006	UN Principles for Responsible Investment
2011	Sustainability Accounting Standards Board
2013	International Integrated Reporting Framework
2015	• Paris Agreement • UN SDGs
2017	• Corporate Leadership Group on Integrated Reporting • TCFD
2019	• UN Principles of Responsible Banking • ISO Standard on Climate Change Adaptation
2020	• EU Taxonomy • TNFD
2021	• Formation of ISSB • Value Reporting Foundation – merger of SASB and IIRC



Non-financial reporting & disclosures

National developments

RBI joins network for greening financial system

(The Economic Times, 2021)

Sebi comes out with disclosure requirements under Business Responsibility and Sustainability Report

(The Economic Times, 2019)

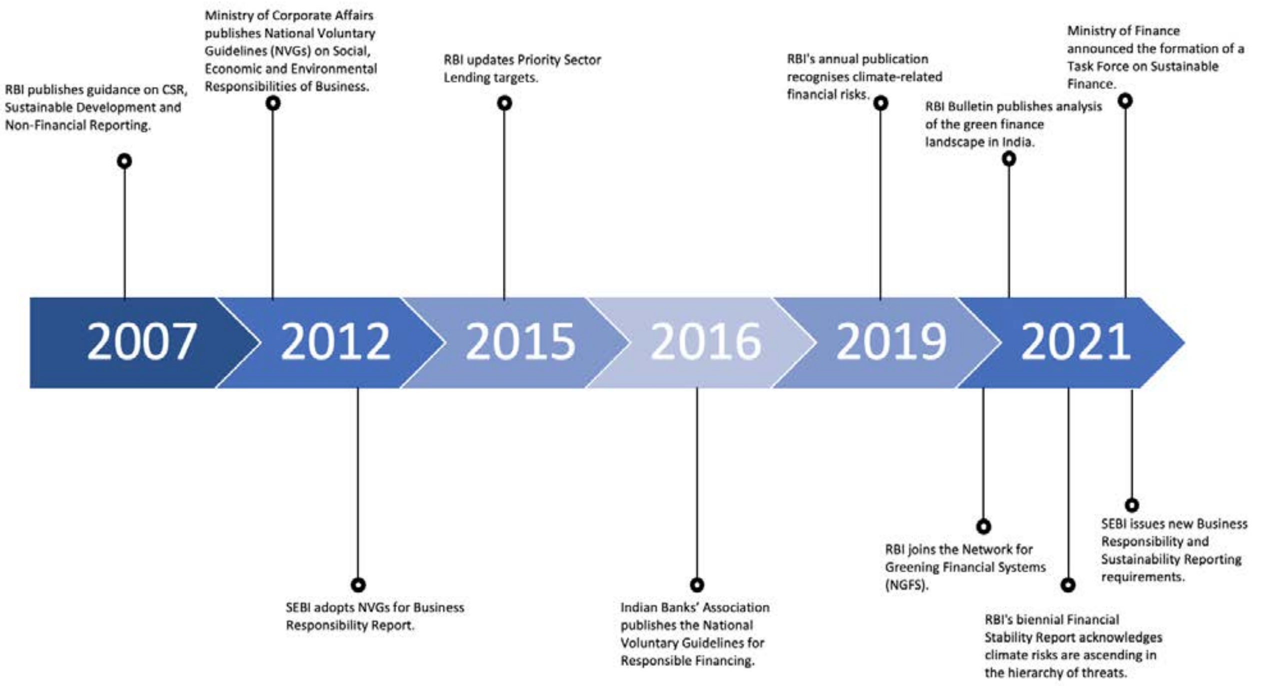
Sebi in process of stipulating disclosures specific to ESG scheme: Ajay Tyagi

(The Economic Times, 2021)

A new sustainable finance taxonomy for India is imminent

RBI Deputy Governor stresses on need to mainstream green finance

(The Economic Times, 2021)



Central banks & disclosure policies

Prashant Vaze, Senior Policy Fellow, Climate Bonds Initiative

Existing standards & disclosure frameworks

Principles

IFC · UNEP Finance Initiative – Principles for Responsible Banking · PRI Principles for Responsible Investment · Equator Principles · The EU Taxonomy

Standards

GRI · Integrated Reporting <IR> · CDP · TCFD · TNFD · SASB · BRSR (Ministry of Corporate Affairs, Government of India) · SFDR

Metrics/Indices

Dow Jones Sustainability Indexes · MSCI · Sustainalytics · ISS ESG · S&P Global

Principles

vs

Standards

vs

Metrics

vs

Indices

IFC – E&S Performance Standards

Lalit Bhandari, Senior Environmental and Social Development Specialist, IFC

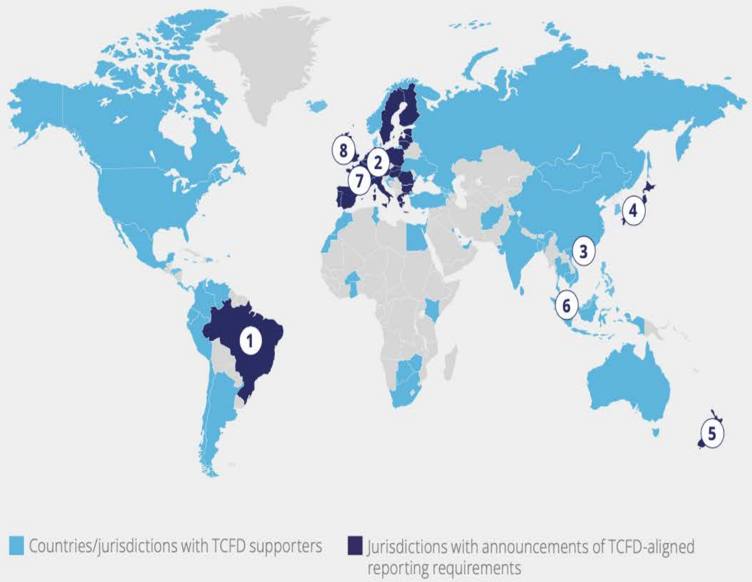
TCFD

TCFD is a set of voluntary climate-related financial risk disclosures to be adopted by companies to inform investors on climate-related risks.

Established in 2015 by the Financial Stability Board (FSB) the TCFD's aim is to build better understanding of the financial sector's exposure to climate-related risk.

