Recommendations to CDC for its Climate Strategy approach with Financial Institutions

INSEAD recommendations to CDC’s FI team

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Executive Summary

The following work was done for the financial institutions equity team (FI Team) of CDC Group, a sector team within CDC's Direct Equity team. CDC supports businesses throughout Africa and South Asia to create jobs and make a lasting difference to people's lives. The company has investments in over 1,200 businesses in emerging economies and a total portfolio value of £5.8bn. This year CDC is expected to invest over $1.5bn in companies in Africa and Asia with a focus on fighting climate change, empowering women and creating new jobs and opportunities for millions of people. CDC's ambition is to play a leading role amongst its DFI peers and the wider investment community in the global efforts to achieve a net zero carbon economy by 2050.

This document does not represent views of CDC, but the INSEAD team's own independent recommendations to CDC and its Financial Institutions (FI) team, the sector team within CDC who is the primary recipient of this document. CDC is expected to launch a new climate change strategy in 2020. This document is expected to inform CDC's own strategy which is being developed independently.

Climate change is a worldwide risk that generally impacts emerging countries more than developed countries. **Climate risks** can have a **material impact** on both the **real economy and the financial system**. The overall finance industry is **moving towards ESG** and institutional investors towards "green" **impact investing**. By providing adapted financing solutions, FIs can promote sustainable development. Financial Institutions looking to advance their climate missions should focus on some key end-industries. More specifically, FIs must adapt to **mitigate these risks** and **support economies** in their green transitions. The taxonomy of climate change investing frameworks, evaluation and reporting systems is maturing. Many of CDC's peers have taken decisive action, consistent with their own sustainability goals.

The FI Team should (continue to) work with three stakeholder groups to pursue its climate mission. The FI Team should use 3 I's in pursuing their climate strategy:

1. **Invest**

   FI targets are evaluated along three categories in DD phase to identify the appropriate engagement type. Detailed criteria have been defined to assign a climate score to each potential target. Example criteria include product offering and financial advisory (demand). Case study 1: Crop insurance in Africa protects the incomes of farmers. Case study 2: Intermediate loans by the EIB financed low-carbon public transport projects in Bulgaria.

2. **Influence**

   Following the investment assessment, a roadmap to climate readiness has been developed. CDC can play a role in driving investees to be more climate-conscious, building on the TCFD. CDC can support its investees in becoming more climate friendly in several specific ways. CDC can play a range of different roles to boost its investees' climate maturity. Existing examples show how different types of FI can implement best practices. Case study: Access, an African bank with few climate-related projects, could be an influence target for CDC.

3. **Involve**

   CDC should work with co-investors and peers (incl. through blended-finance) in targeted ways to increase its efficacy in sustainability. CDC can partner with risk-analysis providers to improve their due diligence and increase their influence. Multilateral Development Banks have already formed partnerships to maximize their collective impact. Case study: CDC could collaborate with Global Parametrics in five different ways.

Once FI's climate strategy is further defined, we suggest deployment in **three phases over the next two years**. Each phase will combine a broad range of activities to build and embed the FI Team's new climate strategy. Exceeding the 1.5°C target increase could **adversely impact returns** of some industries and asset classes. For example, a climate-related disaster - the 2011 Thai floods - significantly hurt financials in the hardware sector. However, there are a number of **key risks and challenges** that CDC must remain cognizant of. Hedging such risks and working toward a 1.5°C scenario could bring significant value to CDC and its investees.

CONTEXT

CDC supports businesses in Africa & South Asia to create jobs & make a lasting difference to people's lives

Overview

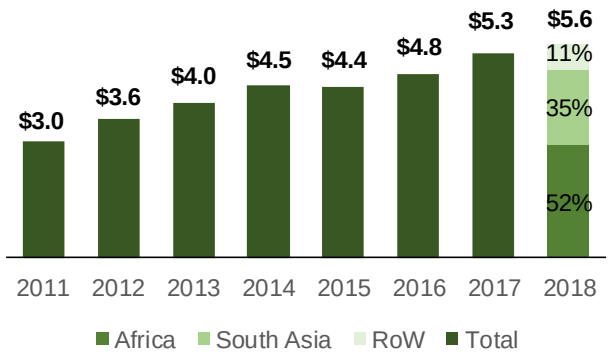
- CDC is UK government owned and operationally independent (public limited company with DFID as sole shareholder)
- Support economic growth while delivering returns for taxpayers
- Invests in South Asia and Africa

Investment products:

- **Direct equity**
  - Typically influential minority positions
  - Ticket size: min $10m - $150m
- **Debt**
  - Project finance
  - Corporate debt
  - Trade finance
  - Financial institutions lending
  - Ticket size: $20m – $100m
- **Intermediated equity and debt**
  - Active limited partner investing in funds across priority sectors
  - Africa's largest limited partner & strong presence in South Asia
  - Intermediated debt and risk sharing agreements
  - Ticket size: $5m – $150m+

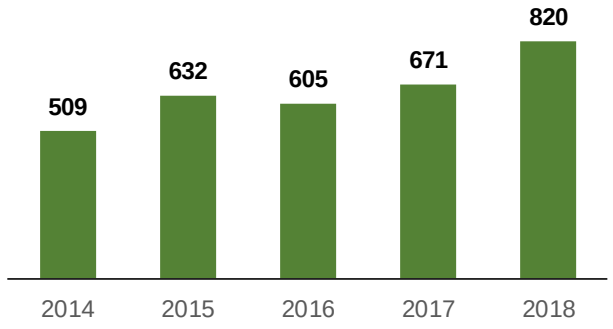
Portfolio size ($bn)

Invested in >1,200 businesses (>690 in Africa)

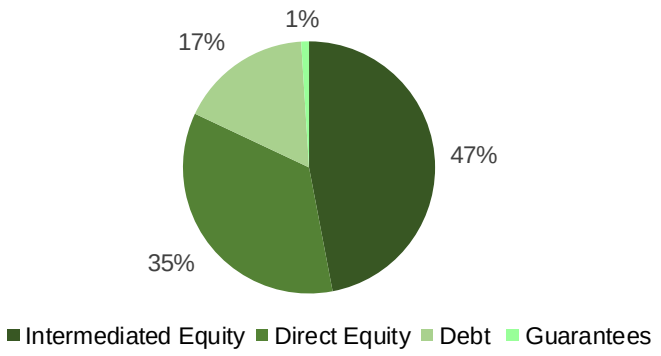


Direct jobs supported….

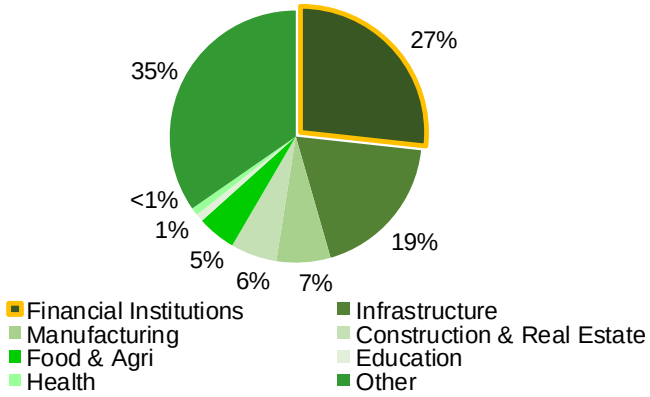
… at BoP by investee companies



Portfolio product **breakdown**



Portfolio sector breakdown



Financial Institutions (FI) is a sector team within CDC, and the primary recipient of this document

Source: CDC website

The Paris Agreement gives CDC a far-reaching climate mandate to inform any future strategy

CDC's ambition is to play a leading role amongst its DFI peers and the wider investment community in the global efforts to achieve a net zero carbon economy by 2050

CDC identified combating climate change as a key commitment area in its 2017-2021 Strategic Framework
CDC is expected to launch a new climate change strategy in 2020

CDC's approach to climate will likely impact how CDC invests and operates

"How it invests"

Understand **climate impact** of portfolio and **providing and mobilizing capital** in climate sectors (e.g., green buildings, forestry, resilience of agriculture / ports), as well as **adding value** to their firms beyond capital

"How it operates"

Ensure **future proof** of CDC's financial return and development impact by creating **risk governance structures**, hedging **financial risks**, and maintaining **accountability** through scenario analyses and appropriate metrics

… drawing on alignment with the Paris Agreement

Net zero emissions by 2050

Reducing resource consumption and carbon emissions through investments in various sectors (e.g., renewable energy, transport) to ensure a maximum global temperature increase of 1.5°C

Just transition

Delivering a net zero future in a socially inclusive manner, through job creation/ upskilling in low-carbon/ resilient sectors

Adaptation & Resilience

Addressing vulnerabilities to climate shocks in sectors at risk (e.g., construction & real estate, agriculture) and building up resilience (e.g., water infrastructure, etc.)

FI Team is currently developing its own sector-specific climate strategy, which this document will inform

Source: CDC website, publications and interviews

We are grateful to the individuals and CDC teams that provided their insights on this topic

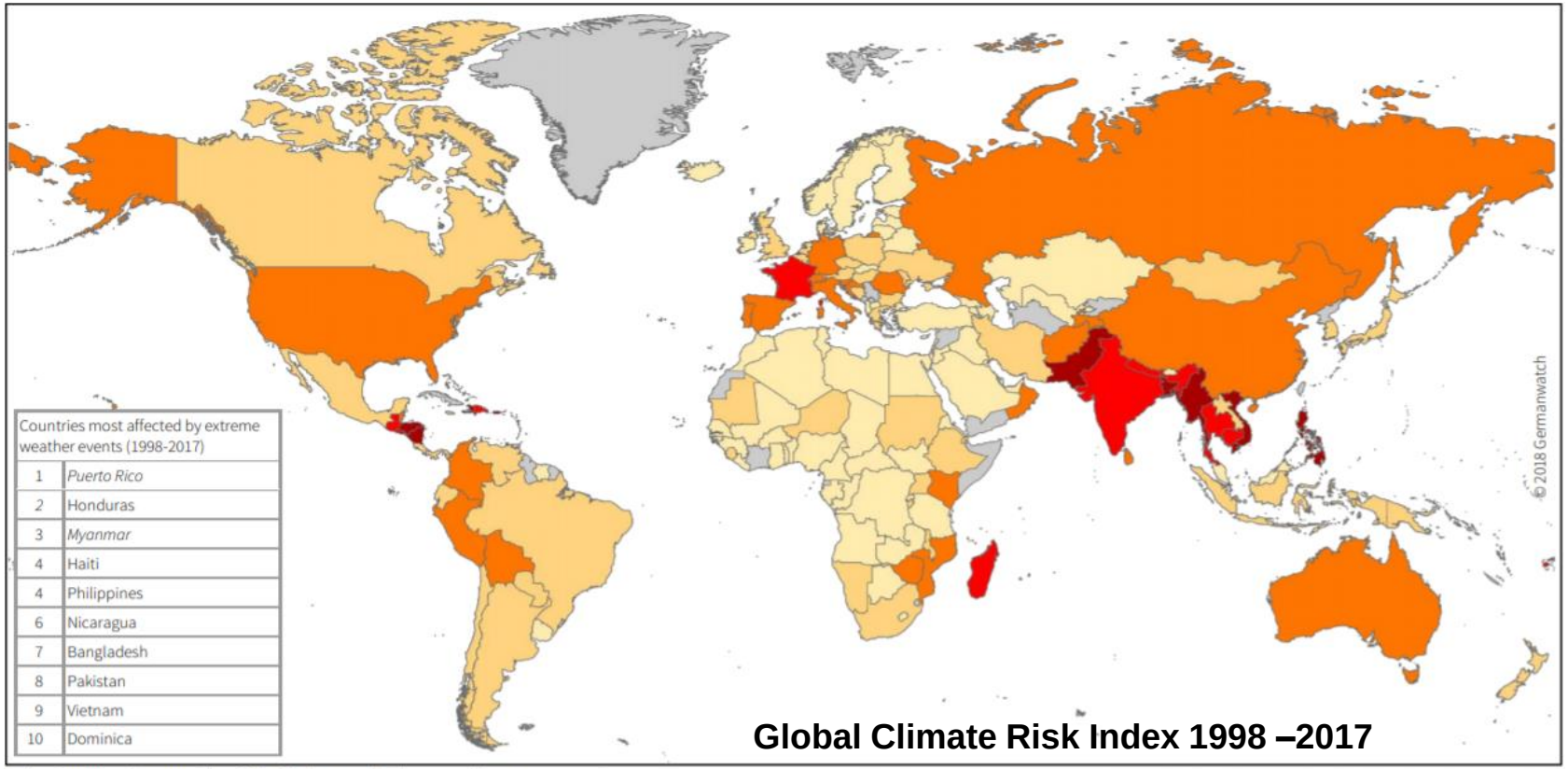
Financial Institutions	Enika Jorgoni & Wasim Tahir
Climate Team	Dr. Amal-Lee Amin & Nicola Mustetea
Intermediated Climate Initiative Team	Salma Moolji, Alex Goodenough
Environment & Sustainability	Mark Eckstein

This report has been developed in discussions with CDC, but might differ from CDC's views and has not been endorsed by CDC

CLIMATE FINANCE SPACE

Climate change is a worldwide risk that generally impacts emerging countries more than developed countries

Map of climate risks, reflecting countries' vulnerabilities to climate change



Italics: Countries where more than 90% of the losses or deaths occurred in one year or event

Climate Risk Index: Ranking 1998 - 2017 1- 10 | 11 - 20 | 21 - 50 | 51 - 100 | >100 | No data

Most impacted countries

Bangladesh:

- Sea level rise, flooding and cyclones causing migration and displacement

Pakistan:

- Volumetric flow rate of rivers affecting farmers

Myanmar:

- Droughts are causing diminished water sources and destroying agricultural yields

Zimbabwe:

- Water supply, food security, vector borne diseases and malnutrition

Mozambique:

- Sea level rise, frequent flooding, stronger cyclones, climate driven vector borne diseases and malnutrition

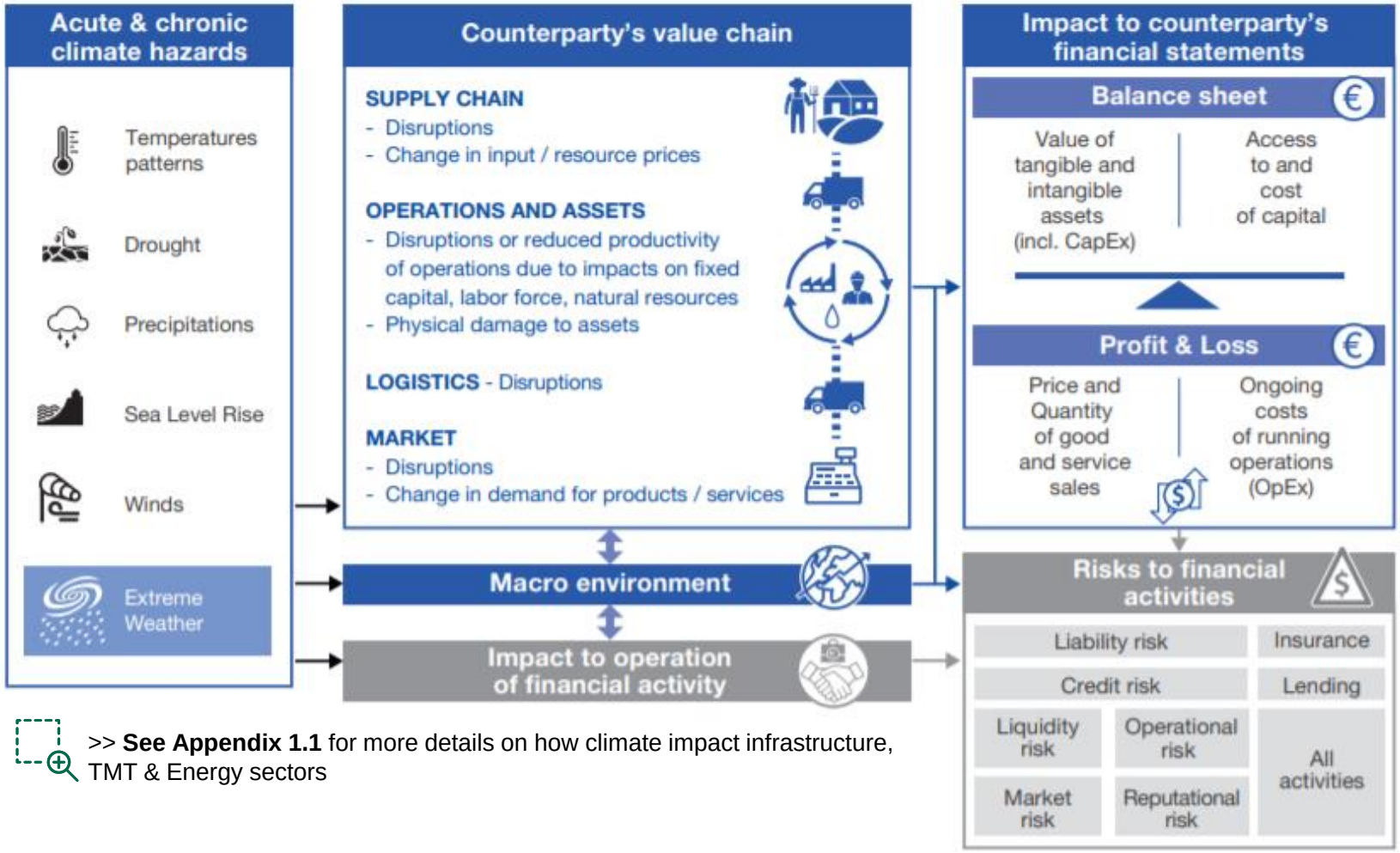
Madagascar:

- Sea level rise, stronger cyclones and further droughts, which will have a dramatic impact on food security and infrastructure

Source: GLOBAL CLIMATE RISK INDEX, German Watch 2019

Climate risks can have a material impact on both the real economy and the financial system

Propagation of climate-related risks to financial performance in the real economy



>> **See Appendix 1.1** for more details on how climate impact infrastructure, TMT & Energy sectors

Key highlights

Climate change can cause:

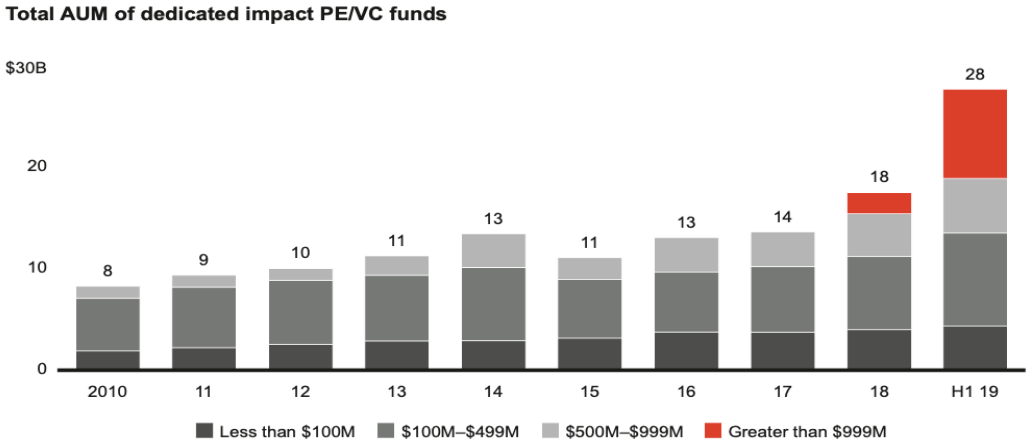
- **Acute hazards:** i.e. event-driven hazards, including more frequent and intense extreme events such as cyclones or heatwaves
- **Chronic hazards**: i.e. long-term change in the mean and variability of climate patterns such as mean temperatures
- **Those risks affect financial institutions** when their counterparties suffer climate change impact and are unable to pay back loans, provide dividends or impact their valuation
- It can translates into **credit risks** (e.g. reduced counterparty creditworthiness), **market risks** (e.g. change in equity price), and finally **liquidity risks** (e.g. abrupt repricing of physical climate risks)

Source: Getting-started-on-physical-climate-risk-analysis, I4CE & ClimINVEST, 2017

The overall finance industry is moving towards ESG and institutional investors towards “green” impact investing

Climate trends with evidence ESG investing enhances performance

Total AUM dedicated to ESG PE funds



- **Growing appreciation** by the finance industry of the impact that green investments factors can have on value creation, long-term company performance, and the health of society at large
- Green finance is having a **significant social impact** in emerging markets through targeted investments and improved management resulting in lower prices for essential goods and services

CASE STUDY 1

PE firm Terra Firma Capital Partners demerged the non-core division, Infinis, from Waste Recycling Group to create the UK’s largest independent renewable energy generator. Infinis had its IPO in 2013

CASE STUDY 2

Co-funding opportunity between Partners Group and Quadriga Capital to AHT resulting in Cooling tech that is significantly more energy efficient than competing technologies

CASE STUDY 3

KKR partnered with the Environmental Defence Fund to developed its Green Portfolio Program used as an “environmental lens” to assess business activities of KKR’s participating private equity portfolio companies

Key trends in FI

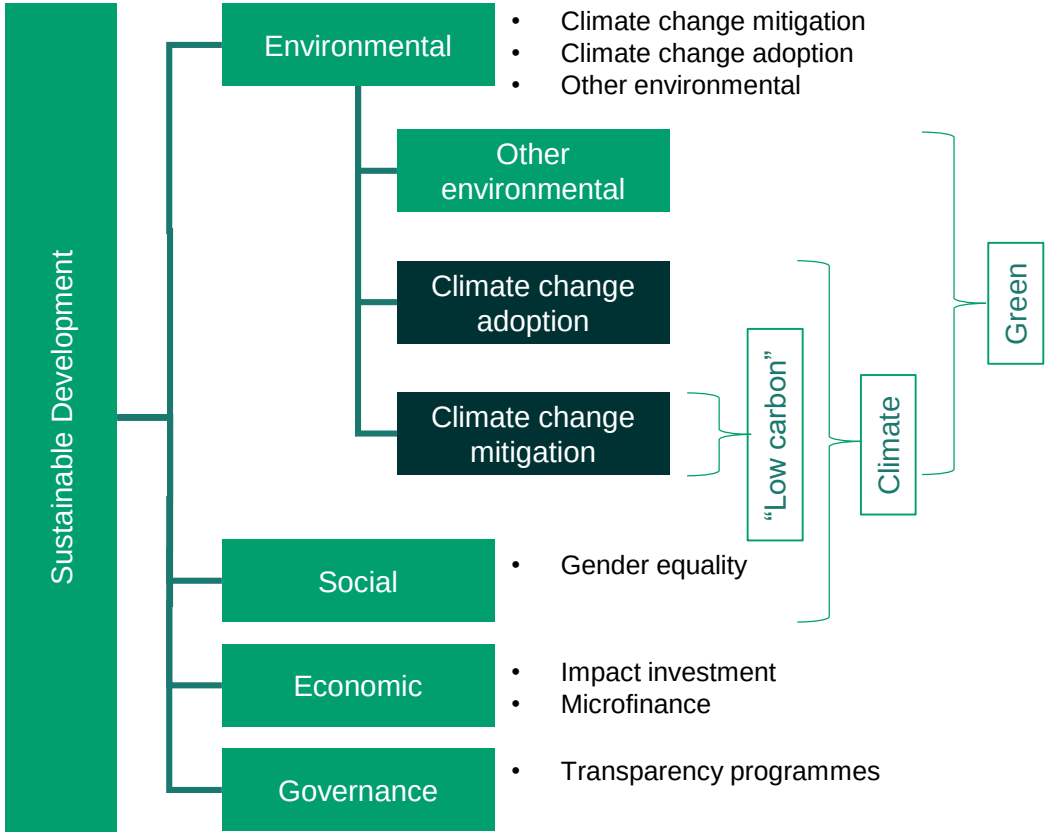
- 2019: **AUM of $2.4 trillion** pledged carbon neutrality by 2050
- PE/VC AUM up from $8 bn in 2010 **to $28 bn in 2019**
- Banking and financial sectors are **taking a developmental approach** to prioritise economic opportunities emerging under ESG financing
- **Following development of the TCFD, more banks reporting** climate risk exposure but few have started disclosing the carbon footprint from their portfolios
- Most banks’ climate risk management is at an early stage, but **few have dedicated climate risk committees**
- **Visibility remains limited** of potential impact of climate change-related risks on banks’ financial performance

Source: Global Private Equity Report 2020, Bain & Co.

By providing adapted financing solutions, FIs can promote sustainable development

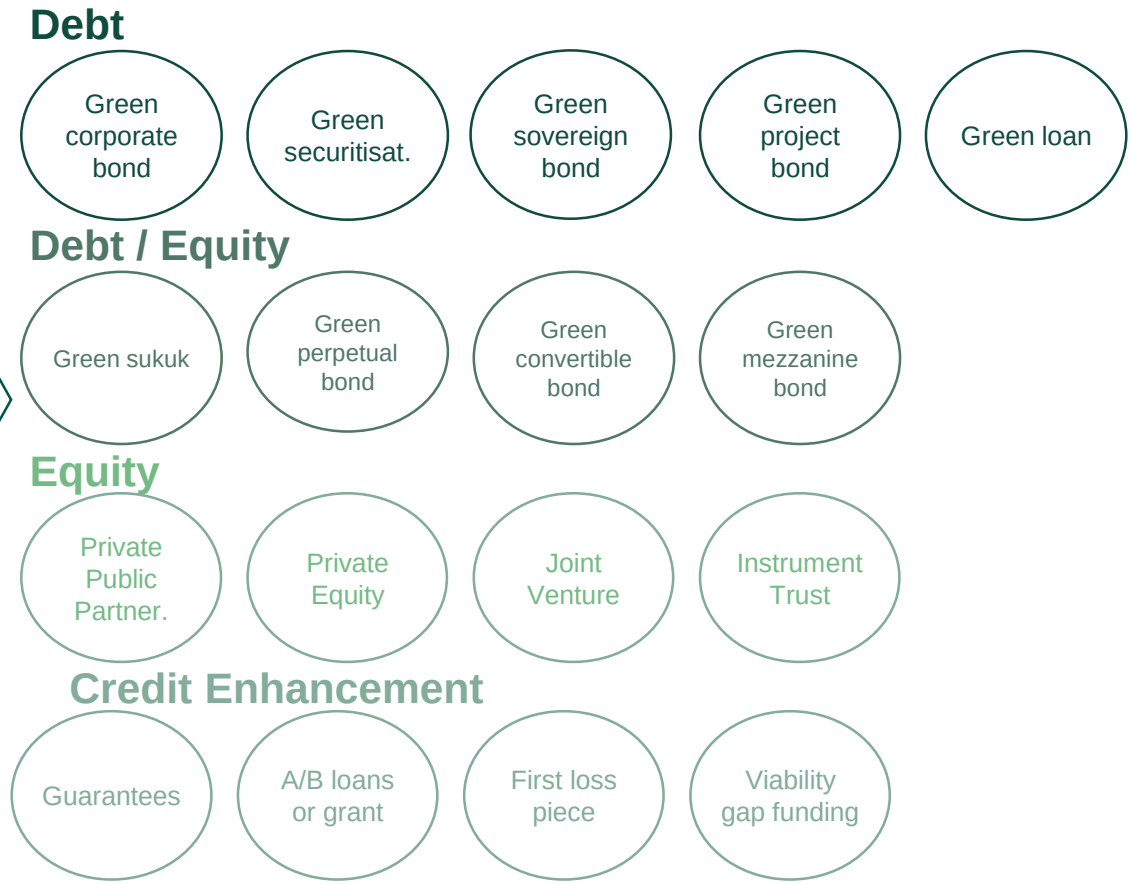
What is sustainable Finance

Financing that is focused on **maximizing both social & financial returns**, or prioritizing impact over financial returns



Funded by both debt and equity

Financing in the form of credit lines and direct investment supporting targeted area



Source: Dimensions of sustainability in financial decision-making. Source: UNEP (2016).

Source: ASEAN green Financial instruments Guide (Climate bond initiatives 2019)

Financial Institutions looking to advance their climate missions should focus on some key end-industries

/ILLUSTRATIVE

Climate-positive/ least at risk industries

- Renewable energy
- Automakers producing hybrid/ electric cars
- Clean Tech or Energy/ Water efficient co.s
- Apparel (if adapting to customer preferences)
- Consumer goods (if adapting)
- Innovative solutions (e.g. new building materials and eco-friendly construction)

Most affected industries

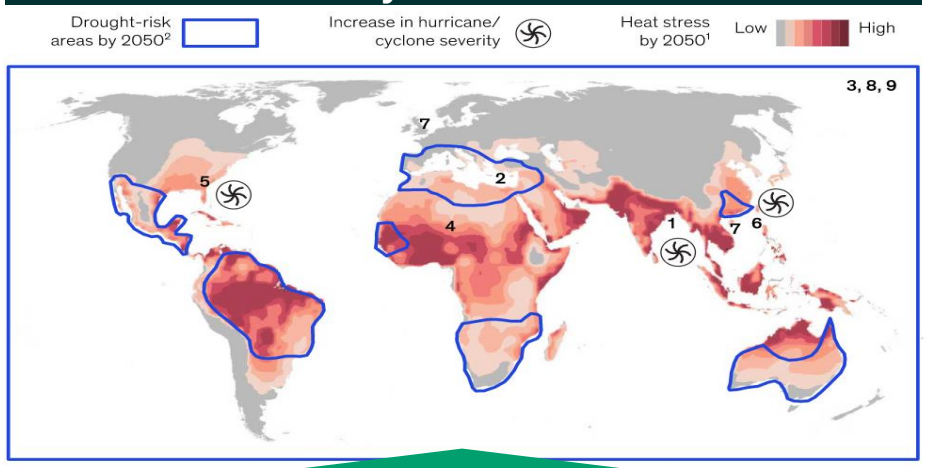
- Traditional Energy (Oil, Gas, Coal, Utilities)
- Infrastructure and buildings
- Agriculture and forestry
- Insurance
- Tourism
- Food & Beverages
- Construction (incl. input materials)
- Transportation (incl. Air, Maritime, Rail, etc.)

Source: TCFD, 2018; European Commission, 2020

>> See Appendix 2.11 to know more about the key industries impacted by climate in SEA

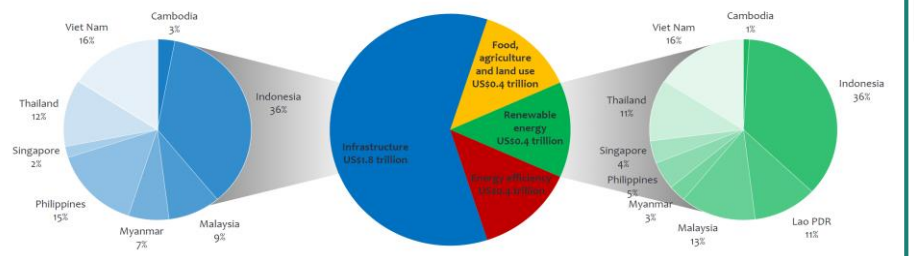
More specifically, FIs must adapt to mitigate climate risks and support economies in their green transitions

Physical Risks



Green investment / transition opportunities

ASEAN green investments opportunities 2016 – 2030: $3tn



FI	Risks	Opportunities
Banking	• Direct losses due to exposure to at-risk industries (through drought, precipitation, soil erosion, flood, …) • Additional costs due to changes in weather patterns • Regulatory risk	• Strengthen the market for small energy providers • Set up of carbon fund and fund custody • Microfinance for climate-friendly activities
Insurance	• Exposure to at-risk industries • Increased cost due to claims following climate-related events • Need for increased expertise & capabilities for risk pricing • Lack of capital/reinsurance	• Develop creative coverage solutions that will reduce losses for end-users in event of loss/ damage • Risk differentials can be priced • Carbon becomes an insurable risk
Asset Manager	• Market risk, due to exposure to at-risk industries • Increased volatility on returns • Need for increased expertise and capabilities across the organization	• Resource efficiency creates value for all stakeholders • Harmonization of climate assets among different systems • Develop an authentic and credible investment approach
FinTech	• Price volatility on carbon markets and carbon-related products • Direct losses due to exposure to at-risk industries (through drought, precipitation, soil erosion, flood, …) • Higher customer expectations	• New products and services • New market standard • Barriers of entry against conventional brick and mortar competitors

Source: Climate change risk and response (Mckinsey report 2020), Green Finance opportunities in ASEAN (DBS report, 2017), "Final Report: Recommendations of the Task Force on Climate-Related Financial Disclosures"

The taxonomy of climate change investing frameworks, evaluation and reporting systems is maturing

/NOT EXHAUSTIVE

	Authority	Description	Users
Principles for Responsible Investing	United Nations	• International network of investors working together to put six targeted principles of ESG investing into practice • Based on fundamentals of ESG integration	Asset owners, investment managers & institutional investors
Taskforce for Carbon Disclosure	Financial Stability Board	• Voluntary climate-related financial risk disclosures for use by companies in providing information to investors, lenders, insurers, and other stakeholders • Wholistic consideration of physical, liability and transition risks associated with climate change	Companies, banks, investors
Morningstar Globe Ratings	Morningstar	• Sustainability Rating used to help investors understand the vulnerability of their investment portfolios to environmental, social, and governance (ESG) factors	Investors in public markets, unit trusts, ETFs
European Taxonomy	European Union	• Classification system for sustainable activities and a framework to facilitate sustainable investment. Provides screening criteria for activities that can make a substantial contribution to climate change mitigation or adaptation	Governments investors, companies
Climate Bonds Standard	Climate Bonds Initiative	• Standardised set of verification criteria for green bonds • Tool allowing investors and intermediaries to assess the environmental integrity of bonds	Banks, lenders

