

Sustainable Finance Trends and Analysis: the Taiwan Example

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| Education |

Master of Accounting, George Washington University, USA
Bachelor of Accounting, National Taiwan University, Taiwan

| Professional Experience |

- Leader of PwC Taiwan Sustainability and Climate Change Services
- GRI Standard Translation Peer Review Committee
- Leader of 2013 PwC Asia Pacific, Carbon Disclosure Project (CDP) Scoring Team
- Taiwan, USA and China Certified Public Accountant

Expertise

- Sustainability consulting and assurance in the financial industry, food industry, electronics industry, and pharmaceutical industry
- Sustainability strategy and risk management consulting
- Social and Environmental Impact Valuation consulting
- Social Return on Investment (SROI) implementation Consulting
- Carbon Disclosure Project (CDP) and DJSI consulting
- Net Zero Strategy and Science-Based Target (SBT) consulting
- Climate-Related Financial Disclosure (TCFD) consulting
- Total Impact Measurement and Management (TIMM) consulting
- International Financial Reporting Standards (IFRS) consulting
- Global depositary receipt and convertible bond issuance consulting

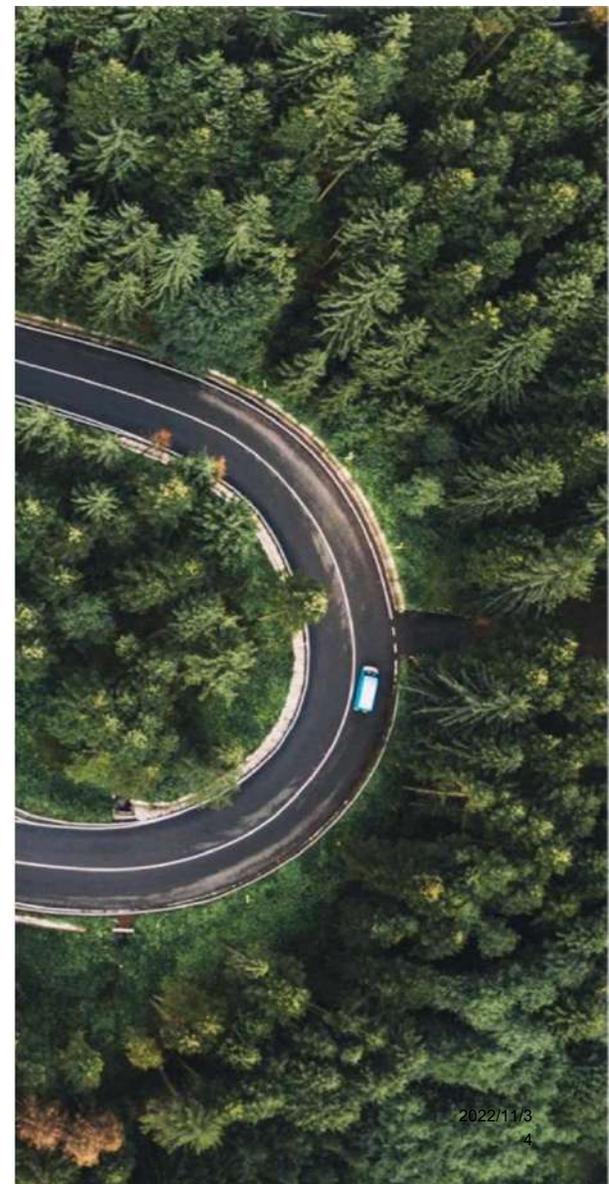
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The materials contained in this presentation were assembled on 11.03. 2022 and were based on the law enforceable and information available at that time.

Agenda

1. ESG Capital Market Trends
2. How Taiwan Fosters Sustainable Finance
 - Policies driving the development of Taiwan's Sustainable Financial Market
 - Sustainable finance actions in Taiwan
3. Ending Message



PwC Taiwan Sustainability Service

Well-recognized sustainability platform in Taiwan

PwC Sustainability Services: Build trust in society and solve important problems

+80 Diversified Sustainability Professions

PwC Sustainability Services was established in 2013. Responding to fundamental changes in the world, we bring together over 80 interdisciplinary environmental, social, and economic talents to build trust and deliver sustained solutions to our clients.