- The rapid rise in the number of TCFD supporters **signifies a major shift among market participants** in acknowledging that climate change presents a financial risk
- The Task Force comprises of 32 global members representing a broad range of economic sectors and financial markets and a careful balance of users and preparers of climate-related financial disclosures
    - 16 experts from the financial sector
    - 8 experts from the non—financial sector
    - 8 other experts
- Members include banks, pensions funds, asset managers, NBFCs, credit rating agencies, consulting and accounting companies among others

Continued Growth in Support



2,600+
TCFD Supporters Globally

8
TCFD-Aligned Official Reporting Requirements

1. Brazil
2. European Union
3. Hong Kong
4. Japan
5. New Zealand
6. Singapore
7. Switzerland
8. United Kingdom

120 + regulators & governmental entities	$149 trillion assets	$25 trillion combined company market cap

TCFD

Governance
Disclosures on the organization's governance around climate-related risks and opportunities

Strategy
Disclosures on actual and potential impacts of climate-related risks and opportunities on businesses, strategy and financial planning

Risk management
Disclosures on how the organization identifies, assesses and manages climate-related risk

Metrics & Targets
Disclosures on the metrics and targets used to assess and manage relevant climate-related risks and opportunities

TCFD Status Report

Status 2021

89 Countries & Jurisdictions

120 Regulators & Governmental Entities

194 $ tn Assets

25 $ tn Combined Company Market Capitalization

Support from governments & regulators

Brazil 2022

Singapore 2023

Hongkong 2025

International standards and regulators support

G7 United Kingdom 2021

G20 Italia 2021

IFRS®

CDP

FSB Financial Stability Board

OICU-IOSCO

European Commission

(TCFD, 2021)

Case Study

Itaú Unibanco – TCFD Reporting

Itaú

- Itaú Unibanco is the largest banking institution in Brazil as well as the largest in Latin America
- Mapped the potential impacts of climate risk and their channels of transmission onto traditional risk disciplines
- Traditional risk disciplines include environment and social, credit, insurance, operational, market, compliance, reputation and strategy

3 qualitative scenarios considered

- Orderly transition
- Disorderly transition
- Materialization of physical risks

Status on the implementation of climate finance projects in response to TCFD recommendations

2008[1] — 79% — 2022

Aspect	Delivered in 2020
Governance 96.50%	Resolutions on climate risk are taken by the Environmental and Social Risk Committee. Our CRO was nominated as the executive responsible for this topic. Our work is carried out in a multidisciplinary way, through our Climate Finance Squad, who are responsible for implementing TCFD recommendations and managing climate change projects. The Corporate Environmental and Social Risk department is responsible for carrying out climate risk engagements and for ongoing follow-up of this topic, thus providing an integrated view of the bank's business and how it quickly deals with this topic. Climate risk was included in Itaú Unibanco's Environmental and Social Responsibility and Sustainability Policy and in specific procedures on climate risk management, with exposure of concepts, tools and methodologies in use and responsibilities of each involved area, duly formalized following the Compliance guidelines.
Strategy 73.01%	We take an active role in local and international discussions on climate change. In collaboration with UNEP FI, we have developed tools and methodologies to identify and address climate finance, in addition to already having developed and disclosed climate scenarios. In collaboration with FEBRABAN, we developed and implemented climate risk management tools, as well as a process for identifying material risks associated with the E&S risk, including climate risk. We also include implementing the TCFD recommendations among our Positive Impact Commitments, and integrating climate risks and opportunities into our strategy.
Risk management 69.19%	We included climate variables in the calculation of the credit risk rating of the bank's corporate segment (CIB). We have set out a Climate Risk Governance framework. We widened the mandate of the Environmental and Social Risk Committee to also address climate risk. We implemented the monitoring of our corporate loan portfolio's sensitivity to climate risk.
Targets and metrics 84.63%	Our targets for the bank's operating emissions are Science-Based Targets (Scopes 1 and 2 emissions). We adopted PCAF and PACTA methodologies to understand our financed emissions and climate alignment with the Paris Agreement. We have implemented a methodology for analyzing the sensitivity of our credit portfolio to climate risk.

UK PACT ODI Climate Bonds auctusESG

SASB

"SASB Standards guide the disclosure of financially material sustainability information by companies to their investors. Available for 77 industries, the Standards identify the subset of environmental, social, and governance (ESG) issues most relevant to financial performance in each industry." *(SASB)*

Companies can also use SASB's standards internally to

- Identify financially material risks & opportunities
- Inform long-term strategy
- Improve operations

Sustainability Reporting: Impact Materiality

Sustainability Reporting: Financial Materiality

Financial Reporting

Why

- Manage and report sustainability topics that matter to investors

What's in it?

- Disclosure topics, accounting metrics, technical protocols and activity metrics for each industry

Point of view

- Inward looking, the world's impact on company and its financial performance

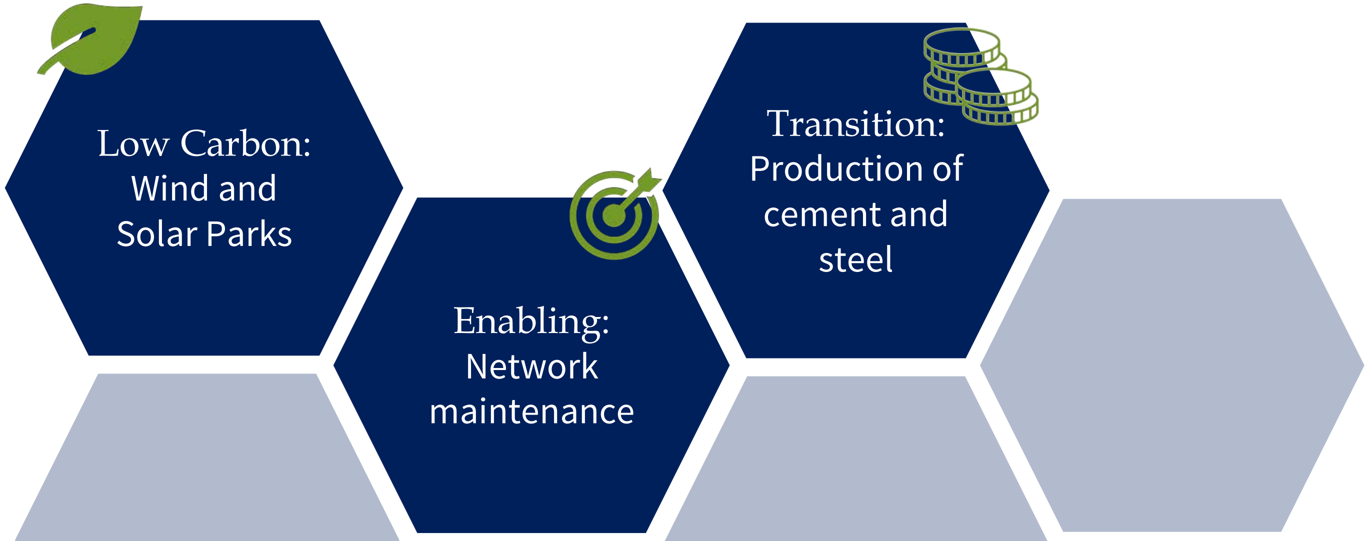
(Adapted from IOP and Perry Goldschein)