>> See Appendix 1.2 for more details on the regulations status in ASEAN & Appendix 1.3 on the maturity of green Finance in ASEAN

Many of CDC's peers have taken decisive action, consistent with their own sustainability goals

Peer	Approach	Investment Examples
IFC	• Invest directly in climate-smart sectors, developing new de-risking and aggregation mechanisms • Engaging public and private sector stakeholders through international forums and working groups • US$ 5.8B in combined mobilization and investment for the IFC climate business in FY19	• Standard Bank of South Africa's Green Bond Issuance (US$200M) • Scale up sustainable energy investments, particularly for SMEs in Ukraine (up to US$50M)
FMO Entrepreneurial Development Bank	• Climate Investor One ($850M) is a fund with an emerging markets renewable energy mandate • It is a 'blended finance' investment vehicle focused on providing capital to climate mitigation and adaptation sectors in developing countries. • Climate Fund Managers (CFM) are dedicated to these investments	• Cleantech Solar (rooftop solar panels in Asia) • Africa Hydro Holdings (hydro platform in Uganda) • Acumen Resilient Agriculture Fund (ARAF)
ADB ASIAN DEVELOPMENT BANK	• ADB is facilitating greater flows of climate finance into the Pacific region, with energy and transport as the leading two sectors • At least 75% of the number of ADB's committed green bond operations will be supporting climate change mitigation and adaptation by 2030 • From 2011 to 2019 ADB approved over $36 billion in climate financing	• ADB Green Bonds (US$ 700M since 2018) • Pacific Funds (~US$ 500M for climate and disaster relief in the Pacific Islands, focusing on adaptation and mitigation

Source: IFC Press Releases. FMO Press Releases, ADB Press Releases

APPROACH

The FI Team should (continue to) work with three stakeholder groups to pursue its climate mission

Co-investors and Peers

- **Private Equity Firms** with dedicated impact investing funds, including Apollo, Bain Capital, Blackstone, Carlyle, KKR, TPG
- **State Pension Funds** with large PE allocations, including CalPERS, CalSTERS, New York State Pension Fund, Washington State Investment Board, CPPIB, PSP, OTTP, OMERS
- **Sovereign Wealth Funds** including GIC, Tamasek, ADIA
- **Development Finance Institutions (DFIs)**, including ADB, AfDB, DEG, EBRD, EIB, FMO, IFC, Proparco

>> **See Appendix 3.1** for acronym definitions

New Target Companies

- **NBFIs**
  - MFIs
  - Housing
  - Leasing
- **Commercial Banks** *(lower priority)*
- **FinTechs**
  - Payments
  - Alternative Lending
  - Bank Infrastructure
- **Insurance Companies**
  - Life/ Non-life/ Composite
  - Reinsurers
  - Parametric & Insuretech
- **Others**
  - Asset Managers
  - Credit Bureaus
  - Exchanges

Current Portfolio Companies

- **Portfolio FIs with scope to reduce the environmental impact,** e.g., via
  - Identification and tracking of climate KPIs to manage exposure to at-risk industries and increase opportunities
  - Reducing the carbon footprint or offsetting carbon from day-to-day operations
- **Portfolio FIs with the capabilities to support firms looking to prevent climate change or increase resilience against the impacts of climate change,** e.g., through
  - Investing in renewables
  - Raising awareness of climate change related topics
  - Enabling local communities to protect themselves against the adverse impacts of climate change, such as flooding and droughts

How CDC should collaborate with each of these groups will be detailed in the following slides…

Source: Press search

The FI Team should use 3 I's in pursuing their climate strategy: Invest, Influence and Involve

INVEST

… in New Target Companies

- **Invest in Financial Institutions** with demonstrated
  - **Impact:** Product or service offering have the potential to support the most vulnerable populations
  - **Sensitivity:** Measures in place to mitigate their portfolio climate risks
  - **Capabilities:** Able to raise the profile of sustainability in their organisations

INFLUENCE

… Current Portfolio Companies

- **Encourage portfolio companies to become more climate conscious** in three ways:
  - **Educate** on regulations and policies, climate trends and carbon tracking methodologies
  - **Advise** on risk assessment and new financial products
  - **Connect** with other organisations

INVOLVE

… Co-investors and Peers

- **Collaborate, co-invest, share resources and co-develop training materials** with other DFIs
- **Jointly invest** with PE firms, SPFs and SWFs
- **Partner** with FIs outside of CDC's portfolio
- **Connect** portfolio companies with solutions providers

Deep Dive: How the 3 I's map to the standard PE process

Standard PE fund operations

Deal Generation → **Due diligence** → **First 100 days** → **Ongoing ownership** → **Exit**

A - INVEST

CDC Investment works

Targets list

Run climate-impact due diligence

Climate mastery score

Develop specific Climate-influence program

B - INFLUENCE

Climate maturity personalized program

Implement action plan & track progress

Final Climate impact assessment

Handover plan

Target allocation vs. ideal state

Non-Mature

Initial state

Target maturity

Ideal FI state

Personalized program

- Targets definition
- Roadmap
- Action plan
- Governance structure
- Team mobilization plan

C - INVOLVE

Financers

Co-investors
Peers

Enablers

Risk analytics providers
Technical Assistance
Policy makers…

INVEST

… in New Target Companies

INFLUENCE

… Current Portfolio Companies

INVOLVE

… Co-investors and Peers

Invest: FI targets are evaluated along three categories in DD phase to identify the appropriate engagement type

Categories of evaluation at due diligence

Impact Capturing opportunities	**Sensitivity** Mitigating risks	**Capabilities** Promoting stewardship
Evaluation of product **offering** & financial **advisory** and investment **portfolio** to support transition & resilience of **most vulnerable populations**	Evaluation of portfolio **risk exposure**, carbon **emissions** tracking*, and **TCFD** reporting	Evaluation of target's **operations**, incl. carbon emissions tracking for target and willingness
Up to 20 points	**Up to 20 points**	**Up to 12 points**

Combined climate score: up to X points

Evaluation approach

Data Inputs

Product offering & investment portfolio

Capability interviews

Evaluation along detailed criteria

Climate score

Definition of engagement type

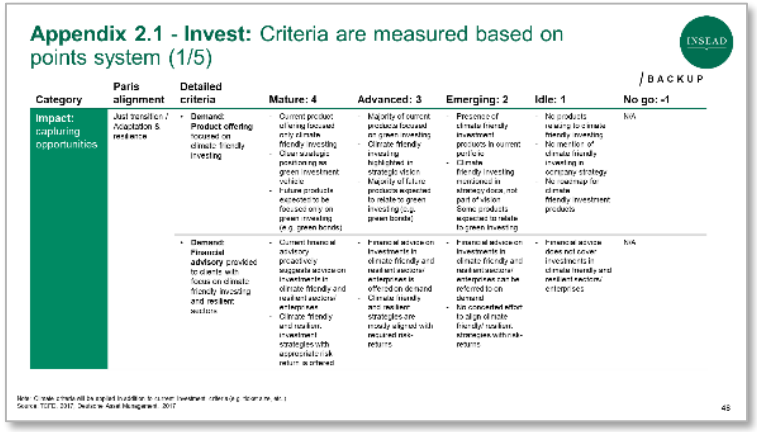
- **Invest and scale**
- **Invest and influence**
- **No go**

Engagement type

Climate score	Engagement type	Description
>30	**Invest and scale**	Boost existing actions with capital
0-30	**Invest and influence**	Provide capital for growth & technical support for development of climate approach
<0 (indicates presence of No Gos)	**No Go**	Do not invest

*e.g. by weighted average carbon intensity; TCFD = Task Force on Climate-related Financial Disclosures; Note: Climate criteria will be applied in addition to current investment criteria (e.g. ticket size, etc.)
Source: TCFD, 2017; Deutsche Asset Management, 2017

Invest: Detailed criteria have been defined to assign a climate score to each potential target



Appendix 2.1 - Invest: Criteria are measured based on points system (1/5)

/ BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Impact: capturing opportunities	Just transition / Adaptation & resilience	• **Demand: Product offering** focused on climate friendly investing	- Current product offering focused only climate friendly investing - Clear strategic positioning as green investment vehicle - Future products expected to be focused only on green investing (e.g. green bonds)	- Majority of current products focused on green investing - Climate friendly investing highlighted in strategic vision - Majority of future products expected to relate to green investing (e.g. green bonds)	- Presence of climate friendly investment products in current portfolio - Climate friendly investing mentioned in strategy docs, not part of vision - Some products expected to relate to green investing	- No products relating to climate friendly investing - No mention of climate friendly investing in economy strategy - No roadmap for climate friendly investment products	N/A
		• **Demand: Financial advisory** provided to clients with focus on climate friendly investing and resilient sectors	- Current financial advisory proactively suggests advice on investments in climate friendly and resilient sectors or anticipates offer/demand for advice - Climate friendly and resilient strategies with investment strategies with associated risk return as criteria	- Financial advisor on investments in climate friendly and resilient sectors anticipates can be offer/demand for advice - Climate friendly and resilient strategies are mostly aligned with required risk-returns	- Financial advisor on investments in climate friendly and resilient sectors can be referred to on demand - Not connected either to align of note friendly/resilient strategies with risk-returns	- Financial advisor does not cover investments in climate friendly and resilient sectors/enterprises	N/A

Note: Climate criteria will be applied in addition to current investment criteria (e.g. income, etc.)
Source: TCFD, 2017; Deutsche Asset Management, 2017

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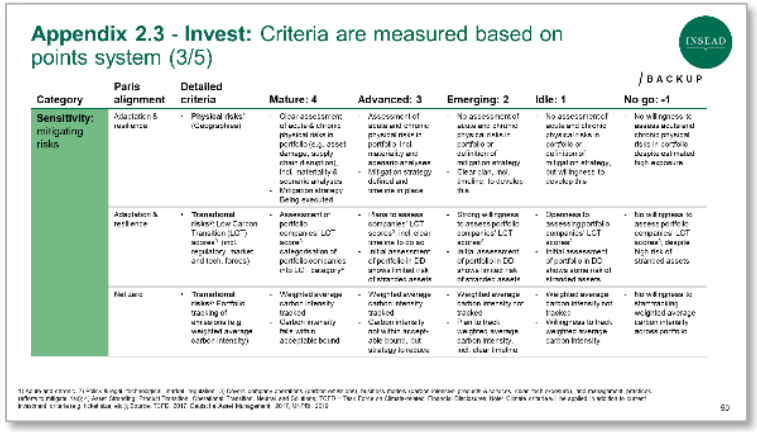

Appendix 2.3 - Invest: Criteria are measured based on points system (3/5)

/ BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Sensitivity: mitigating risks	Adaptation & resilience	• **Physical risks[1]** (Geographical)	- Clear assessment of acute & chronic physical risks in portfolio (e.g. asset damage, supply chain disruption); incl. materiality & scenario analysis - Mitigation strategy defined and timeline in place	- Assessment of acute and chronic physical risks in portfolio incl. materiality and scenario analyses - Mitigation strategy defined and timeline in place - Mitigation strategy being executed	- No assessment of acute and chronic physical risks in portfolio or definition of mitigation strategy - Clear plan, incl. timeline, to develop this	- No assessment of acute and chronic physical risks in portfolio or definition of mitigation strategy, but willingness to develop this	- No willingness to assess acute and chronic physical risks in portfolio despite stakeholder high exposure
		• **Transitional risks[1]** (Low Carbon Transition (LCT) scores[1] incl. regulatory, market and tech. forces)	- Assessment of portfolio companies' LCT score[1] categorization of portfolio companies into LCT "champions"[1]	- Plans to assess companies' LCT scores[1] incl. clear timeline to do so - Initial assessment of portfolio in DD shows limited risk of stranded assets	- Strong willingness to assess portfolio companies' LCT scores[1] - Initial assessment of portfolio in DD shows material risk of stranded assets	- Openness to assessing portfolio companies' LCT scores[1] - Initial assessment of portfolio in DD shows some risk of stranded assets	- No willingness to assess portfolio companies' LCT scores[1], despite high risk of stranded assets
	Net zero	• **Transitional risks[1]** (Portfolio tracking of emissions using weighted average carbon intensity)	- Weighted average carbon intensity tracked - Carbon intensity risk within acceptable bound	- Weighted average carbon intensity tracked - Carbon intensity risk within acceptable bound, but strategy to reduce	- Weighted average carbon intensity not tracked - Plan to track, via phase, weighted average carbon intensity, incl. clear timeline	- Weighted average carbon intensity not tracked - Willingness to track weighted average carbon intensity	- No willingness to start tracking weighted average carbon intensity to assess portfolio

1) Scales and criteria: 1) Paris Aligned: "not aligned", "aligned", "aligned", 2) Growth company overview: "underperformers", "outperformers", "champions", 3) Sustainable investing: "not applicable", "sustainable investment", "sustainable investment", 4) Sustainable investing: "not applicable", "sustainable investment", "sustainable investment"
Source: TCFD, 2017; Deutsche Asset Management, 2017; UNPRI, 2018

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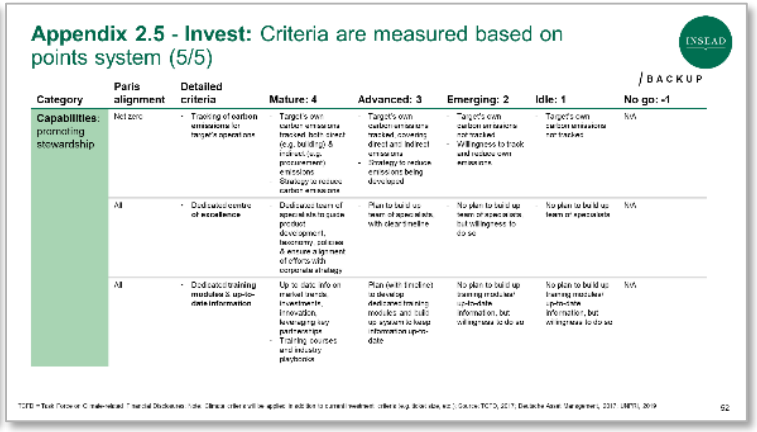

Appendix 2.5 - Invest: Criteria are measured based on points system (5/5)

/ BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Capabilities: promoting stewardship	Net zero	• Tracking of carbon emissions for target's operations	- Target's own carbon emissions tracked, both direct (e.g. buildings & material) and indirect (e.g. procurement) emissions - Strategy to reduce carbon emissions	- Target's own carbon emissions tracked, covering direct and indirect emissions - Strategy to reduce emissions being developed	- Target's own carbon emissions not tracked - Willingness to track and reduce own emissions	- Target's own carbon emissions not tracked	N/A
	All	• Dedicated centre of excellence	- Dedicated team of specialists (e.g. product development, taxonomy, data mgmt.) & ensure alignment of efforts with corporate strategy	- Plan to build up team of specialists with clear timeline	- No plan to build up team of specialists but willingness to do so	- No plan to build up team or specialists	N/A
	All	• Dedicated training modules & up-to-date information	- Up to date info on market trends, investments, innovation, leveraging key partnerships - Training courses and industry playbooks	- Plan with timeline to develop dedicated training modules and build up system to keep information up-to-date	- No plan to build up training modules/ up-to-date information, but willingness to do so	- No plan to build up training modules/ up-to-date information, but willingness to do so	N/A

TCFD = Task Force on Climate-related Financial Disclosures. Note: Climate criteria will be applied in addition to current investment criteria (e.g. income, etc.). Source: TCFD, 2017; Deutsche Asset Management, 2017; UNPRI, 2019

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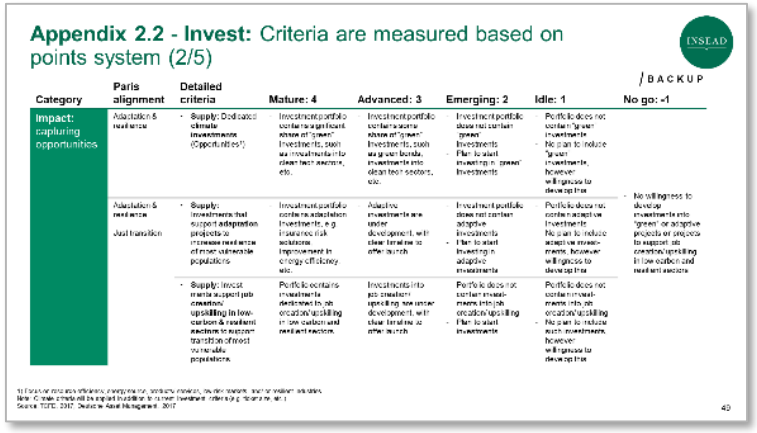

Appendix 2.2 - Invest: Criteria are measured based on points system (2/5)

/ BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Impact: capturing opportunities	Adaptation & resilience	• **Supply: Dedicated climate investments** (Opportunities[1])	Investment portfolio contains significant share of "green" investments, such as investments into clean tech sectors, etc.	Investment portfolio contains some share of "green" investments, such as green bonds, investments into clean tech sectors, etc.	Investment portfolio does not contain "green" investments - Plan to start investing in "green" investments	Portfolio does not contain "green" investments - No plan to include "green" investments, however willingness to develop this	
	Adaptation & resilience Just transition	• **Supply:** Investments that support **adaptation** projects to increase resilience of most vulnerable populations	- Investment portfolio contains adaptation investments, e.g. insurance risk solutions, improvement in energy efficiency, etc.	- Adaptive investments are under development, with clear timeline to offer launch	- Investment portfolio does not contain adaptive investments - Plan to start investing in adaptive investments	- Portfolio does not contain adaptive investments - No plan to include adaptive investments, however willingness to develop this	- No willingness to develop investments into "green" or adaptive projects or projects to support job creation/upskilling in low carbon and resilient sectors
		• **Supply:** Invest mainly support job **creation/ upskilling in low-carbon & resilient sectors** to support transition of most vulnerable populations	- Portfolio contains investments dedicated to job creation/upskilling in low carbon and resilient sectors	- Investments into job creation/ upskilling are under development, with clear timeline to offer launch	- Portfolio does not contain investments into job creation/upskilling - Plan to start investments	- Portfolio does not contain investments into job creation/upskilling - No plan to include such investments, however willingness to develop this	

1) Focus on mitigation, energy efficiency, renewables, etc. not "green" sectors or resilient sectors
Note: Climate criteria will be applied in addition to current investment criteria (e.g. income, etc.)
Source: TCFD, 2017; Deutsche Asset Management, 2017

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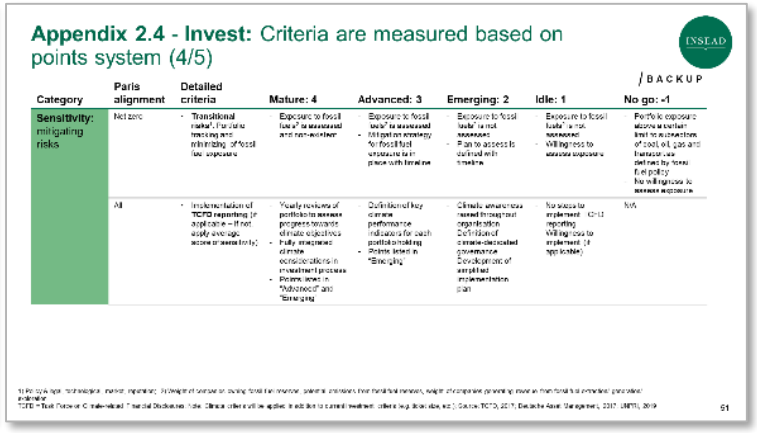

Appendix 2.4 - Invest: Criteria are measured based on points system (4/5)

/ BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Sensitivity: mitigating risks	Net zero	• **Transitional risks[1]** (Portfolio tracking and minimizing of fossil fuel exposure)	Exposure to fossil fuels[1] is assessed and non-existent	Exposure to fossil fuels[1] is assessed - Mitigation strategy for fossil fuel exposure in place with timeline	Exposure to fossil fuels[1] is not assessed - Plan to assess is defined with timeline	Exposure to fossil fuels[1] is not assessed - Willingness to assess exposure	Portfolio exposure allows a certain limit to subsections of coal, oil, gas and tar sands defined by fossil fuel policy No willingness to assess exposure
	All	• Implementation of TCFD reporting (if applicable – if not apply average scores in scale only)	- Yearly reviews of portfolio to assess progress towards climate objectives - Fully integrated climate considerations in investment processes - Points taken in "Advanced" and "Emerging"	- Definition of key climate performance indicators for each portfolio holding - Points taken in "Emerging"	- Climate awareness raised throughout organization - Definition of climate-dedicated governance - Development of simplified implementation plan	- No access to implement TCFD reporting - Willingness to implement (if applicable)	N/A

1) Fossil fuels: "not aligned", "aligned", "aligned", 2) Weight of sources of fossil fuel in revenue: "several sources", "one transitional revenue", "weight of companies growing up revenue from fossil fuel activities", "pure activities"
TCFD = Task Force on Climate-related Financial Disclosures. Note: Climate criteria will be applied in addition to current investment criteria (e.g. income, etc.). Source: TCFD, 2017; Deutsche Asset Management, 2017; UNPRI, 2019

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Example on next slide - see backup for detailed criteria

>> See Appendix 2.1 to 2.5 for more details

Invest: Example criteria include product offering and financial advisory (demand)

/EXAMPLE

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Impact: capturing opportunities	Just transition / Adaptation & resilience	• **Demand: Product offering** focused on climate friendly investing	- Current product offering focused only climate friendly investing - Clear strategic positioning as green investment vehicle - Future products expected to be focused only on green investing (e.g. green bonds)	- Majority of current products focused on green investing - Climate friendly investing highlighted in strategic vision - Majority of future products expected to relate to green investing (e.g. green bonds)	- Presence of climate friendly investment products in current portfolio - Climate friendly investing mentioned in strategy docs, not part of vision - Some products expected to relate to green investing	- No products relating to climate friendly investing - No mention of climate friendly investing in company strategy - No roadmap for climate friendly investment products	N/A
		• **Demand: Financial advisory** provided to clients with focus on climate friendly investing and resilient sectors	- Current financial advisory proactively suggests advice on investments in climate friendly and resilient sectors/ enterprises - Climate friendly and resilient investment strategies with appropriate risk-return is offered	- Financial advice on investments in climate friendly and resilient sectors/ enterprises is offered on demand - Climate friendly and resilient strategies are mostly aligned with required risk-returns	- Financial advice on investments in climate friendly and resilient sectors/ enterprises can be referred to on demand - No concerted effort to align climate friendly/ resilient strategies with risk-returns	- Financial advice does not cover investments in climate friendly and resilient sectors/ enterprises	N/A

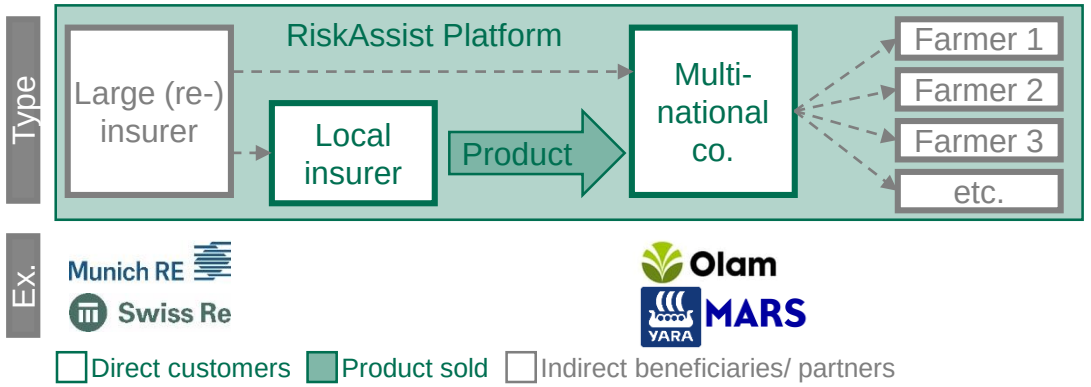
Note: Climate criteria will be applied in addition to current investment criteria (e.g. ticket size, etc.)
Source: TCFD, 2017; Deutsche Asset Management, 2017

Invest: Crop insurance in Africa protects the incomes of farmers

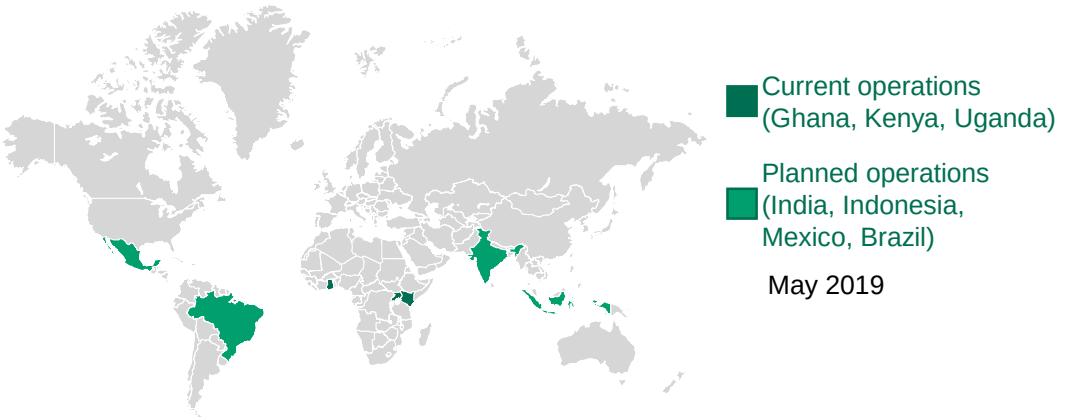
CASE STUDY

/ILLUSTRATIVE

Business model



Markets served



Key competitors

Global Para-metrics	Parametric natural disaster insurance Capitalised disaster risk fund	Africa, Asia, Latin America
Arbol	Weather risk trading platform	US, Costa Rica[1]
ACRE	Weather insurance intermediary	Africa
Pula	Microinsurance for crop and livestock	Africa
New Paradigm	Natural disaster parametric (re)insurance	US
Large insurers[2]	Large-scale parametric (re)insurance	Global

Climate score and funding

- **Series A** funding round of **$6M**
  - led by MS&AD ventures
  - backed by Y Combinator, Western Technology Investment, and EchoVC
- **Climate score: 36** (illustrative) suggests any potential investment in WorldCover should take an “invest and scale” approach

1) Costa Rica in partnership with Global Parametrics; 2) e.g. Swiss Re
Source: TechCrunch; WorldCover call; Global Parametrics call

Invest: Intermediate loans by the EIB financed low-carbon public transport projects in Bulgaria

CASE STUDY

European Investment Bank (EIB)

Raiffeisen Leasing
(financial intermediary specialised in leasing)

Low-carbon Public Transport Projects

EUR 180 million intermediated loan granted with a contractually defined “climate window” – mandating that at least 70% of the loan amount be invested in the leasing of cleaner public transport.

At least 70% of funds from the loan used to finance zero-carbon or low-carbon transport modes, including municipal bike-sharing schemes, electric or hydrogen public buses, electric passenger cars and vans for commercial use, and investments in railway infrastructure.

EUR 126 million invested in climate mitigation

Source: World Bank, “Joint Report on Multilateral Development Banks’ Climate Finance” (2018), Market Screener

INVEST

… in New Target Companies

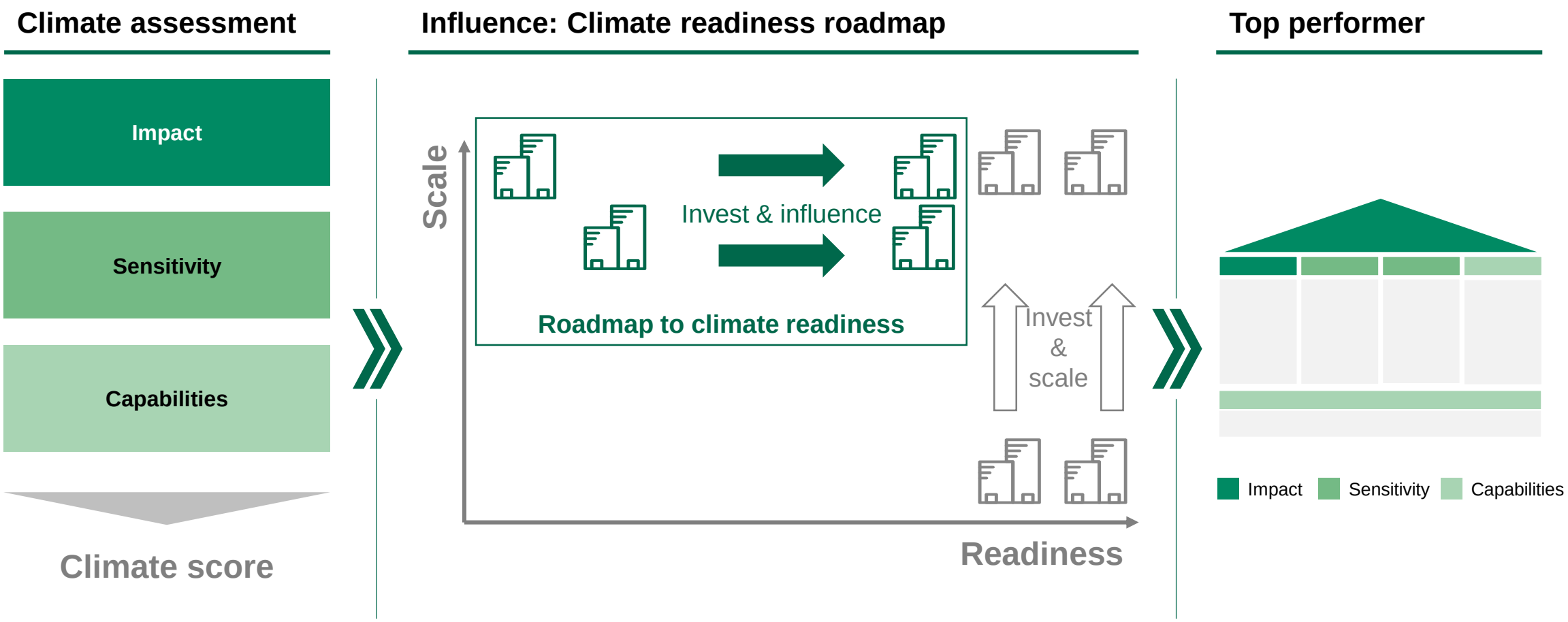
INFLUENCE

… Current Portfolio Companies

INVOLVE

… Co-investors and Peers

Influence: Following the investment assessment, a roadmap to climate readiness has been developed



Influence: CDC can play a role in driving investees to be more climate-conscious, building on the TCFD

Archetype of a climate-conscious Financial Institutions

Each element of the structure is a potential area that CDC can attempt to influence

Impact | Sensitivity | Capabilities

Climate Strategy & Governance

Define priorities and ambition for climate change, aligned with corporate strategy
Define clear organization governance around climate change

GO GREEN

Customer Value Proposition	Climate Risk Management	Targets & Reporting	Team / Centre of Excellence
• Provide **dedicated financing** solutions for climate change • Develop **financial advisory** to guide clients in selecting appropriate financing tools • Develop **technical advisory** unit (or partner), knowledge-able on climate change initiatives, to advise clients • Develop investments to increase **resilience of most vulnerable populations**	• **Understand** climate-related **risks** & **opp.,** ensuring transition and resilience of most vulnerable populations • **Develop climate risk tool** to identify, measure & assess sust.-related risk • Include climate **scenario analysis** in decision process • Proactively **work with** policymakers towards market frameworks	• Define **clear asset allocation targets** for sustainability / low-carbon investments • **Develop clear, intuitive reporting** infrastructure to ensure impact of initiatives / investments • Measure carbon footprint across full portfolio	• **Dedicated team of specialists** to guide product development, taxonomy, policies and ensure alignment of efforts with corporate strategy • **Up-to-date information** on key market trends, investments, innovation, leveraging key partnerships • **Training courses** and industry playbooks

BE GREEN

Sustainable Operations

- Procurement: **redesign selection process** towards climate friendly suppliers
- Energy: **re-balance your energy mix** towards more RE
- Energy: Monitor & **reduce** building **energy** consumption
- Operations: Develop **recycling initiatives** on site

Roles that CDC can play

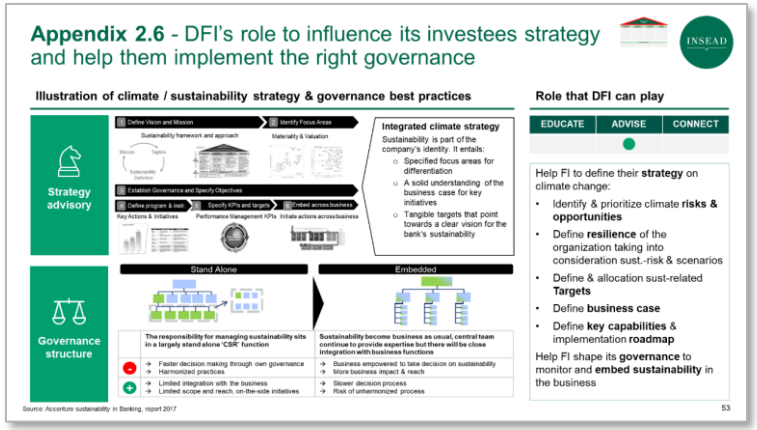
1. **EDUCATE** on
   - Regulations & policies
   - Climate trends (Circular economy, climate…)
   - Carbon tracking methodologies
2. **ADVISE** on
   - Climate related risk assessment
   - Innovative financial products for climate sustainability
3. **CONNECT** with
   - Risk analytics providers
   - Policymakers & regulatory bodies
   - Other climate FI