+20 Sustainability Programs

PwC Sustainability Services has since maintained close and long-term working relationships with competent authorities from Taiwan and beyond, integrating network and resources from around the world to co-host over 20 sustainability programs including forums, workshops, ESG-related initiatives...etc., to build holistic sustainability ecosystem.



Turning ESG theories into action

Our sustainability practice helps organizations plan, source, deliver, finance and measure the wider impact of products and services.



1

ESG Capital Market Trends

Outstanding ESG Index performance demonstrates resilience

CUMULATIVE INDEX PERFORMANCE – GROSS RETURNS (USD)
(SEP 2007 – SEP 2022)



ESG improving financial performance is pronounced

ESG investment preserves value during social turmoil

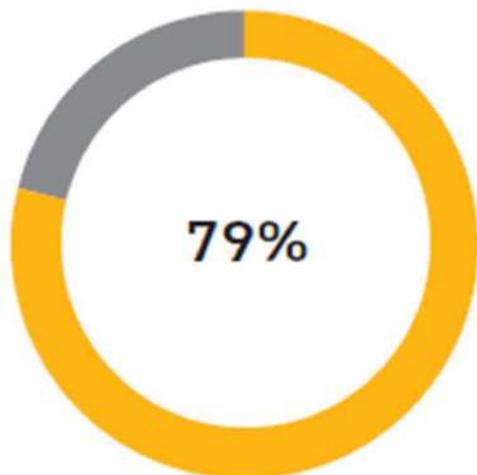
ESG-driven risk management and innovation improves financial performance

Source: MSCI Taiwan ESG Leaders Index (USD)

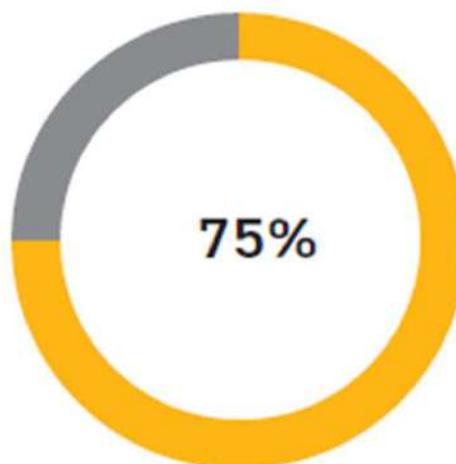
PwC Global Investor Survey reveals ESG economic realities

Investors are catching up on ESG and they are ready to act:

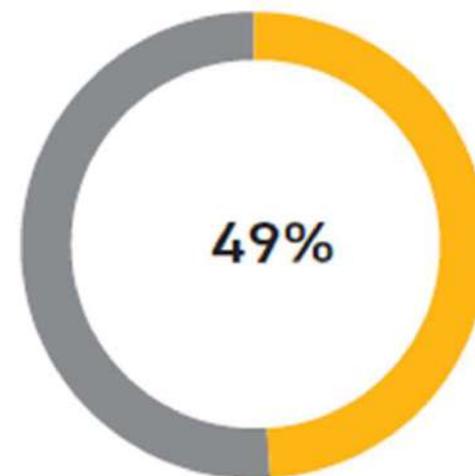
ESG risks are important factors in **investment decision-making**



Companies should address ESG issues, **even if doing so reduces short-term profitability**