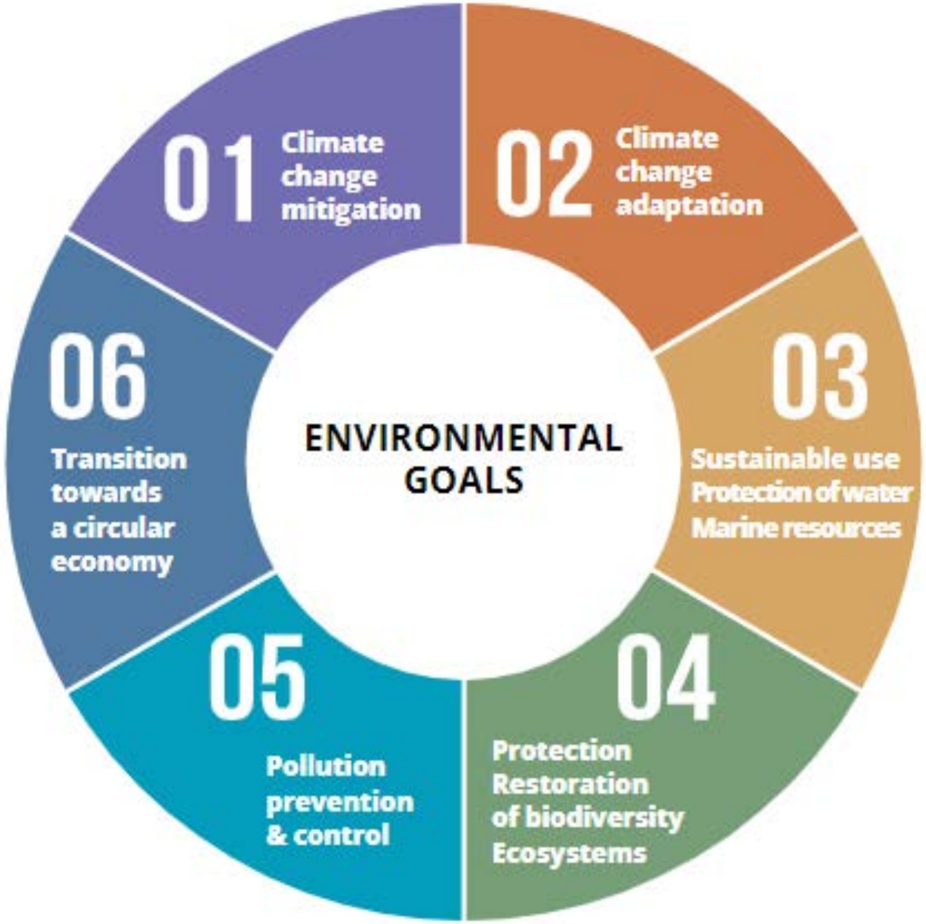
EU Taxonomy

The EU Taxonomy for sustainable activities is a tool to help stimulate investment in sustainable economic activities. It is a new green language that companies need to learn in the coming years.

It is a catalogue of economic activities, such as electricity production and vehicle manufacturing, and the criteria which must be respected for these activities to be considered sustainable.

Types of economic activities:

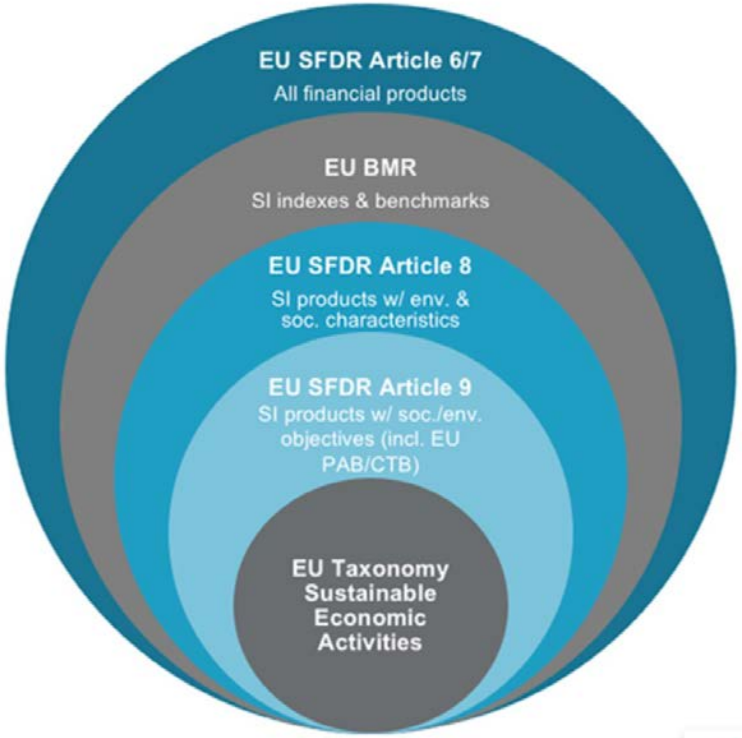




EU Sustainable Finance Disclosure Regulation

The EU SFDR is “a set of rules which aim to make the sustainability profile of funds more comparable and better understood by end-investors” *(ROBECO, 2021)*

The SFDR “lays down harmonized rules for financial market participants and financial advisers on transparency with regards to the integration of sustainability risks and the consideration of adverse sustainability impacts in their processes and the provision of sustainability-related information with respect to financial products.” *(CSSF, 2020)*



Objectives of the SFDR

- Promote transparency & avoid greenwashing
- Facilitate enhanced investor decision-making
- Standardise the language for sustainable investment products

Disclosures at 2 levels

- Entity level
- Product level

(S&P Global, 2021)

UN Principles of Responsible Banking

"The Principles for Responsible Banking are a unique framework for ensuring that signatory banks' strategy and practice align with the vision society has set out for its future in the Sustainable Development Goals and the Paris Climate Agreement" *(UN PRB, 2021)*

40% of global banking assets

$65 tr of total asset base

250 banks

1 Indian bank

UNEP FINANCE INITIATIVE | PRINCIPLES FOR RESPONSIBLE BANKING

The Principles

PRINCIPLE 1: ALIGNMENT

We will align our business strategy to be consistent with and contribute to individuals' needs and society's goals, as expressed in the Sustainable Development Goals, the Paris Climate Agreement and relevant national and regional frameworks.

PRINCIPLE 2: IMPACT & TARGET SETTING

We will continuously increase our positive impacts while reducing the negative impacts on, and managing the risks to, people and environment resulting from our activities, products and services. To this end, we will set and publish targets where we can have the most significant impacts.

PRINCIPLE 3: CLIENTS & CUSTOMERS

We will work responsibly with our clients and our customers to encourage sustainable practices and enable economic activities that create shared prosperity for current and future generations.

PRINCIPLE 4: STAKEHOLDERS

We will proactively and responsibly consult, engage and partner with relevant stakeholders to achieve society's goals.