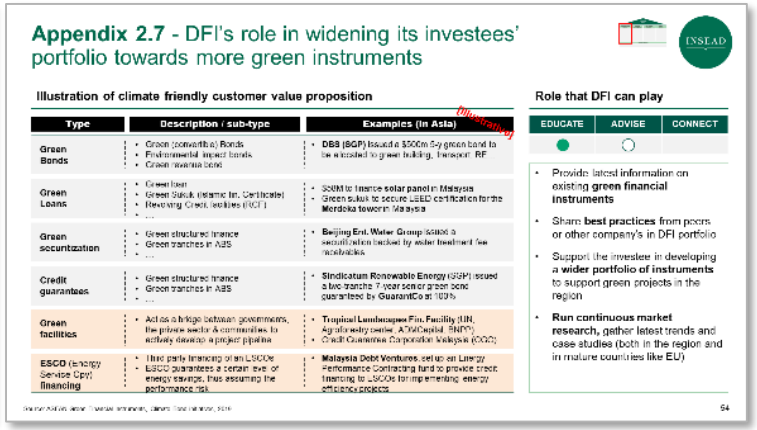
Influence: CDC can support its investees in becoming more climate friendly in several specific ways

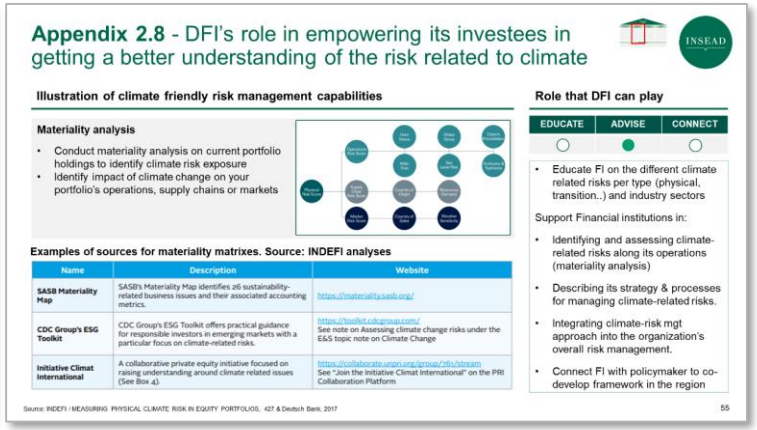
	1 EDUCATE		2 ADVISE		3 CONNECT	
Climate Strategy & Governance	◐	• Provide **market research** & best practices on governance structure on climate	◕	• Help identify bus **climate risk** & **opp**. • Co-develop **climate resilience** scenario analysis • Help def. **business case & targets**	◔	• Connect companies with other top-performer investees to share best practices
Customer Value Proposition	◐	• Run continuous market research • Gather **latest trends** and case studies (both in the region and in mature countries like EU)	◕	• Support the investee in developing a **wider portfolio of instruments** to support green projects	◔	• Share best practices **from peers** or other company's in CDC portfolio
Climate Risk Management	◐	• Develop **pool of knowledge** across investees on sustainability risks • Share risk classification methods per sector	◕	• Support detailed analysis of sus related risks • Co-develop **process and tools** to manage identified risks	◐	• Connect with **policy makers** and regulatory bodies
Targets & Reporting	◐	• Share **latest documentation** on sustainability KPIs (carbon foot-printing , brown/green metrics) • **Educate on TCFD**	◕	• Support development of **GHG emission calculation process** • Help disclose and build green dashboard	◐	• Connect with **ESG analytics** provider • Connect with **Risk analysis** software
Team / Centre of Excellence	◕	• **Provide training on climate** related topics (circular economy, bio forestry, climate, etc…)	◔	• Advise on **potential incentives** structure to push employee sell green products	○	• -
Sustainable Operations	◐	• **Share best practices** on how reducing FI's own footprint and become net 0	◔	• Provide **High level** guideline on responsible **procurement & operations strategy**	◐	• Connect with **best in class** FI • Connect with **green provider** that could support bank operations

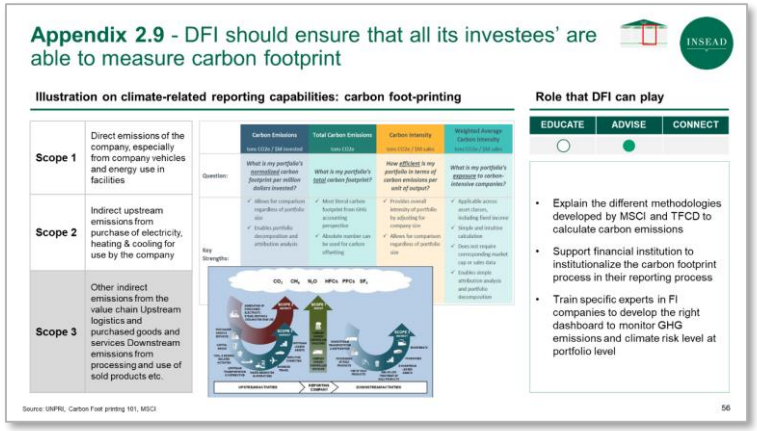
◔ CDC impact / implication

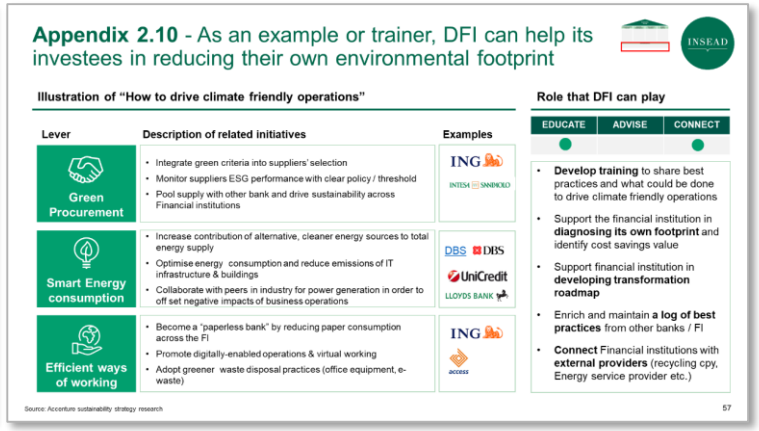
Influence: CDC can play a range of different roles to boost its investees' climate maturity











See Appendix for details

>> See Appendix 2.6 to 2.10 for more details

Influence: Existing examples show how different types of FI can implement best practices

/ILLUSTRATIVE

	Banks/ Asset Mgrs	Insurance	MFIs & Fintech	Funds (e.g. PE)
New offerings following influence	• Offer **dedicated green products**, e.g. issuance of green bonds • Provide **loans to green investments**, e.g. renewable infrastructure projects • Develop of **green securitization**	• Corporate insurance to promote growth of **climate positive sectors** • Insurance against **climate shocks** • Issue/ cover **catastrophe bonds** and insurance-linked **securities**	• Loans targeted at **increased resilience** in vulnerable sectors (e.g. loans for water pumps, improved harvest storage) • Loans to build up businesses in **resilient sectors** (e.g. solar tools)	• Investment in **green projects** and climate positive sectors • Promotion of **climate positive actions** among portfolio companies
Examples	• **DBS (SGP)** issued a $500m 5-y green bond to be allocated to green building, transport, RE… • $58M green loan to finance **solar panel** in Malaysia • NMB Bank in Nepal financing Hydro Power Projects	• **WorldCover and Global Parametric's** insurances to counter loss from weather/ natural disasters • SwissRe issuance of $350M **insurance-linked securities** (US storm risk) • The V20's **Sustainable Insurance Facility** to protect MSMEs in vulnerable economies	• Grameen Shakti offers small financial packages to **install solar home systems/ biogas plants** • **Finca Uganda** provides a dedicated Solar Loan, a credit facility intended to give customers access to renewable energy • M-Kopa facilitating **pay-as-you-go access** to solar energy	• **PAI Partners** includes a **preliminary climate risk analysis** at the **due diligence** phase • **Ardian** assess exposure of its Expansion portfolio to **climate-related physical and transitional risks**

MFIs = Microfinance Institutions; PE = Private Equity; (M)SMEs = (micro,) small & medium sized enterprises; V20 = Vulnerable 20, a group of economies most vulnerable to climate change
Note: Actions on sensitivity (mitigation of climate risks) and capabilities are excluded from this assessment
Source: Artemis, 2020; United Nations Environment Programme and DBS, 2017, Climate Bonds Initiative, January 2019, v-20.org, 2019

Influence: Access, an African bank with few climate-related projects, could be an influence target for CDC

CASE STUDY

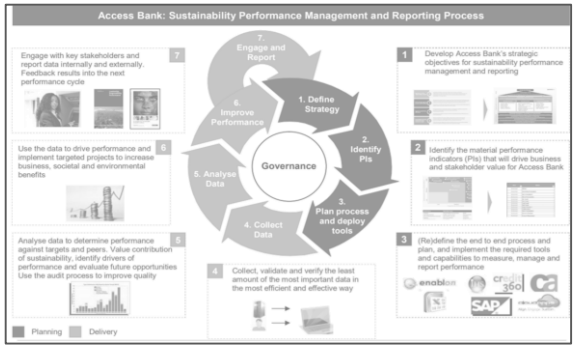
- Operates in 7 African countries, the UK, China, UAE
- A top 5 player in the Nigerian Banking Industry
- Aspire to be the World's Most Respected African Bank

Defined sustainability strategy approach

Few initiatives on climate & green financing

- Core focus on Social & financial inclusion, Community investment
- Only few cases studies to date (Solar panel ATM, Waste recycling project)

Defined performance & reporting process



No risk assessment on climate risks

- No reference in their sustainability report about risk management
- No reference to TCFD or any other risk disclosure framework

Drive green operations

311
Access Bank branches powered by hybrid energy

92.64%
Reduction in landfill waste due to the bank's recycling initiative

Trained experts on ESG

- Board member aware and sensitive to climate-related risk
- Training program on (E)SG

Source: EOSD, Embedding Sustainability in Bank - Access Bank Case (Access July 2016)

Access' maturity

INVEST

… in New Target Companies

INFLUENCE

… Current Portfolio Companies

INVOLVE

… Co-investors and Peers

Involve: CDC should work with co-investors and peers in targeted ways to increase its efficacy in sustainability

Type of stakeholder	Mode of Collaboration
Development Finance Institutions	• **Collaborate (and co-invest) to raise awareness** of investment opportunities in FI that can advance progress towards the sustainability goals of CDC and peer organisations • **Share resources, best-practices and learnings** from field work on how organisations can effectively become more climate-conscious • **Co-develop training materials and jointly run workshops** for portfolio companies on how to reduce their climate impact, increase their resilience against climate risks and generally become more climate-conscious *(see slide 32)*
Funds, incl. PE, VC*, State Pension, Sovereign Wealth, and climate and innovation funds**	• **Jointly identify and invest** in companies that (i) have the potential to reduce their own climate impact (e.g., via rationalising branch networks); (ii) invest in or support firms that reduce climate impact more broadly (e.g., renewables); (iii) protect the vulnerable by increasing resilience against climate risks (e.g., flood protection)
Grant-making institutions	• **Co-invest in blended finance approach** to leverage grant-making institutions' **technical assistance capabilities** and support shift in FIs' behaviours
FIs outside of CDC's portfolio	• **Partner to increase the resilience of portfolio companies** and ensure that investment (from portfolio FIs to firms in the climate impact sphere) continues to be provided even amidst a crisis. E.g., ensuring portfolio MFIs continue to lend even when shocks (such as natural disasters) hit
Solutions Providers (e.g., Global Parametrics)	• **Connect solutions providers with local banks and insurers** to increase their ability to predict, monitor, and develop resilience against climate risk in emerging markets

*e.g. Omnivore Partners India Fund; **e.g. the Blue Orchard Insuresilience Fund, WaterEquity Global Acccess, and the Acument Resilient Agricuture Fund

Involve: CDC can partner with risk-analysis providers to improve their due diligence and increase their influence

	Target Use	Description of business model	Granularity	Target users
ACCLIMATISE building climate resilience	**RISK SCORE** Pre-screening before financing	• Two main services: Advisory & Analytics • Analytics: **provide risk analysis tool** to analyse physical risk exposure & provide climate risk scores (per project)	Per project, and per hazard	Project officers and risk managers
MERCER	**FINANCIAL ESTIMATE** Scenario analysis & measure of impact	• Product: The Sequel – **Research on climate scenario modelling** and their financial impact on returns (per industry & asset class) • Provide advisory services to help FI analyse **annual return impact** of climate on their portfolio	Per hazard, asset class, sector, and per scenario	All Financial institutions
427 Four Twenty Seven	**RISK SCORE** Analysis of physical risks	• Provide **on-demand risk analytics** to support our clients' investment strategies and climate risk disclosures (per hazard / per assets) • Provide **climate risk scores** for a wide range of listed instruments in equities and fixed income markets	Per element of value chain, and hazard	All Financial institutions
CARBON DELTA An MSCI Company	**RISK SCORE** Climate value at Risk (VaR)	• The tool provides insights into the potential **stressed market valuation** of investment portfolios and downside risks, translating climate-related costs into potential valuation impacts • The tool covers more than 10,000 companies, assessing all their associated equities and corporate bonds within the analysis.	Per sector, geography, portfolio and per hazard	All Financial institutions
SUSTAINALYTICS	**RISK SCORE** Carbon risk ratings	• Examine companies involvement in **carbon solutions** (RE, green infra etc.), companies **emissions** (scope 1 & 2), companies **policies** (e.g. exclusion policies), assess carbon asset risks & quantify companies' **exposure** and management of material carbon issues	Per portfolio, per hazard, per sector	All Financial institutions & business

Source: Getting-started-on-physical-climate-risk-analysis, I4CE & ClimINVEST Dec 2018 / Provider website

Involve: Multilateral Development Banks have already formed partnerships to maximize their collective impact

Nine Multilateral Development Banks (MDBs) agreed, at the UN Secretary-General's Climate Action Summit in New York in 2019, to jointly raise their climate finance contributions to:

USD 175 billion

by 2025

Source: European Bank for Reconstruction and Development, "MDBs pledge to join forces to raise annual climate finance to $175bn by 2025" (September 2019)

Involve: CDC could collaborate with Global Parametrics in five different ways

CASE STUDY

Global Parametrics (GP) was established in July 2016 with a social mandate backed by **DFID** and the **InsuResilience Investment Fund (IIF)**, an initiative of KfW of the German Government. GP aims provides clients with **tailored risk transfer products** to better manage climate and natural disaster risks. It's market-ready products enable clients to **more accurately predict the adverse impacts** of earthquakes, tropical cyclones, extreme rainfall, crop loss and drought. It's bespoke products cover floods, atmospheric hazards, wildfires and energy shortfalls. GP's Natural Disaster Fund has capacity of ~USD 110 million.

FIVE ways that CDC could collaborate with GP

1. **GP Direct Offering to CDC's Clients:** GP offers protection to CDC's portfolio companies, helping them to acquire emergency cash in case of a climate/ natural disaster; portfolio companies that purchase this product could receive favourable credit terms.
2. **GP Direct Offering + CDC Contingent Loan:** In addition to the offering above, CDC could provide contingent credit on the same terms as CDC's protection, providing additional liquidity to portfolio companies, enabling a more robust disaster response.
3. **CDC "Climate Risk Guarantee" Product:** CDC could act as an intermediary, providing portfolio companies with a guarantee product triggered from a tailored index provided by GP.
4. **CDC Bundled Loan Product:** CDC could bundle traditional debt offerings with GP's protection against climate/ natural disasters (paid for via a premium on loan interest).
5. **CDC Climate Resilience Facility:** CDC could create a facility providing guarantees and/or contingent loans based on GP's product to portfolio companies, diversifying the risk and reducing the expected cost associated with providing each guarantee.

Source: Global Parametrics documents and team call with Global Parametrics on 17th April 2020

RECOMMENDATIONS

Once FI's climate strategy is further defined, we suggest deployment in three phases over the next two years

H2 2020 | H1 2021 | H2 2021 | H1 2022 | H2 2022

A- STRATEGY IMPLEMENTATION PLAN

Invest

- Define **investing strategy & criteria** by sub-sector & key markets with possible pipeline
- Refine climate due diligence **detailed criteria** & investee maturity **classification** approach
- **Select prospects** for pilot

High level criteria defined

Influence

- Collect & **process data** on climate risks in Asia & Africa, climate risk assessment methods, leveraging TCFD
- Create std **"climate booster" program** / path for investees
- High level assessment of current portfolio
- Select pilots

Climate finance & technical booklet

Involve

- Identify **10-20 peer DFIs and PE funds** with a consistent mission on mitigating climate impact to CDC; conduct due diligence
- For the identified organisations, reach out and assess **willingness to collaborate** and co-invest with CDC and resources that could be deployed / shared

Longlist created

CDC FI Transform.