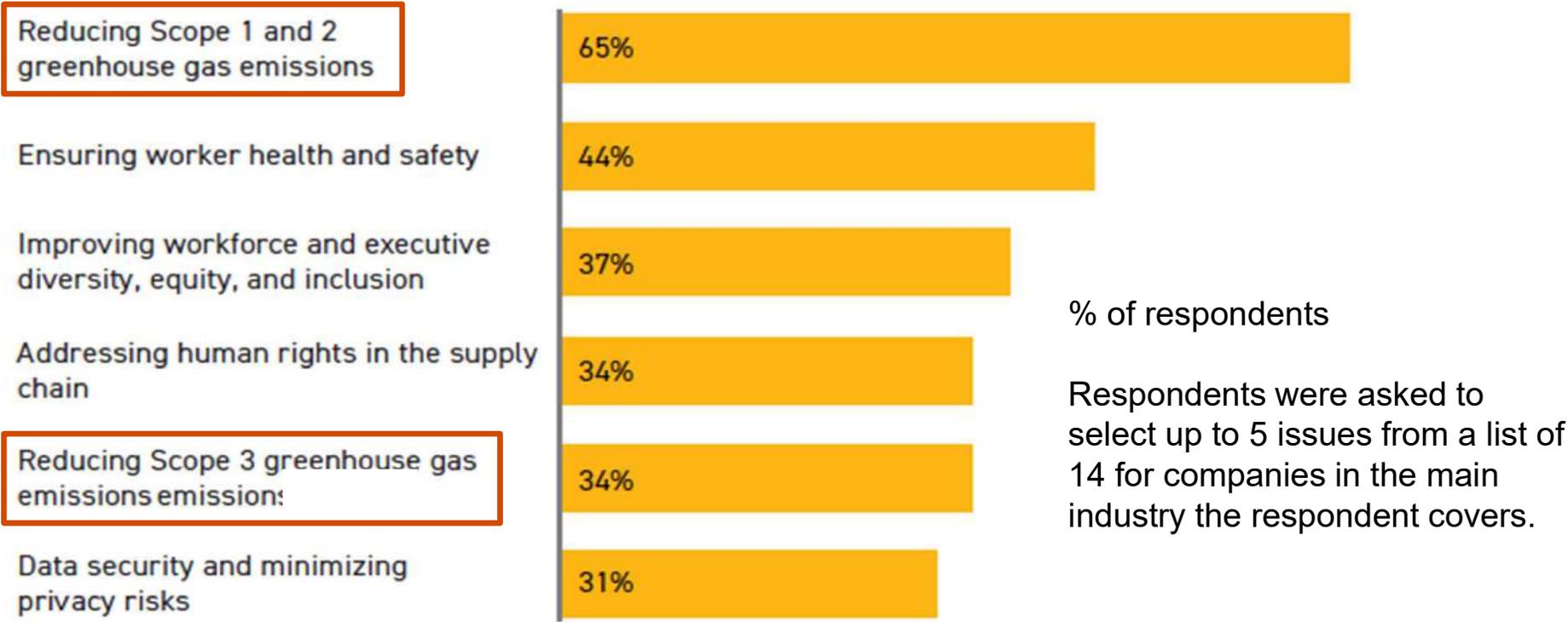
I am willing **to divest from companies** that aren't taking sufficient action on ESG issues



Source: PwC 2021 Global Investor Survey
<https://www.pwc.com/gx/en/issues/reinventing-the-future/take-on-tomorrow/download/sbpwc-2021-10-28-Economic-realities-ESG.pdf>

PwC Global Investor Survey delivers important message

Top ESG issues in order of importance



Source: PwC 2021 Global Investor Survey
<https://www.pwc.com/gx/en/issues/reinventing-the-future/take-on-tomorrow/download/sbpwc-2021-10-28-Economic-realities-ESG.pdf>

Climate change affects not only manufacturing companies

Climate-related disaster causes damage

(Unit: USD Billion)



- According to the report from Swiss Re Institute, economic losses due to natural disasters in 2021 has reached US\$280 billion (about NT\$8.3 trillion), and insured losses has reached US\$119 billion (about NT\$3.5 trillion)
- **Rising trend of insured losses due to climate-related disasters persists over the past decade**
- Climate change will cause greater losses in the future, and the frequency and losses of disasters caused by extreme climates will increase unabatedly

Source: <https://www.swissre.com/institute/research/sigma-research/sigma-2022-01.html>

The world is moving towards net zero!

zerotracker.net
2022/10/31

GLOBAL NET ZERO COVERAGE



Country-level coverage only. We do not include sub-national net zero targets in countries without a target.