PRINCIPLE 5: GOVERNANCE & CULTURE

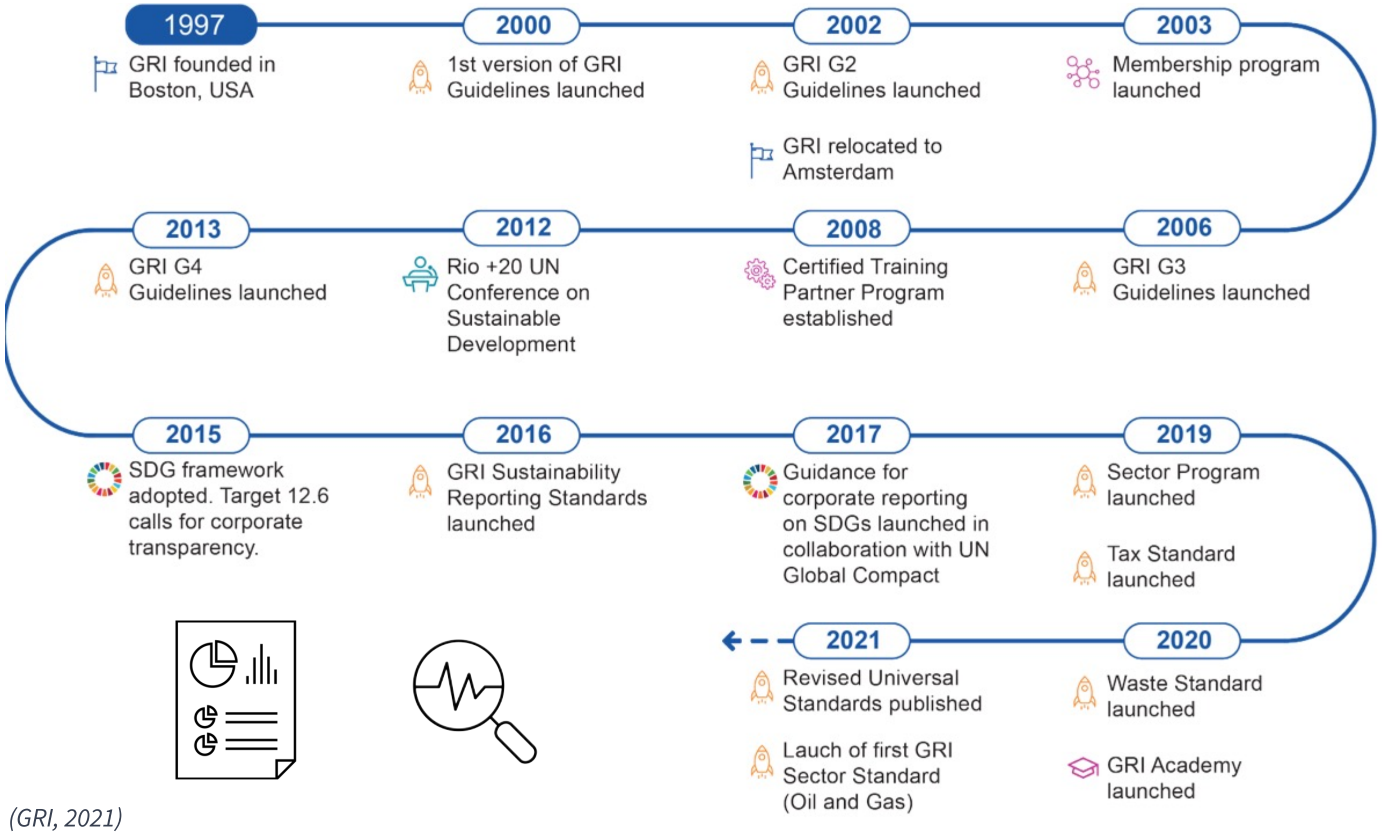
We will implement our commitment to these Principles through effective governance and a culture of responsible banking.

PRINCIPLE 6: TRANSPARENCY & ACCOUNTABILITY

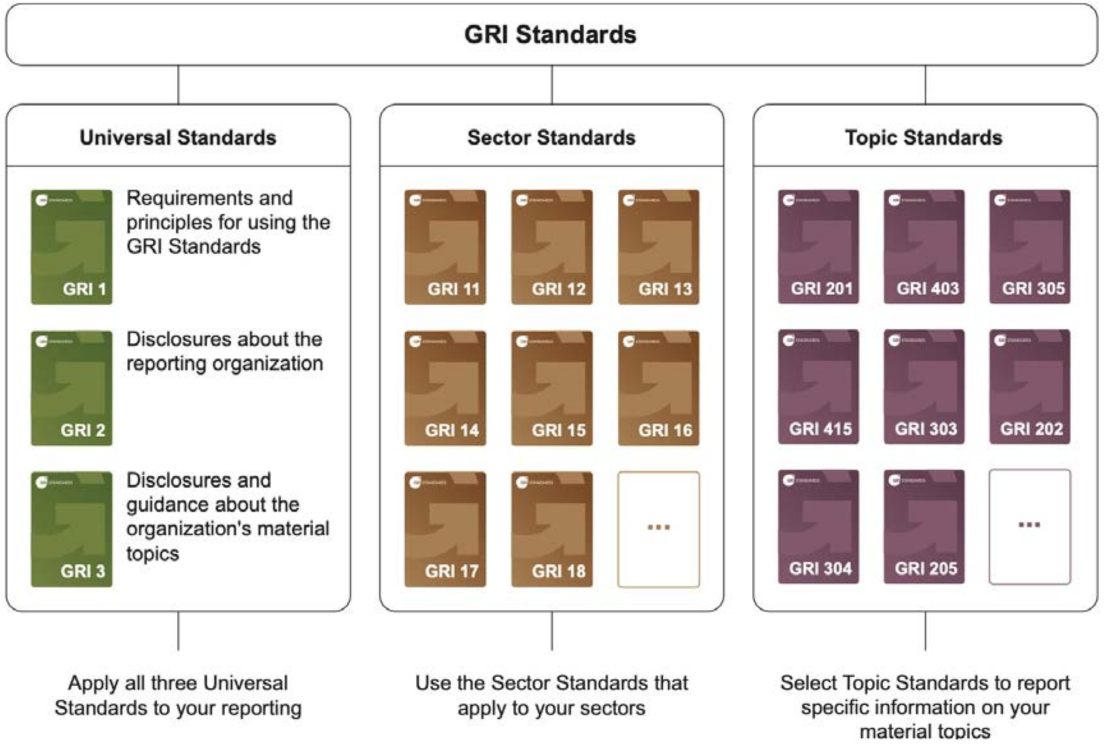
We will periodically review our individual and collective implementation of these Principles and be transparent about and accountable for our positive and negative impacts and our contribution to society's goals.

Global Reporting Initiative (GRI)

GRI is an independent, international standards organization that helps businesses, governments and organizations understand and communicate their impacts on ESG issues



Structure Model of GRI Standards



(GRI, 2021)

Integrated Reporting (IR)

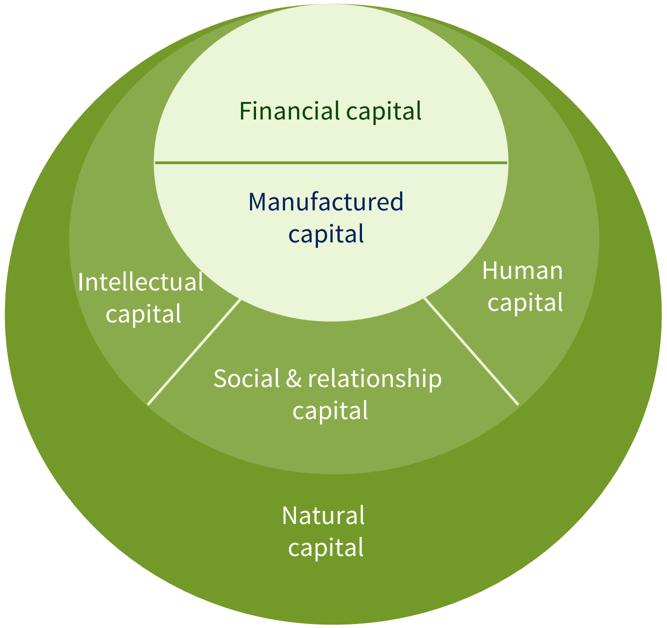
INTEGRATED REPORTING <IR>

An integrated report is a concise communication about how an organization's strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value in the short, medium and long term *(IR)*