- Define **CDC FI targets** & priority guidance
- Assess **investees' portfolio** CO2 footprint
- Prepare **TCFD reports**

B- PILOT STRATEGY

Invest

- Develop influence program for selected pilot
- **Dry-run overall climate maturity assessment** approach with list of identified prospects
- Adapt assessment approach

Prospects selection

Climate DD approach ready

Influence

- **Dry-run tailored influence program** on selected pilots
- Adapt booster program &path

Investee pilot selection

Booster program ready

Involve

- Test out new partnership model by **co-designing a training programme** with another DFI and **jointly investing** with an impact investing PE fund
- Refine expectations for future partnerships

Shortlist created

Collabor cadence refined

CDC FI Transform.

- **Develop KPIs** to track portfolio climate impact & maturity

C- SCALE

Invest

- **Train FI team** on the approach & **integrate** climate DD in current DD process

Influence

- **Scale booster program** to the rest of the portfolio & new investees

Involve

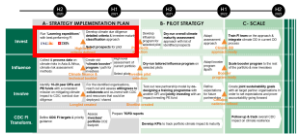
- Create **joint sustainability goals** with all target partner organisations in order to set expectations and prove accountability going forward

CDC FI Transform.

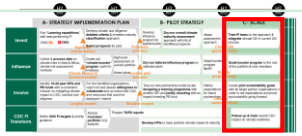
- **Follow up & track** overall CDC impact on climate resilience

Each phase will combine a broad range of activities to build and embed the FI Team's new climate strategy

A- STRATEGY IMPLEMENTATION PLAN

Phase	Roadmap section	Activity description	Workshops
A1 - INVEST		• Meet with best in class FI that accounts climate risk in their operations to define overall assessment framework & macro categories • Detail further categories criteria & develop assessment questionnaire • Gather a list of future prospects, analyze quickly their climate sensitivity, impact & readiness and prioritize prospects for Pilot	• Learning Expeditions LEX with ING, DBS, • WS to agree on HL assessment category • WS to validate detailed criteria
A2 - INFLUENCE		• Collect more detailed data on TCFD to be able to train future investee in using it • Research & document the different types of climate risks in the target markets (Africa & Asia) • Collect data on existing green Finance instruments in the target regions • Develop training content on climate (technical & financial expertise) • Develop "standard" influence program / path • Collect AS-IS green initiatives from current portfolio & select pilots	• WS with TFCD • WS to validate influence program / path • WS to select pilots
A3 - INVOLVE		• Hold introductory meetings with DFIs, PE firms, SPFs and SWFs to better understand how they are approaching their sustainability goals • Where interests are aligned, determine willingness of stakeholders to collaborate and the amount of resources (people, budget, technology) that they would be willing to devote to a partnership or joint-investment with CDC • Create a short-list of organisations that are willing and able to collaborate with CDC	• Individual WS with stakeholders on what sustainability and impact investing mean to them

B - PILOT		• Invest: dry-run assessment with future investee & document lesson learned
		• Influence:
		  • Develop specific influence program for selected pilot
		  • Dry-run the program & document lesson learned
		• Involve: begin to co-design training programmes and initiate joint investments
		• CDC transformation: develop overall dashboard to track climate impact, sensitivity & readiness of on-going portfolio	

C- SCALE		• Invest & Influence: Train FI team to the new methods • Involve: Create joint sustainability goals with all target partner organisations • CDC transformation: Run target governance and reporting processes	

Exceeding the 1.5°C target increase could adversely impact returns of some industries and asset classes

Sequel - Financial estimate of annualized return impact due to climate change

The Sequel *is intended to help investors understand how climate change can influence their investment performance in both the short and long term and what steps they should take to protect and position portfolio assets*

Example industry sectors and asset classes	% p.a. to 2030 in 2°C scenario	% p.a. to 2050 in 2°C scenario	% cumulative impact to 2030 in 2°C scenario	% cumulative impact to 2050 in 2°C scenario
Coal	-7.1	-8.9	-58.9	-100.0*
Oil and gas	-4.5	-8.9	-42.1	-95.1
Renewables	+6.2	+3.3	+105.9	+177.9
Electric utilities	-4.1	-3.3	-39.2	-65.7
Developed market equities	0.0	-0.2	-0.5	-5.6
Emerging market equities	+0.2	-0.1	+1.8	-4.0
All world equities — sustainability themed	+1.6	+0.9	+21.2	+32.0
Infrastructure	+2.0	+1.0	+26.4	+39.4
Infrastructure — sustainability themed	+3.0	+1.6	+42.3	+67.1
All world real estate	0.0	-0.2	-0.1	-4.7

*Effective absolute loss of value is expected to occur in 2041 under a scenario in which global warming is limited to 2°C by 2100

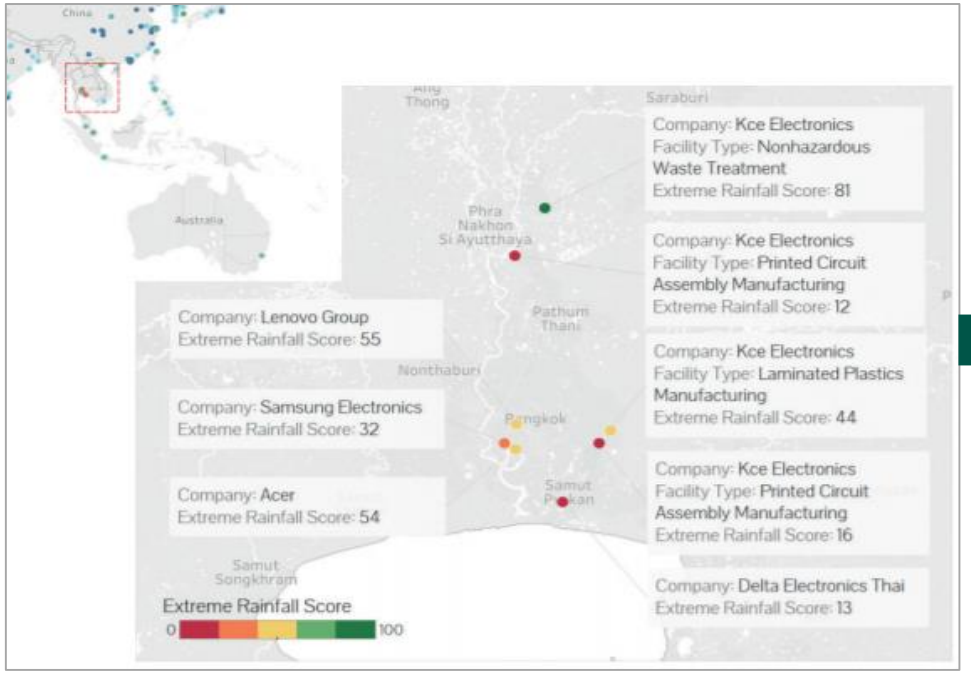
Source: Mercer, The Sequel 2019

Key highlights

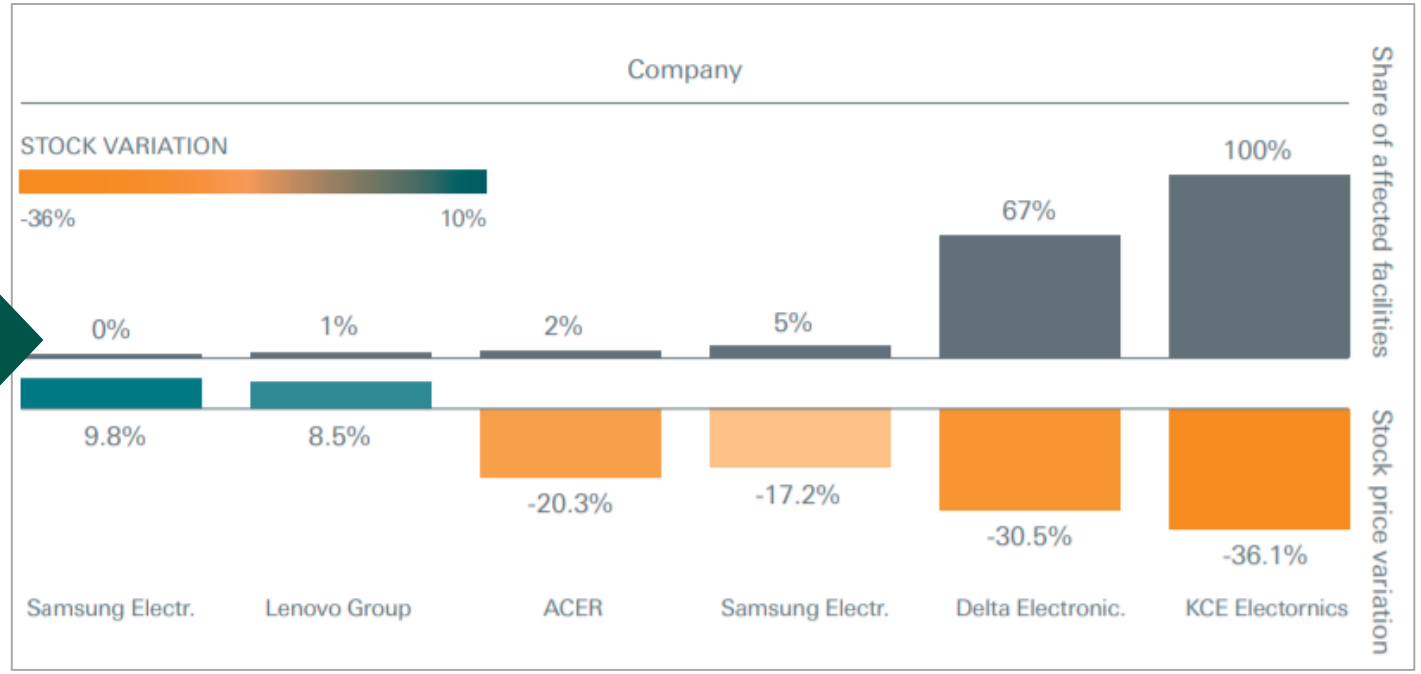
- **Physical damages risks could be limited in a 2ºC scenario** while significant in a 4ºC and 3ºC scenarios
- **Transition opportunities emerge from a 2ºC** scenario, with transition now expected to be a benefit from a macroeconomic perspective, including the potential to capture a “low-carbon transition (LCT) premium
- **Expected annual return impacts** remain most visible at an industry-sector level, with significant variations by scenario, particularly for energy, utilities, consumer staples and telecoms
- **Asset class returns can also vary significantly** by scenario, with infrastructure, property and equities being the most notable. Sustainability-driven equity will thrive & generate positive return on the long term

For example, a climate-related disaster - the 2011 Thai floods - significantly hurt financials in the hardware sector

Hardware manufacturers affected by 2011 Thai floods



Financial impact is correlated to asset geographic concentration



- Annual **precipitation** in Asia is expected to increase by up **to 50%** over most land areas in the region, putting coastal & low-lying areas at an increased risk of flooding
- **Bangkok** is forecasted to be one of the top region impact by floods. 2011 floods were the worst the country had experienced in 50 years
- The total economic damages ensuing from the Thai floods, both locally and globally, **were totaled at almost 44 billion $**
- Thailand's Stock Exchange Index, the SET, **was down by 17%** from its July 29th high point
- The **technology hardware sector** was particularly hit by the floods. **KCE**, a Thai manufacturer of printed circuit boards, **whose shares fell by 35%.** The damages from the flooding to KCE were estimated at nearly **$60 million** ($36m fixed assets & $14m inventory)

Source: MEASURING PHYSICAL CLIMATE RISK IN EQUITY PORTFOLIOS, 427 & Deutsch Bank, 2017

However, there are a number of key risks and challenges that CDC must remain cognizant of

	Key challenges	Mitigation
1	Monitoring intermediary risk: do acquisition targets really have green mandates or are they just green-washing?	In-depth due diligence and strict adherence to “Invest” selection criteria. Continuous monitoring and benchmarking against FI investment principles. Post-investment involvement through CDC FI “Influence” capabilities (incl. Educate, Advise, Connect dimensions)
2	Balancing financial returns and climate impact (e.g. adaptation projects with high-risk high-reward profile)	Definition of target return profile for FI investments across products and regions. Potential introduction of “return discount” based on respective climate score (e.g. score >30 merits X% IRR discount) – need for objective and quantifiable process
3	Implementing is harder than strategy – Avoid capital draw down away from highly effective projects	Develop clear strategy with ambitious, but achievable, roll-out in phases (see “Recommendations”). Engage the organization by motivating stakeholders, communicating internally & externally and defining key actions to be taken.
4	Business Integrity risks: How to support Financial Crime & Compliance teams to prevent and detect integrity risks	CDC FI aides with improvement of control frameworks; Development of policies & procedures (e.g. AML/CFT, Sanctions, Anti Bribery etc.); Bespoke training for board, management and compliance personnel
5	Financial Risk: How to strengthen underwriting practices and ensure development of high-quality portfolios	CDC FI provides loan portfolio reviews; Assessment of underwriting practices; Improvement of financial & risk reporting

Hedging such risks and working toward a 1.5°C scenario could bring significant value to CDC and its investees

Value creation linked to green / climate finance

New Growth Opportunities

- Finance the shift towards green and circular economies
- Satisfy demand for climate friendly banking choices and products
- Increase customer base through new market segments
- Financially include disadvantaged groups such as youth, micro-enterprises and low-income customers to unlock new growth opportunities
- Provide interested asset owners with investment-solutions that integrate ESG-considerations

Differentiation / Intangibles

- Engage stakeholders to restore trust and goodwill
- Engage customers' personal and business values to enhance loyalty
- Higher brand value
- Attract and retain talent through a climate friendly culture
- Improved regulatory relationships
- Higher scorings in sustainability rankings

Increase positive

More certain /shorter term

Climate Friendly Value Creation

Less certain / longer term

Reduce negative

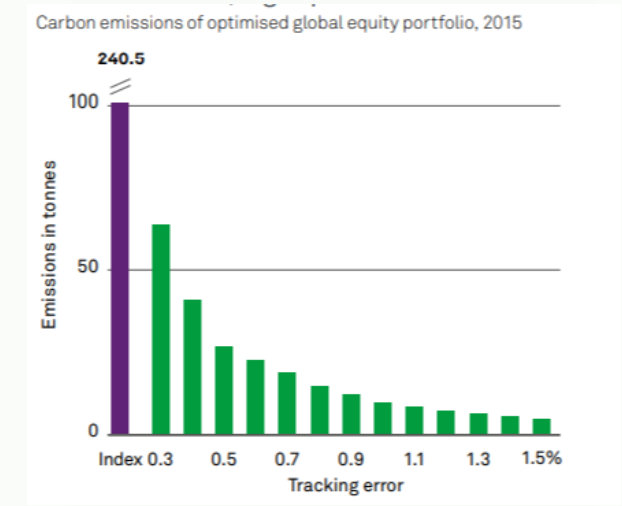
Cost Reduction

- Reduce cost of energy through efficient /smart buildings, data centers, etc.
- Leverage digital technologies to reduce costs and resource usage, i.e. attracting clients to digital channels
- Leverage climate friendly sourcing practices to reduce cost of supplies
- Reduced costs from more efficient operating model
- Reduced resource consumption
- Avoid costs due to fines or settlements

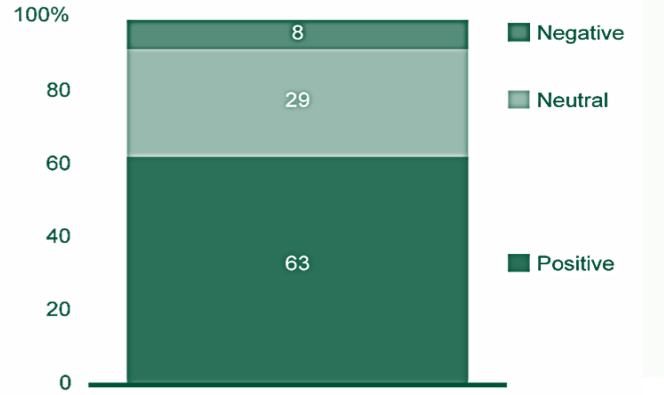
Risk Mitigation

- Understand risks resulting from climate change trends
- Integrate social and environmental risk in credit evaluation, asset management and corporate finance services
- Reduce regulatory risks
- Maintain license to operate
- Reduce uncertainty of business risks
- Protect brand by respecting norms and emerging expectations

Building better beta



Results of meta-studies on link between ESG and financial performance *(by type of relationship)*



Source: Adapting portfolios to climate change, Blackrock 2016 / DWS and University of Hamburg 'ESG and Financial performance evidence from More than 2,000 empirical studies

APPENDIX

Appendix 1.1 - Impact of climate change in the infrastructure sectors – a worldwide perspective