NET ZERO NUMBERS



Out of 198 countries, 713 regions, 1,177 cities and 2,001 companies.

Net Zero Economy Index 2022: Carbon reduction is urgent

From 2000 to 2021, global carbon intensity fell by an average of 1.4% per year

1.4%

In 2021, global carbon intensity fell by 0.5% (the lowest in the last decade)

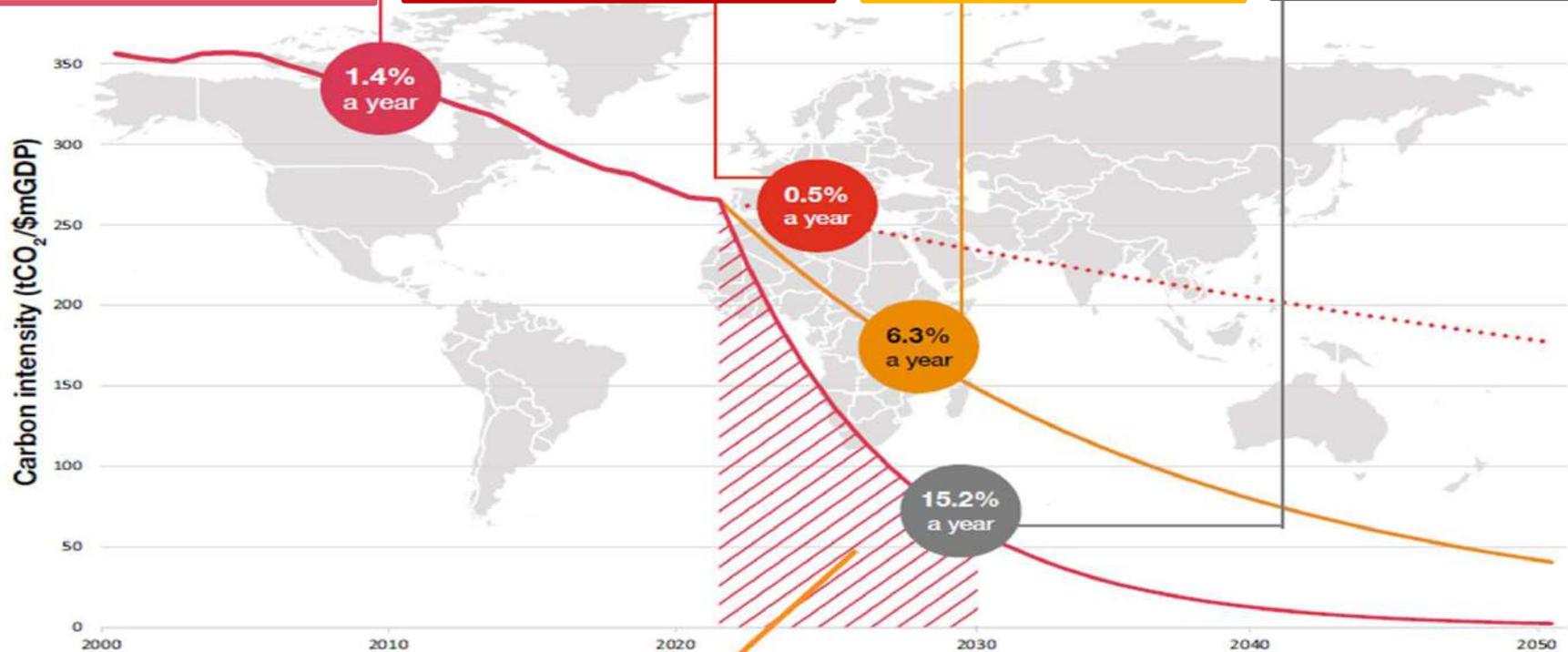
0.5%

To limit warming to 2°C, we need an annual decarbonization rate of

6.3%

To limit warming to 1.5°C, we need an annual decarbonization rate of

15.2%



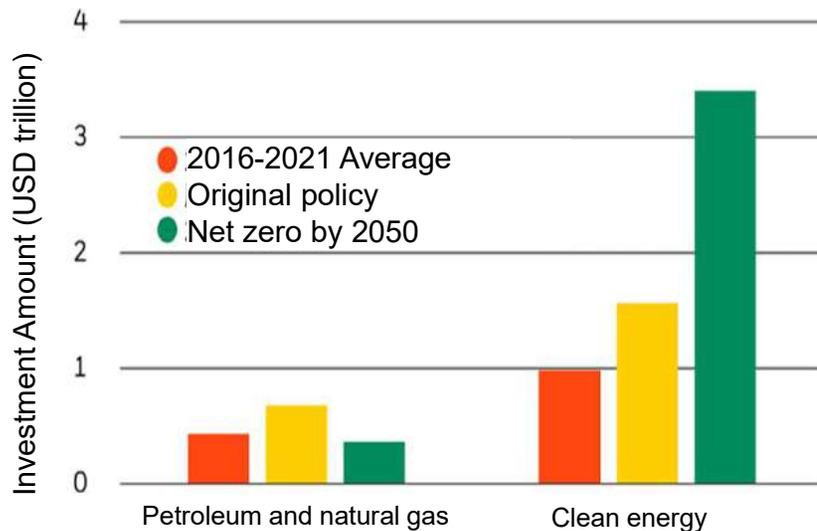
A 77% reduction in carbon intensity is required this decade to limit warming to 1.5°C