Objectives

- Improve the quality of information available
- Promote a more cohesive and efficient approach to corporate reporting
- Enhance accountability and stewardship
- Support integrated thinking, decision-making and actions

The 6 capitals of Integrated Reporting



Value creation

Integrated reporting/thinking → Better decisions → Better actions → Better capital & resource allocation & utilisation → Long-term sustainable value

Business Responsibility & Sustainability Report

Ministry of Corporate Affairs
Government of India

Revised BRSR framework

- Interoperability
- Essential & Leadership indicators
- Sustainability reporting
- Assessment metrics

BRR vs BRSR

BRR	BRSR
1 Applicable to top 1000 listed companies (by market cap)	1 Applicable to top 1000 listed entities on a voluntary basis until for FY21-22 and mandatory, thereafter
2 Reporting as part of the annual report	2 Reporting as part of the annual report and the MCA21 portal
3 Based on 9 core principles that promote transparency, accountability, contribution to sustainability and human rights, stakeholder management and environmental protection	3 Revised framework based on interoperability, essential and leadership indicators, sustainability reporting and assessment metrics

BRSR - Principles

Key disclosures sought in the BRSR

- Overview and approach to address the ESG risks and opportunities
- Environment-related disclosures
- Sustainability related goals, targets and performance
- Social-related disclosures

Principle 1
Businesses should conduct and govern themselves with integrity, and in a manner that is ethical, transparent and accountable

Principle 2
Businesses should provide goods and services in a manner that is sustainable and safe

Principle 3
Businesses should respect and promote the well-being of all employees, including those in their value chains

Principle 4
Businesses should respect the interests of and be responsive to all its stakeholders

Principle 5
Businesses should respect and promote human rights

Principle 6
Businesses should respect and make efforts to protect and restore the environment

Principle 7
Businesses, when engaging in influencing public and regulatory policy, should do so in responsible and transparent manner

Principle 8
Businesses should promote inclusive growth and equitable development

Principle 9
Businesses should engage with and provide value to their consumers in a responsible manner

ESG ratings & rankings

Sudip Sural, CEO, Care Advisory

Challenges

- Differences in scope
- Difficulties in comparability
- Fragmentation
- Lack of global standard

Take home point 10:

Disclosing on non-financial parameters and climate risks is soon becoming an expectation rather than the exception, backed by both regulations and market demand

Polls!

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Break

Please return in 10 minutes!

Part 5

The Way Forward

ESG & climate opportunities

ESG & climate opportunities for India

- Integrating ESG & climate risks in lending
- Investing in positive impact projects
- Innovating products
- Greening internal operations
- Diversifying human capital
- Adopting a 'risk-return-impact' model

ESG & climate opportunities

Integrating ESG & climate risks in lending

- Integrating in ICAAP, ERM, CAM
- Adopting a 360-degree approach
- Pricing risks more accurately
- Measuring financed emissions
  - Requires the borrower to disclose on their carbon footprint
  - Financed emissions 700 times more than operational emissions
  - International banks committed to measuring financed emissions

- ***Limiting/preventing financial and non-financial damages to the institution***
- ***Avoiding reputational impact, legal challenges, fines & fees***

ESG & climate opportunities

Investing in positive impact sectors

- Tagging assets
- Taking targets on climate
- Harnessing opportunities in budding new sectors
- Expanding access to credit for women & other marginalized groups

Curating portfolios more aligned with national and global priorities

Example

Partial Risk Guarantee Fund for Energy Efficiency: Risk sharing mechanism to extend loans for energy efficient projects.

Green Asset tagging, thus helps ensure that correct and consistent projects are funded and increases exposure to positive impact projects

ESG & climate opportunities

Innovating products

- Introducing new products based on technology and sustainability
- Catering to the bottom of the pyramid
- ***Leveraging the rapidly growing sustainable finance market***

Some examples

- Credit Enhancements
- Blended Finance
- Peer-to-peer lending
- Pay-as-you-go

Examples of innovative products

1. Tech-enabled financing solution

The aim is to facilitate rural women and girls so they can access sanitary napkins at subsidised rates

Stakeholders
- A large Indian bank
- A tech company
- A state government

Benefits
- Eliminate misuse of subsidy
- Enhanced access to sanitary napkins
- Improved attendance of girl students
- Financial inclusion

Beneficiaries
- Napkin manufacturers
- Self-help groups
- Non-governmental Organisations

2. Blended finance solution

Aimed at facilitating access to mainstream debt finance for women salt farmers for solar pumps

Stakeholders
- A large Indian private sector bank
- A regional cooperative bank
- A local NGO

Benefits
- Distributed risk amongst all stakeholders while substantially reducing risks for primary lender
- Positive impact on Livelihoods
- Gender empowerment
- Energy Inclusion
- Financial Inclusion

Beneficiaries
- Local salt farmers
- NGOs

ESG & climate opportunities

Greening internal operations

- Placing an internal price on carbon
- Operationalizing ESG and climate risk strategies
- Holding the Board and management accountable for ESG and climate risk performance
- ***Curating a responsible and sustainable banking structure***

ESG & climate opportunities

Diversifying human capital

- Enhancing knowledge on ESG and climate risks
- Requiring ESG and climate risk knowledge and skills in hiring
- Including climate risk experts at the Board level

Building in-house climate expertise to better internal processes and safeguard risks

ESG & climate opportunities

Adopting a 'risk-return-impact' model

- Working towards creating an impact
- Safeguarding against future risks
- Reaping reputational benefits for creating meaningful social and environmental impact

Moving away from the conventional 'risk-return' model

Take home point 11:

Pursuing ESG lending and investment opportunities can generate financial and reputational advantages.

Case Study

Blended finance

OECD blended finance principles

Principle 1

Anchor blended use to a development rationale

Principle 2

Design blended finance to increase the mobilisation of commercial finance

Principle 3

Tailor blended finance to local context

Principle 4

Focus on effective partnering for blended finance

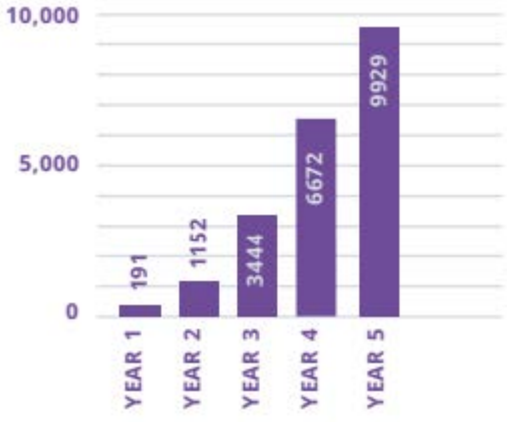
Principle 5

Monitor blended finance for transparency & results

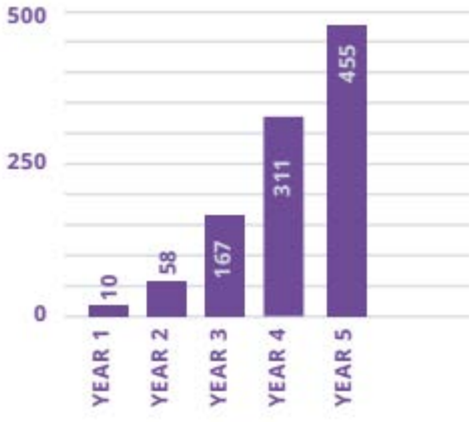
Utkrisht Impact Bond

Example of Outcome based-financing model

Investors	UBS Optimus Foundation (USD 3.5M) Co-investment from service providers: Palladium (USD 0.3M), HLFPPT (USD 0.5M), PSI (USD 0.5M)
Verification	Mathematica Policy Research
Beneficiaries	Base case of 360 private healthcare facilities in Rajasthan, India; up to 444 facilities
Intervention	Support for facilities to prepare for accreditation under a new joint quality standard for maternal and newborn healthcare