Vulnerability of Global infrastructure assets to climate hazards

Little to no risk — Increased risk

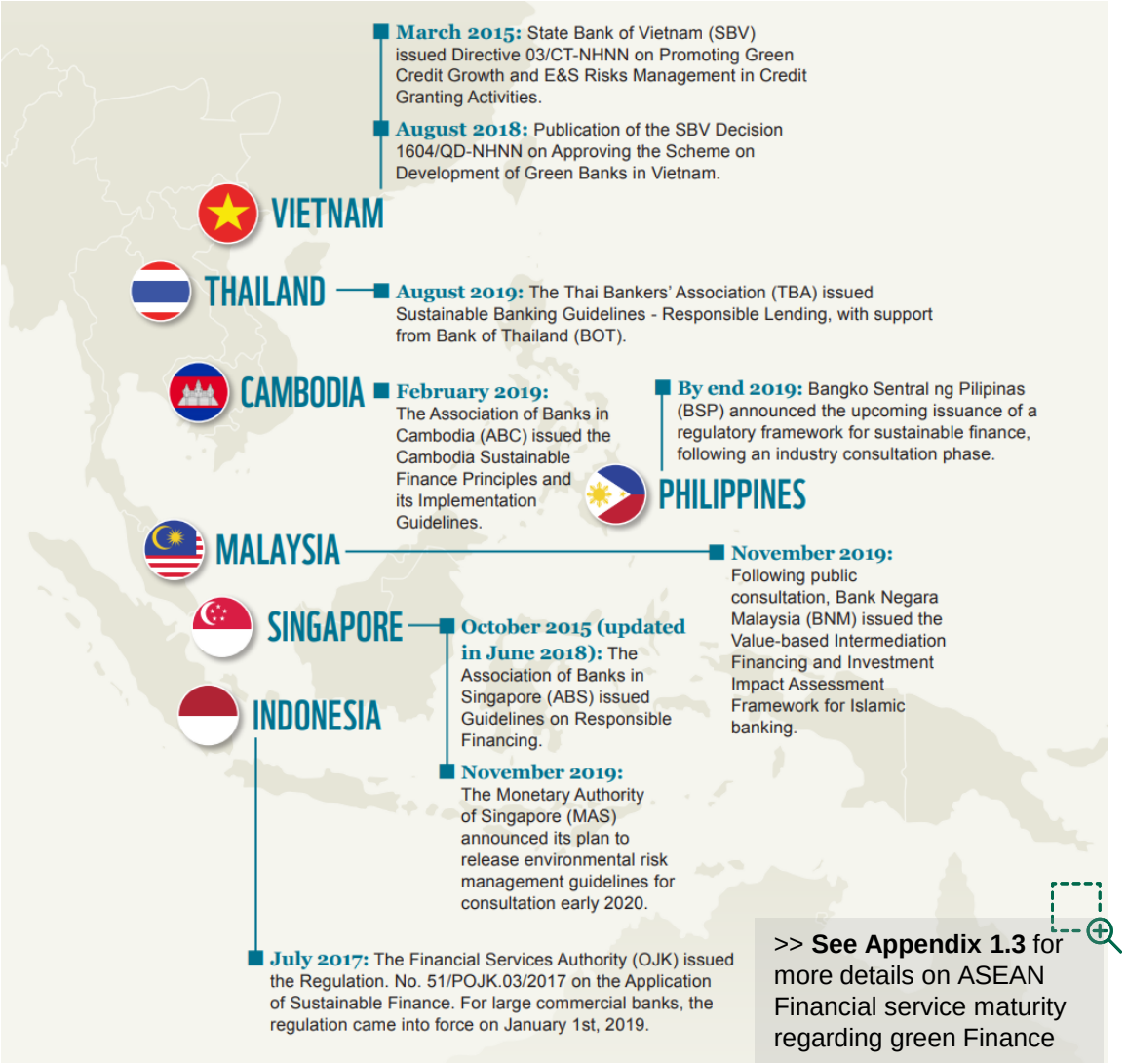
	Transportation					Telecom			Energy: Generation				Energy: T&D[2]		Water		
	Airports	Rail	Roads	Rivers	Seaports	Wireless infrastructure[3]	Fixed infrastructure[4]	Data centers	Thermonuclear power plants[5]	Wind power plants	Solar power plants	Hydroelectric plants	T&D lines	Substations[6]	Freshwater infrastructure[7]	Water treatment systems[8]	Wastewater treat-ment systems[9]
Sea-level rise and tidal flooding					A												B
Riverine and pluvial flooding[10]	C	D	E														
Hurricanes, storms, and typhoons	C				A	F											B
Tornadoes and other wind[11]																	
Drought									G	G					H		
Heat (air and water)											I		J				
Wildfire[12]																	

Key highlights

- Each infrastructure asset type has unique vulnerabilities to climate hazards.
- Airport / Air freight can be significantly impacted by sea level rising (25% of busiest airport are less than 10meters from sea level)
- Rail and roads are more affected by flooding than by heat, because of the vulnerability of signaling systems to water exposure
- Telecommunications infrastructure assets may be affected only to a minimal or moderate degree by climate hazards
- The power grid is also vulnerable. Extreme heat can lead to the combined effects of efficiency losses and increase in peak load from greater use of air-conditioning

Source: Climate risk & response, Mckinsey report Jan 2020

Appendix 1.2 - Financial regulators in the ASEAN region have begun to issue regulations and guidelines on sustainability



>> **See Appendix 1.3** for more details on ASEAN Financial service maturity regarding green Finance

By the end of 2019, 7/10 ASEAN countries (95% region's GDP), will have issued new or revised sustainable banking regulations/guidelines

Climate change and environmental degradation is part of the E&S issues that banks should seek to address when developing their sustainability strategies and policies.

Regulations action plan Recommend:
- Strengthen sustainable governance and risk management
- Attribute clear responsibilities boards or senior management teams
- Put in place dedicated sustainability teams.
- Train & build internal capacity on SF and E&S integration,

In four countries, the financial regulators or banking associations are leading the development of sector-specific E&S guidelines.

In three countries, financial regulators are starting to expect banks to assess and mitigate their portfolio-level exposure to climate-related or other E&S risks.

In all five countries, the financial regulator or banking association expect banks to publicly report on their sustainability strategy.

In four countries, financial regulators have put measures in place to foster the development of green financial products

Source: Sustainable Banking Regulations in ASEAN – Raising the Bar Dec 2019

Appendix 1.3 - Barriers to scaling Green finance prevent ASEAN FI from unlocking green funds and becoming climate-ready

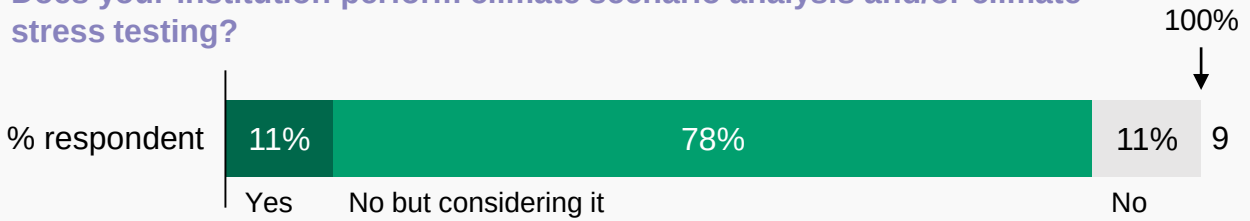
Current barriers in ASEAN for Green Finance

- **Maturity mismatch between demand & supply:** green investment are characterized by medium to long-term project (10 to 25 years) whereas the tenor of banking liabilities in the region is short-term, under 3 years.
- **Scarce of investment pools**: alternative to bank lending is relatively poor in Asia. Source of equity held by investors is relatively short
- **SME access to Finance**: lack of credit history usually implies high collateral & interest rate. They usually cannot borrow from Int'l banks
- **Policy & regulation**: National environment & sustainability objectives have not been translated into coherent financial policy framework
- **Quality of the green investment pipeline**: current pipeline is relatively limited. As an illustration only 45% of current RE project are considered bankable
- **Underdeveloped green toolkit :** the lack of clear definition over what a "green" project is, increased research costs for FI & prevent them from measuring environment-related risks
- **Lack of non-financial environment data & analytical capabilities**: limited disclosure from companies & understanding of climate impact on market & credit risks makes it difficult for FI to make risk assessment & mobilize funds for green projects

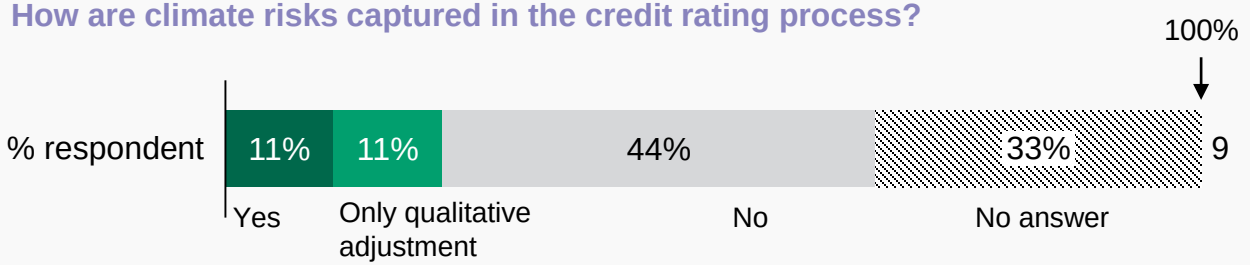
Oliver Wyman's FI survey on climate awareness (zoom on Asia)

Out of 9 Asia Banks, the current maturity level regarding climate awareness seems to be relatively low in Asia

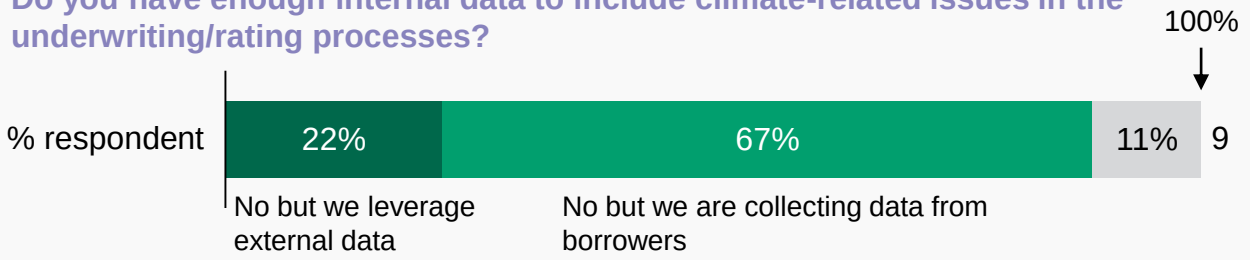
Does your institution perform climate scenario analysis and/or climate stress testing?



How are climate risks captured in the credit rating process?



Do you have enough internal data to include climate-related issues in the underwriting/rating processes?



Source: Green Finance opportunities in ASEAN, DBS report Nov 2017 / Climate change, Managing Financial risk, Oliver Wyman 2019

Appendix 2.1 - Invest: Criteria are measured based on points system (1/5)

/BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Impact: capturing opportunities	Just transition / Adaptation & resilience	• **Demand: Product offering** focused on climate friendly investing	- Current product offering focused only climate friendly investing - Clear strategic positioning as green investment vehicle - Future products expected to be focused only on green investing (e.g. green bonds)	- Majority of current products focused on green investing - Climate friendly investing highlighted in strategic vision - Majority of future products expected to relate to green investing (e.g. green bonds)	- Presence of climate friendly investment products in current portfolio - Climate friendly investing mentioned in strategy docs, not part of vision - Some products expected to relate to green investing	- No products relating to climate friendly investing - No mention of climate friendly investing in company strategy - No roadmap for climate friendly investment products	N/A
		• **Demand: Financial advisory** provided to clients with focus on climate friendly investing and resilient sectors	- Current financial advisory proactively suggests advice on investments in climate friendly and resilient sectors/ enterprises - Climate friendly and resilient investment strategies with appropriate risk-return is offered	- Financial advice on investments in climate friendly and resilient sectors/ enterprises is offered on demand - Climate friendly and resilient strategies are mostly aligned with required risk-returns	- Financial advice on investments in climate friendly and resilient sectors/ enterprises can be referred to on demand - No concerted effort to align climate friendly/ resilient strategies with risk-returns	- Financial advice does not cover investments in climate friendly and resilient sectors/ enterprises	N/A

Note: Climate criteria will be applied in addition to current investment criteria (e.g. ticket size, etc.)
Source: TCFD, 2017; Deutsche Asset Management, 2017

Appendix 2.2 - **Invest:** Criteria are measured based on points system (2/5)

/BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Impact: capturing opportunities	Adaptation & resilience	• **Supply:** Dedicated **climate investments** (Opportunities[1])	- Investment portfolio contains significant share of "green" investments, such as investments into clean tech sectors, etc.	- Investment portfolio contains some share of "green" investments, such as green bonds, investments into clean tech sectors, etc.	- Investment portfolio does not contain "green" investments - Plan to start investing in "green" investments	- Portfolio does not contain "green" investments - No plan to include "green" investments, however willingness to develop this	- No willingness to develop investments into "green" **or** adaptive projects **or** projects to support job creation/ upskilling in low carbon and resilient sectors
	Adaptation & resilience Just transition	• **Supply:** Investments that support **adaptation projects** to increase resilience of most vulnerable populations	- Investment portfolio contains adaptation investments, e.g. insurance risk solutions, improvement in energy efficiency, etc.	- Adaptive investments are under development, with clear timeline to offer launch	- Investment portfolio does not contain adaptive investments - Plan to start investing in adaptive investments	- Portfolio does not contain adaptive investments - No plan to include adaptive invest-ments, however willingness to develop this	
		• **Supply:** Invest-ments support **job creation/ upskilling in low-carbon & resilient sectors** to support transition of most vulnerable populations	- Portfolio contains investments dedicated to job creation/ upskilling in low carbon and resilient sectors	- Investments into job creation/ upskilling are under development, with clear timeline to offer launch	- Portfolio does not contain invest-ments into job creation/ upskilling - Plan to start investments	- Portfolio does not contain invest-ments into job creation/ upskilling - No plan to include such investments, however willingness to develop this	

1) Focus on resource efficiency, energy source, products/ services, low-risk markets, and/ or resilient industries
Note: Climate criteria will be applied in addition to current investment criteria (e.g. ticket size, etc.)
Source: TCFD, 2017; Deutsche Asset Management, 2017

Appendix 2.3 - Invest: Criteria are measured based on points system (3/5)

/BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Sensitivity: mitigating risks	Adaptation & resilience	• **Physical risks**[1] (Geographies)	- Clear assessment of acute & chronic physical risks in portfolio (e.g. asset damage, supply chain disruption), incl. materiality & scenario analyses - Mitigation strategy Being executed	- Assessment of acute and chronic physical risks in portfolio, incl. materiality and scenario analyses - Mitigation strategy defined and timeline in place	- No assessment of acute and chronic physical risks in portfolio or definition of mitigation strategy - Clear plan, incl. timeline, to develop this	- No assessment of acute and chronic physical risks in portfolio or definition of mitigation strategy, but willingness to develop this	- No willingness to assess acute and chronic physical risks in portfolio despite estimated high exposure
	Adaptation & resilience	• **Transitional risks**[2]: Low Carbon Transition (LCT) scores[3] (incl. regulatory, market, and tech. forces)	- Assessment of portfolio companies' LCT score[3] categorisation of portfolio companies into LCT category[4]	- Plans to assess companies' LCT scores[3], incl. clear timeline to do so - Initial assessment of portfolio in DD shows limited risk of stranded assets	- Strong willingness to assess portfolio companies' LCT scores[3] - Initial assessment of portfolio in DD shows limited risk of stranded assets	- Openness to assessing portfolio companies' LCT scores[3] - Initial assessment of portfolio in DD shows some risk of stranded assets	- No willingness to assess portfolio companies' LCT scores[3], despite high risk of stranded assets
	Net zero	• **Transitional risks**[2]: Portfolio tracking of emissions (e.g. weighted average carbon intensity)	- Weighted average carbon intensity tracked - Carbon intensity falls within acceptable bound	- Weighted average carbon intensity tracked - Carbon intensity not within accept-able bound, but strategy to reduce	- Weighted average carbon intensity not tracked - Plan to track weighted average carbon intensity, incl. clear timeline	- Weighted average carbon intensity not tracked - Willingness to track weighted average carbon intensity	- No willingness to start tracking weighted average carbon intensity across portfolio

1) Acute and chronic; 2) Policy & legal, technological, market, reputation; 3) Covers company operations (carbon emissions), business models (carbon intensive products & services, clean tech exposure), and management practices (efforts to mitigate risk); 4) Asset Stranding, Product Transition, Operational Transition, Neutral and Solutions; TCFD = Task Force on Climate-related Financial Disclosures; Note: Climate criteria will be applied in addition to current investment criteria (e.g. ticket size, etc.); Source: TCFD, 2017; Deutsche Asset Management, 2017; UNPRI, 2019