Net-zero investment demand grows substantially

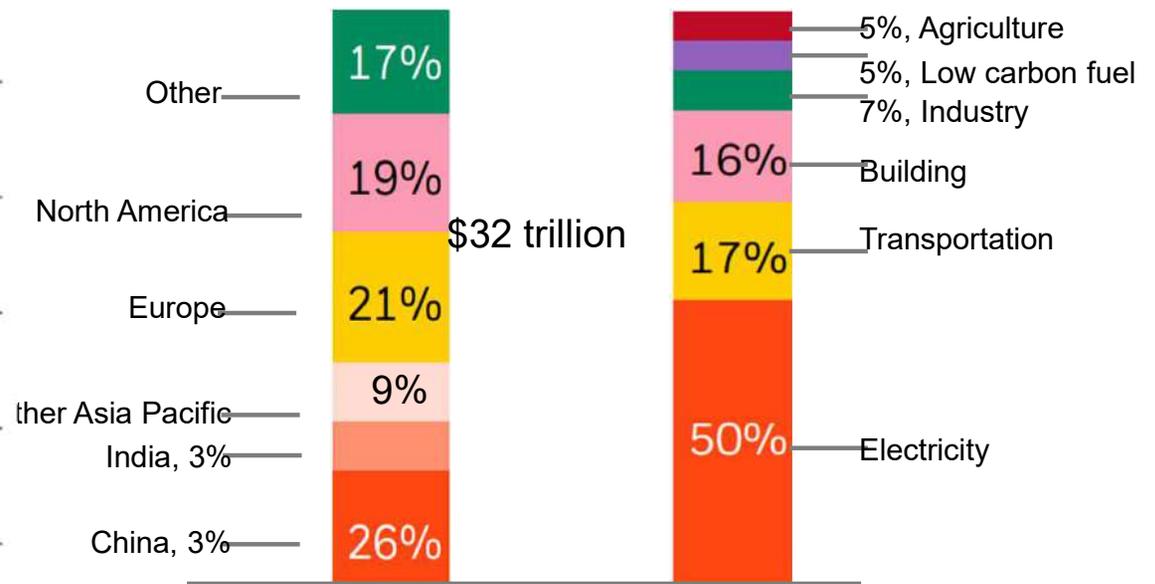
IEA estimates that an annual capital spending of US\$360 billion is required for energy industry to achieve net zero emission by 2050

Glasgow Financial Alliance for Net Zero estimates that an investment of US\$32 trillion is required in low-carbon energy supply (e.g. electricity) and related industries (e.g. transportation, construction, industrial equipment) by 2030

- Greater investment in renewable energy is needed
- Annual capital expenditure requirements, actual and estimated for the energy industry