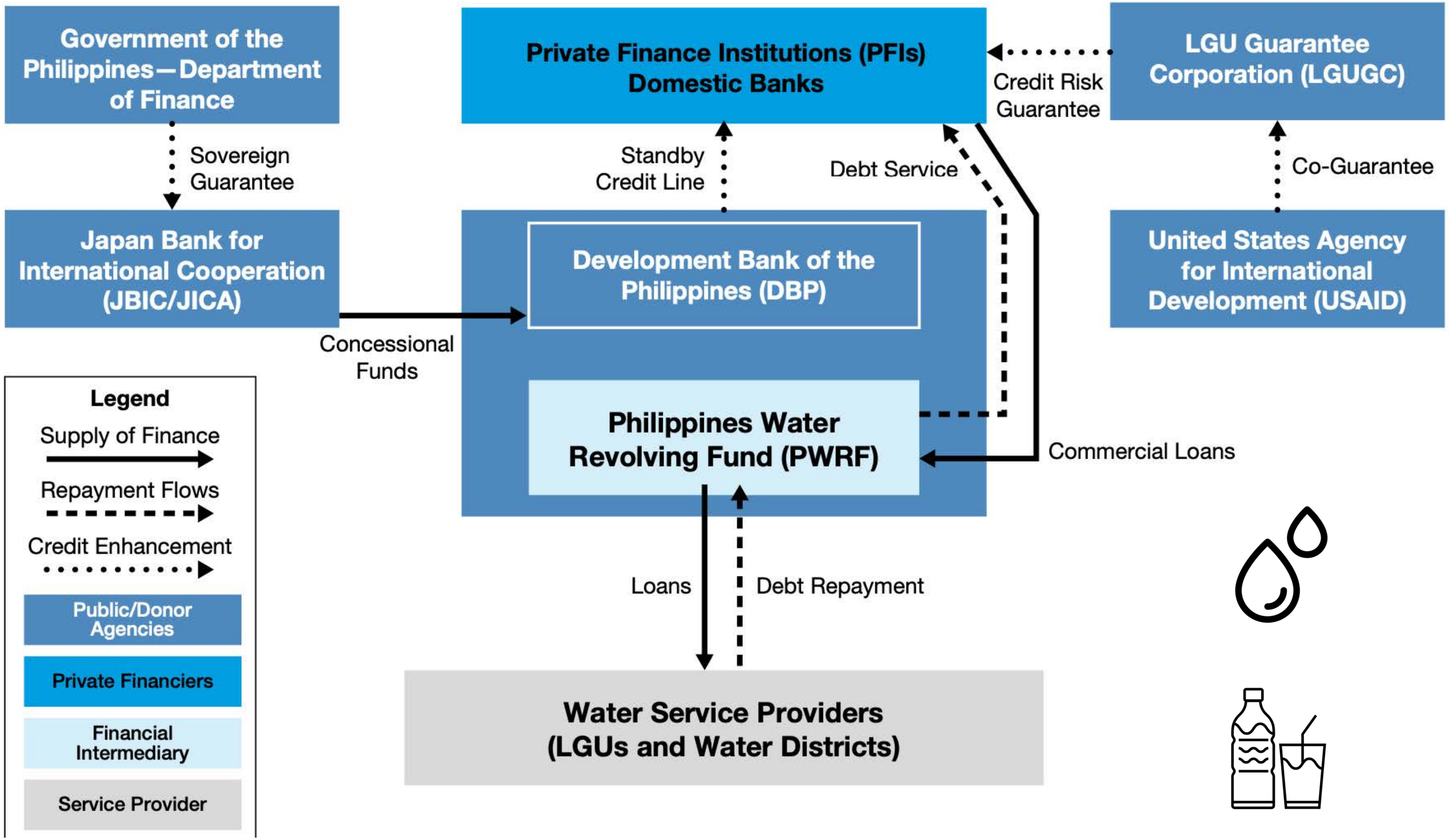
Lives saved



Still births averted

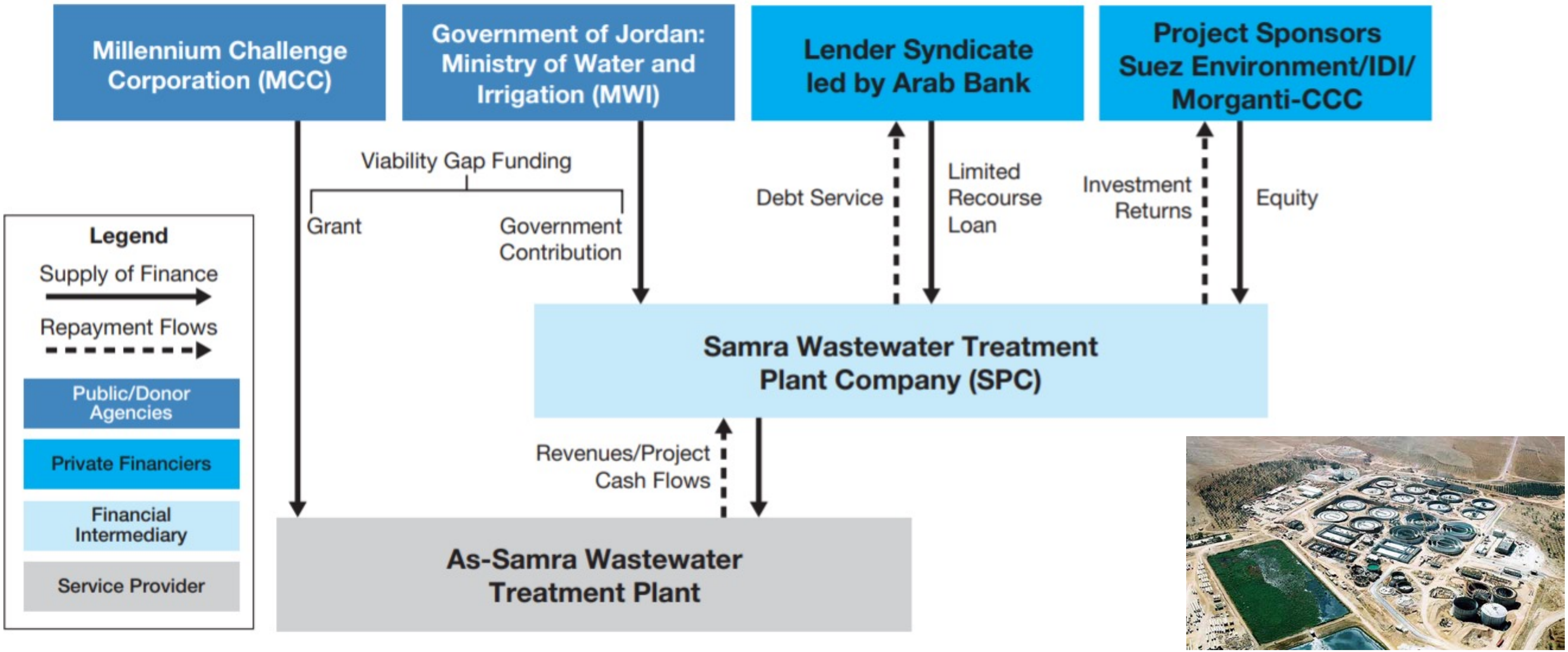
(USAID, 2017)