Appendix 2.4 - Invest: Criteria are measured based on points system (4/5)

/BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Sensitivity: mitigating risks	Net zero	• **Transitional risks**[1]: Portfolio tracking and minimizing of fossil fuel exposure	- Exposure to fossil fuels[2] is assessed and non-existent	- Exposure to fossil fuels[2] is assessed - Mitigation strategy for fossil fuel exposure is in place with timeline	- Exposure to fossil fuels[2] is not assessed - Plan to assess is defined with timeline	- Exposure to fossil fuels[2] is not assessed - Willingness to assess exposure	- Portfolio exposure above a certain limit to subsectors of coal, oil, gas and transport as defined by fossil fuel policy - No willingness to assess exposure
	All	• Implementation of **TCFD reporting** (if applicable – if not, apply average score of sensitivity)	- Yearly reviews of portfolio to assess progress towards climate objectives - Fully integrated climate considerations in investment process - Points listed in "Advanced" and "Emerging"	- Definition of key climate performance indicators for each portfolio holding - Points listed in "Emerging"	- Climate awareness raised throughout organisation - Definition of climate-dedicated governance - Development of simplified implementation plan	- No steps to implement TCFD reporting - Willingness to implement (if applicable)	N/A

1) Policy & legal, technological, market, reputation; 2) Weight of companies owning fossil fuel reserves, potential emissions from fossil fuel reserves, weight of companies generating revenue from fossil fuel extraction/ generation/ exploration

TCFD = Task Force on Climate-related Financial Disclosures; Note: Climate criteria will be applied in addition to current investment criteria (e.g. ticket size, etc.); Source: TCFD, 2017; Deutsche Asset Management, 2017; UNPRI, 2019

Appendix 2.5 - Invest: Criteria are measured based on points system (5/5)

/BACKUP

Category	Paris alignment	Detailed criteria	Mature: 4	Advanced: 3	Emerging: 2	Idle: 1	No go: -1
Capabilities: promoting stewardship	Net zero	• Tracking of **carbon emissions** for target's operations	- Target's own carbon emissions tracked, both direct (e.g. building) & indirect (e.g. procurement) emissions - Strategy to reduce carbon emissions	- Target's own carbon emissions tracked, covering direct and indirect emissions - Strategy to reduce emissions being developed	- Target's own carbon emissions not tracked - Willingness to track and reduce own emissions	- Target's own carbon emissions not tracked	N/A
	All	• Dedicated **centre of excellence**	- Dedicated team of specialists to guide product development, taxonomy, policies & ensure alignment of efforts with corporate strategy	- Plan to build up team of specialists, with clear timeline	- No plan to build up team of specialists, but willingness to do so	- No plan to build up team of specialists	N/A
	All	• Dedicated **training modules** & **up-to-date information**	- Up-to-date info on market trends, investments, innovation, leveraging key partnerships - Training courses and industry playbooks	- Plan (with timeline) to develop dedicated training modules and build up system to keep information up-to-date	- No plan to build up training modules/ up-to-date information, but willingness to do so	- No plan to build up training modules/ up-to-date information, but willingness to do so	N/A

TCFD = Task Force on Climate-related Financial Disclosures; Note: Climate criteria will be applied in addition to current investment criteria (e.g. ticket size, etc.); Source: TCFD, 2017; Deutsche Asset Management, 2017; UNPRI, 2019

Appendix 2.6 - CDC's role to influence its investees strategy and help them implement the right governance

Illustration of climate / sustainability strategy & governance best practices

Strategy advisory

1 Define Vision and Mission → 2 Identify Focus Areas

Sustainability framework and approach

Materiality & Valuation

3 Establish Governance and Specify Objectives

4 Define program & instr. → 5 Specify KPIs and targets → 6 Embed across business

Key Actions & Initiatives

Performance Management KPIs

Initiate actions across business

Integrated climate strategy

Sustainability is part of the company's identity. It entails:

- Specified focus areas for differentiation
- A solid understanding of the business case for key initiatives
- Tangible targets that point towards a clear vision for the bank's sustainability

Governance structure

Stand Alone

Embedded

	The responsibility for managing sustainability sits in a largely stand alone 'CSR' function	Sustainability become business as usual, central team continue to provide expertise but there will be close integration with business functions
-	→ Faster decision making through own governance → Harmonized practices	→ Business empowered to take decision on sustainability → More business impact & reach
+	→ Limited integration with the business → Limited scope and reach, on-the-side initiatives	→ Slower decision process → Risk of unharmonized process

Role that CDC can play

EDUCATE	ADVISE	CONNECT
	●	

Help FI to define their **strategy** on climate change:

- Identify & prioritize climate **risks & opportunities**
- Define **resilience** of the organization taking into consideration sust.-risk & scenarios
- Define & allocation sust-related **Targets**
- Define **business case**
- Define **key capabilities** & implementation **roadmap**

Help FI shape its **governance** to monitor and **embed sustainability** in the business

Source: Accenture sustainability in Banking, report 2017

Appendix 2.7 - CDC's role in widening its investees' portfolio towards more green instruments

Illustration of climate friendly customer value proposition

[illustrative]

Type	Description / sub-type	Examples (in Asia)
Green Bonds	• Green (convertible) Bonds • Environmental impact bonds • Green revenue bond	• **DBS (SGP)** issued a $500m 5-y green bond to be allocated to green building, transport, RE…
Green Loans	• Green loan • Green Sukuk (Islamic fin. Certificate) • Revolving Credit facilities (RCF) • …	• $58M to finance **solar panel** in Malaysia • Green sukuk to secure LEED certification for the **Merdeka tower** in Malaysia
Green securitization	• Green structured finance • Green tranches in ABS • …	• **Beijing Ent. Water Group** issued a securitization backed by water treatment fee receivables
Credit guarantees	• Green structured finance • Green tranches in ABS • …	• **Sindicatum Renewable Energy** (SGP) issued a two-tranche 7-year senior green bond guaranteed by **GuarantCo** at 100%
Green facilities	• Act as a bridge between governments, the private sector & communities to actively develop a project pipeline	• **Tropical Landscapes Fin. Facility** (UN, Agroforestry center, ADMCapital, BNPP) • Credit Guarantee Corporation Malaysia (CGC)
ESCO (Energy Service Cpy) **financing**	• Third party financing of an ESCOs • ESCO guarantees a certain level of energy savings, thus assuming the performance risk	• **Malaysia Debt Ventures**, set up an Energy Performance Contracting fund to provide credit financing to ESCOs for implementing energy efficiency projects

Role that CDC can play

EDUCATE	ADVISE	CONNECT
●	○	

- Provide latest information on existing **green financial instruments**
- Share **best practices** from peers or other company's in CDC portfolio
- Support the investee in developing a **wider portfolio of instruments** to support green projects in the region
- **Run continuous market research,** gather latest trends and case studies (both in the region and in mature countries like EU)

Source: ASEAN Green Financial instruments, Climate Bond initiatives, 2019

Appendix 2.8 - CDC's role in empowering its investees in getting a better understanding of the risk related to climate

Illustration of climate friendly risk management capabilities

Materiality analysis

- Conduct materiality analysis on current portfolio holdings to identify climate risk exposure
- Identify impact of climate change on your portfolio's operations, supply chains or markets

Examples of sources for materiality matrixes. Source: INDEFI analyses

Name	Description	Website
SASB Materiality Map	SASB's Materiality Map identifies 26 sustainability-related business issues and their associated accounting metrics.	https://materiality.sasb.org/
CDC Group's ESG Toolkit	CDC Group's ESG Toolkit offers practical guidance for responsible investors in emerging markets with a particular focus on climate-related risks.	https://toolkit.cdcgroup.com/ See note on Assessing climate change risks under the E&S topic note on Climate Change
Initiative Climat International	A collaborative private equity initiative focused on raising understanding around climate related issues (See Box 4).	https://collaborate.unpri.org/group/761/stream See "Join the Initiative Climat International" on the PRI Collaboration Platform

Role that CDC can play

EDUCATE	ADVISE	CONNECT
○	●	○

- Educate FI on the different climate related risks per type (physical, transition..) and industry sectors

Support Financial institutions in:

- Identifying and assessing climate-related risks along its operations (materiality analysis)
- Describing its strategy & processes for managing climate-related risks.
- Integrating climate-risk mgt approach into the organization's overall risk management.
- Connect FI with policymaker to co-develop framework in the region

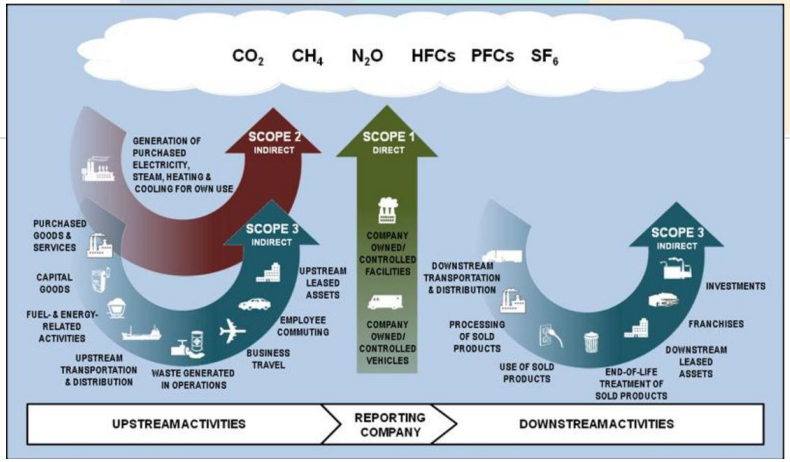
Source: INDEFI / MEASURING PHYSICAL CLIMATE RISK IN EQUITY PORTFOLIOS, 427 & Deutsch Bank, 2017

Appendix 2.9 - CDC should ensure that all its investees' are able to measure carbon footprint

Illustration on climate-related reporting capabilities: carbon foot-printing

Scope 1	Direct emissions of the company, especially from company vehicles and energy use in facilities
Scope 2	Indirect upstream emissions from purchase of electricity, heating & cooling for use by the company
Scope 3	Other indirect emissions from the value chain Upstream logistics and purchased goods and services Downstream emissions from processing and use of sold products etc.

	Carbon Emissions tons CO2e / $M invested	Total Carbon Emissions tons CO2e	Carbon Intensity tons CO2e / $M sales	Weighted Average Carbon Intensity tons CO2e / $M sales
Question:	*What is my portfolio's normalized carbon footprint per million dollars invested?*	*What is my portfolio's total carbon footprint?*	*How efficient is my portfolio in terms of carbon emissions per unit of output?*	*What is my portfolio's exposure to carbon-intensive companies?*
Key Strengths:	✓ Allows for comparison regardless of portfolio size ✓ Enables portfolio decomposition and attribution analysis	✓ Most literal carbon footprint from GHG accounting perspective ✓ Absolute number can be used for carbon offsetting	✓ Provides overall intensity of portfolio by adjusting for company size ✓ Allows for comparison regardless of portfolio size	✓ Applicable across asset classes, including fixed income ✓ Simple and intuitive calculation ✓ Does not require corresponding market cap or sales data ✓ Enables simple attribution analysis and portfolio decomposition



Role that CDC can play

EDUCATE	ADVISE	CONNECT
○	●	

- Explain the different methodologies developed by MSCI and TFCD to calculate carbon emissions
- Support financial institution to institutionalize the carbon footprint process in their reporting process
- Train specific experts in FI companies to develop the right dashboard to monitor GHG emissions and climate risk level at portfolio level

Source: UNPRI, Carbon Foot printing 101, MSCI

Appendix 2.10 - As an example or trainer, CDC can help its investees in reducing their own environmental footprint

Illustration of "How to drive climate friendly operations"

Lever	Description of related initiatives	Examples
Green Procurement	• Integrate green criteria into suppliers' selection • Monitor suppliers ESG performance with clear policy / threshold • Pool supply with other bank and drive sustainability across Financial institutions	ING INTESA SANPAOLO
Smart Energy consumption	• Increase contribution of alternative, cleaner energy sources to total energy supply • Optimise energy consumption and reduce emissions of IT infrastructure & buildings • Collaborate with peers in industry for power generation in order to off set negative impacts of business operations	DBS DBS UniCredit LLOYDS BANK
Efficient ways of working	• Become a "paperless bank" by reducing paper consumption across the FI • Promote digitally-enabled operations & virtual working • Adopt greener waste disposal practices (office equipment, e-waste)	ING access

Role that CDC can play

EDUCATE	ADVISE	CONNECT
●		●

- **Develop training** to share best practices and what could be done to drive climate friendly operations
- Support the financial institution in **diagnosing its own footprint** and identify cost savings value
- Support financial institution in **developing transformation roadmap**
- Enrich and maintain **a log of best practices** from other banks / FI
- **Connect** Financial institutions with **external providers** (recycling cpy, Energy service provider etc.)

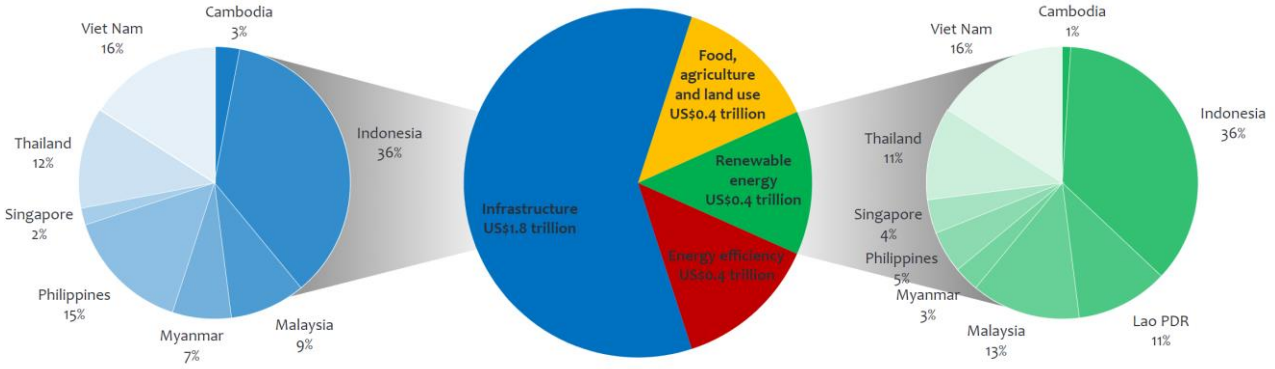
Source: Accenture sustainability strategy research

Appendix 2.11 - SEA as a region is destined for a climate change investment – 5 reasons why

I	II	III	IV	V
Strong need for action in the region	**Strong economic growth forecasts**	**Consumer openness to technology**	**Potential to 'leapfrog'**	**Likeliness of regulatory action**
Pollution (e.g. '13, '15, '19 haze) & waste growing extensively	*ADB project GDP growth 4.8-5.0% [prior to COVID]*	*High levels of smart phone use; penetration 30-70%*	*As seen in telcom infrastructure and payments tech*	*Fluid political system; intervention likely*

$2.6-3.0tn

Investment opportunities breakdown



Asset Owners			
	Infrastructure Emerging private ownership trend, esp. in telcos & buildings	**Food, agriculture & land** Broad base in Indonesia, Thailand, Vietnam, Philippines	**Energy Efficiency** Building & EE services, mainly Indonesia & Thailand	**Renewable energy** Independent power producers, on-grid projects

Source: Asian Development Bank, DBS: "Green Finance Opportunities in ASEAN"

Appendix 3.1 - Acronym Glossary

A

ACRE	Agriculture and Climate Risk Enterprise
ADB	Asia Development Bank
ADIA	Abu Dhabi Investment Authority
AfDB	African Development Bank
ARAF	Acumen Resilient Agriculture Fund

C

CalPERS	California Public Employees' Retirement System
CalSTERS	California State Teachers' Retirement System
CPPIB	Canada Pension Plan Investment Board

D

DEG	German Investment Corporation
DFI	Development Finance Institution
DFID	(UK) Department for International Development
DFS	Digital Financial Service
DI	Development Impact

E

E&S	Environmental & Social
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
ESG	Environmental, Social and Governance

F

FI	Financial Institutions
FMO	Dutch Development Bank
FSP	Financial Service Provider

H

HFO	Heavy Fuel Oil

I

ICI	Intermediate Climate Initiative (CDC initiative)
IFC	International Finance Corporation

M

MDB	Multilateral Development Bank
MFI	Microfinance Institution

N

NBFI	Non-Banking Financial Institution

O

OMERS	Ontario Municipal Employees Retirement System
OTTP	Ontario Teachers' Pension Plan

P

PSP	(Canadian) Public Sector Pension

S

SF	Sustainable Finance

T

TCFD	Task Force on Climate-related Financial Disclosure

U

UNPRI	United Nations Principles for Responsible Investing

Appendix 4.1 - The INSEAD Team

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INSEAD

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