Philippines Water Revolving Fund



(World Bank, 2016)

Expansion of Wastewater Plant in Jordan



(World Bank, 2016)

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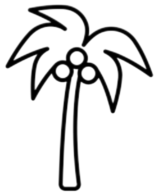
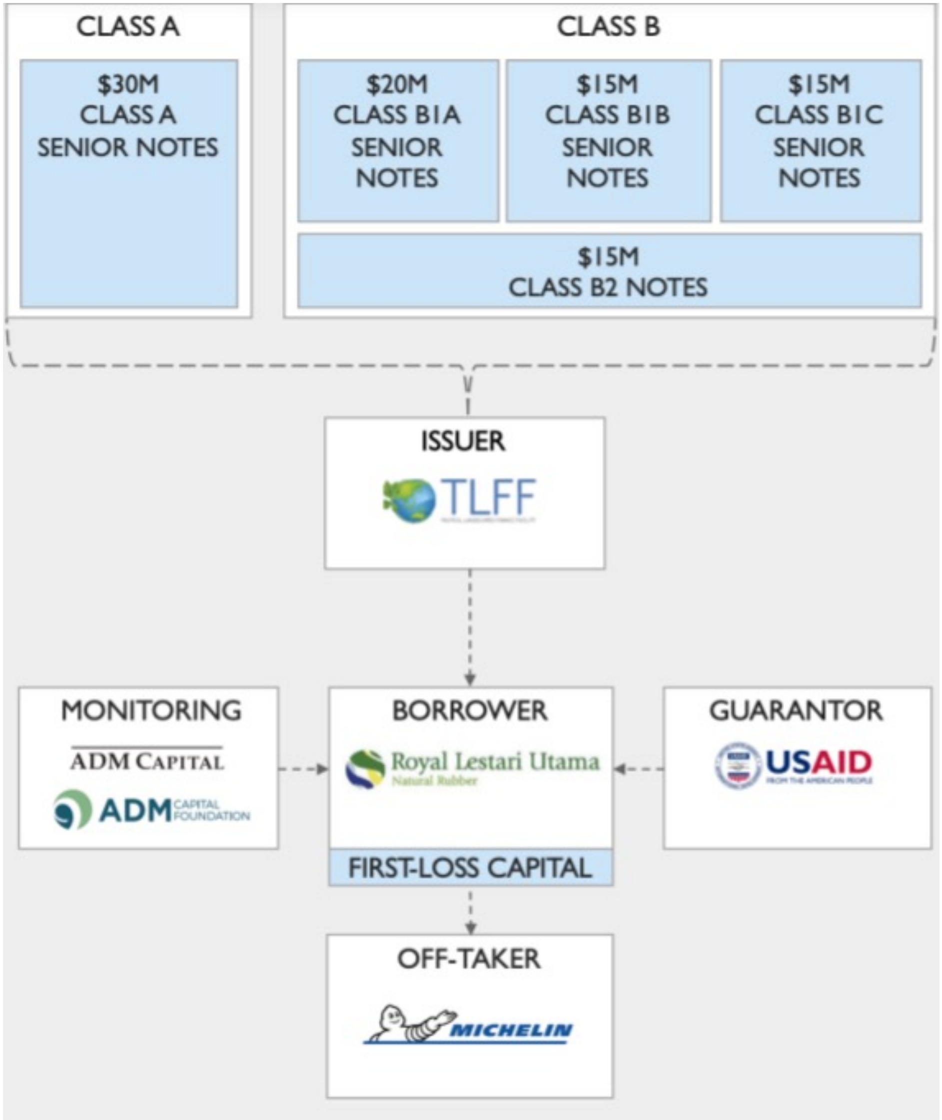
Tropical Landscapes Finance Facility

Tropical Landscapes Finance Facility





(Convergence, 2019)

Activity 3

Create a brief outline of a blended finance facility that can effectively manage risks, achieve returns and make an impact on any of the following SDGs

<u>Please nominate 1 person from your group to present the findings in 30 seconds – 1 minute!</u>

Role of internal stakeholders

Role of credit & risk teams

Create a compliance culture

Integrate ESG & climate risk in the ERM

Integrate ESG & climate risk in the CAM

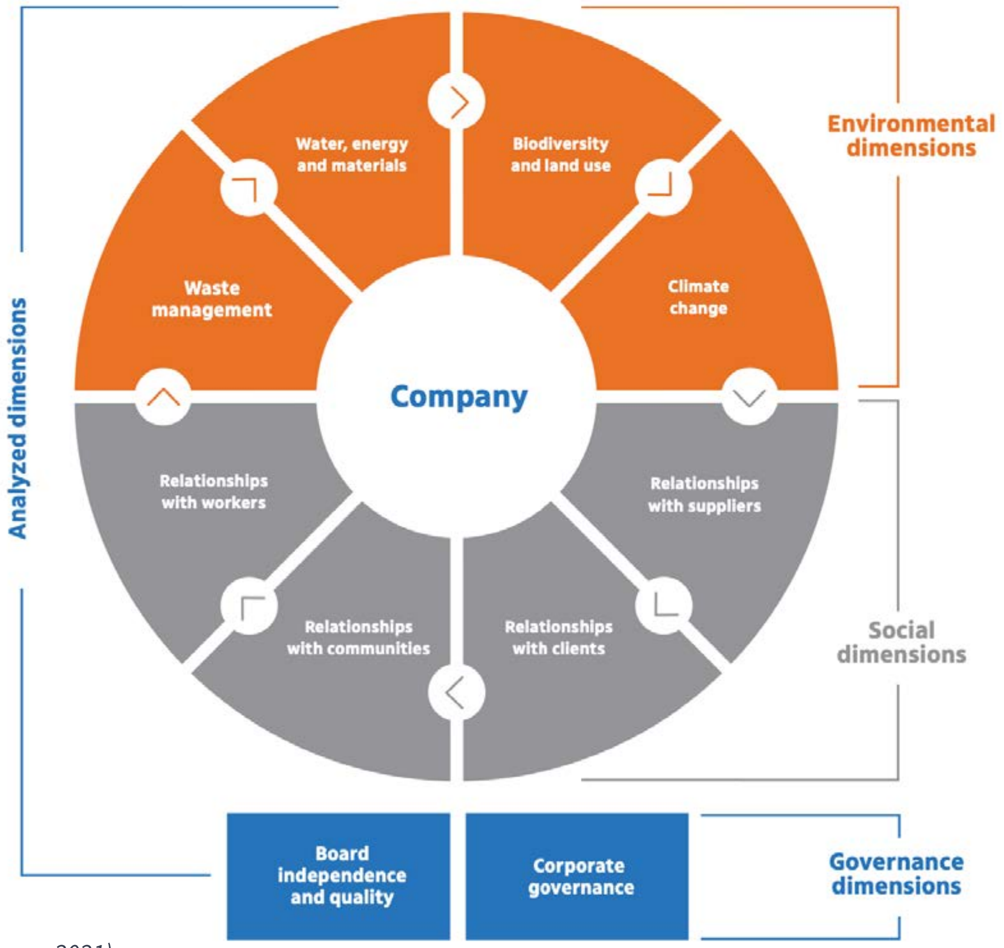
Articulate ESG & climate risk conditionalitie s in assessing loans

Benefits for credit & risk teams

- More robust and comprehensive risk analysis and credit approval processes
- Risk-adjusted pricing for loans and project finance
- Product innovation for alternative and unique sustainable finance/ESG products
- Asset tagging
- Greater social and environmental impact, leading to reputational benefits for the banks and the risk/credit officer
- Diversification in capital providers and access to global sustainable funds

Role of credit & risk teams

Sample analyzed dimensions



(Itaú Unibanco, 2021)

Methodology

Research
- Cross-sectoral dimensions
- Sector specific value drivers
- Company exposure and performance

Quanti-fication
- Metrics to quantify environmental and social impacts
- Determination of cash flows
- Estimation of probabilities

Valuation
- Using DCF method to reach ESG-adjusted valuationNet
- Present Value (NPV) of ESG issues

Role of internal stakeholders

Role of the board & management

Implement better Board oversight on ESG and climate risk

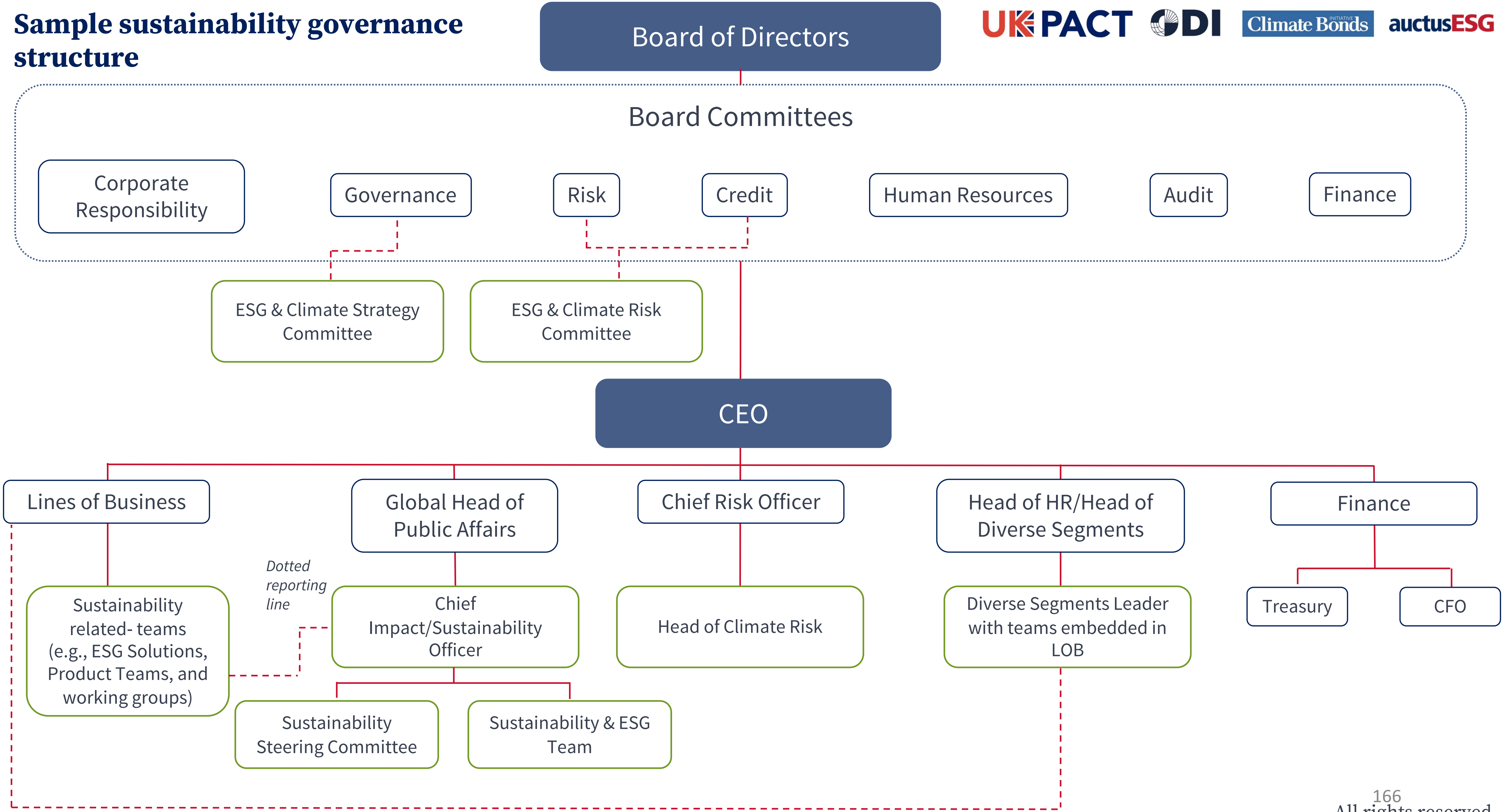
Establish ESG and climate performance targets

Implement disclosure requirements for the bank's internal operations

Require disclosures from borrowers on ESG and climate performance and impact

Articulate a stewardship code that highlights ESG and climate performance and impact

Sample sustainability governance structure



CDC – ESG & climate strategy

Amal-Lee Amin, Director Climate Strategy, CDC Group and Senior Advisor, COP26, Cabinet Office

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Activity 4

Based on what you have learned about ESG and climate risks, identify which of the following ESG/climate factors you would take into consideration while assessing a) retail and b) wholesale lending. Also identify what % weightage you would attribute to your chosen factors and why.

Environment		Social		Governance
GHG emissions (including Scope 1, 2 & 3)	Air, water and soil pollution	Gender equality, diversity and inclusion, POSH	Labour laws, health/safety, grievance redressal, whistle blower and employee privacy	Ethical practices, anti-corruption and anti-bribery practices
Waste/effluents	Climate mitigation adaptation risk	Issues related to the local communities	Transparent disclosure of terms and conditions of products	Governance and oversight mechanisms within the institution
Physical risks of climate change	Transition risks of climate change	Relations with debtors (suppliers)	Others	Others
Environmental regulations	Others			

Please nominate 1 person from your group to present the findings in 30 seconds – 1 minute!

Q&A

End of Day 2