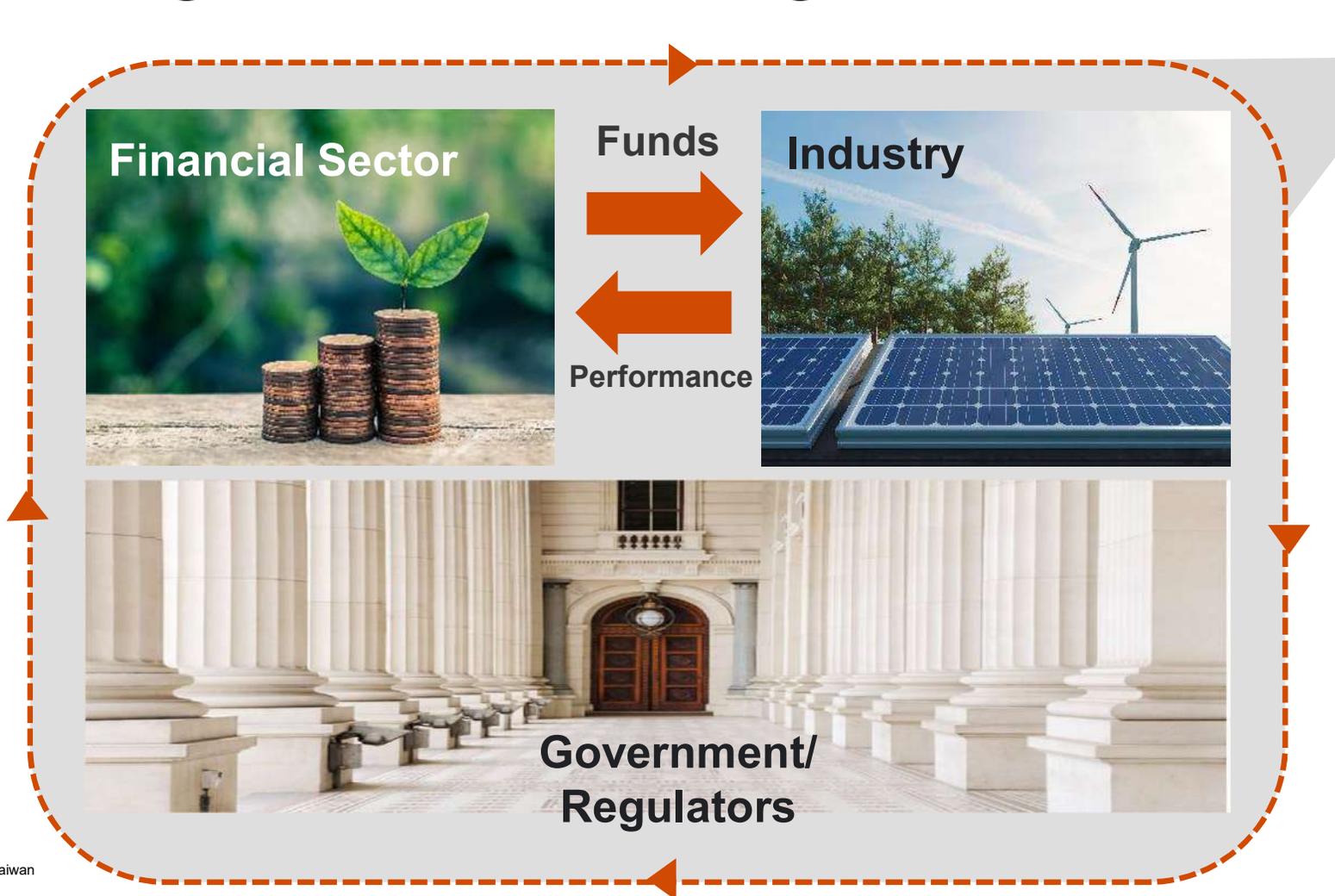


- Need to increase net zero investment
- Capital expenditure needs by region and industry (by 2030)



Source: <https://www.blackrock.com/tw/net-zero-transition>

Work together to achieve through sustainable finance

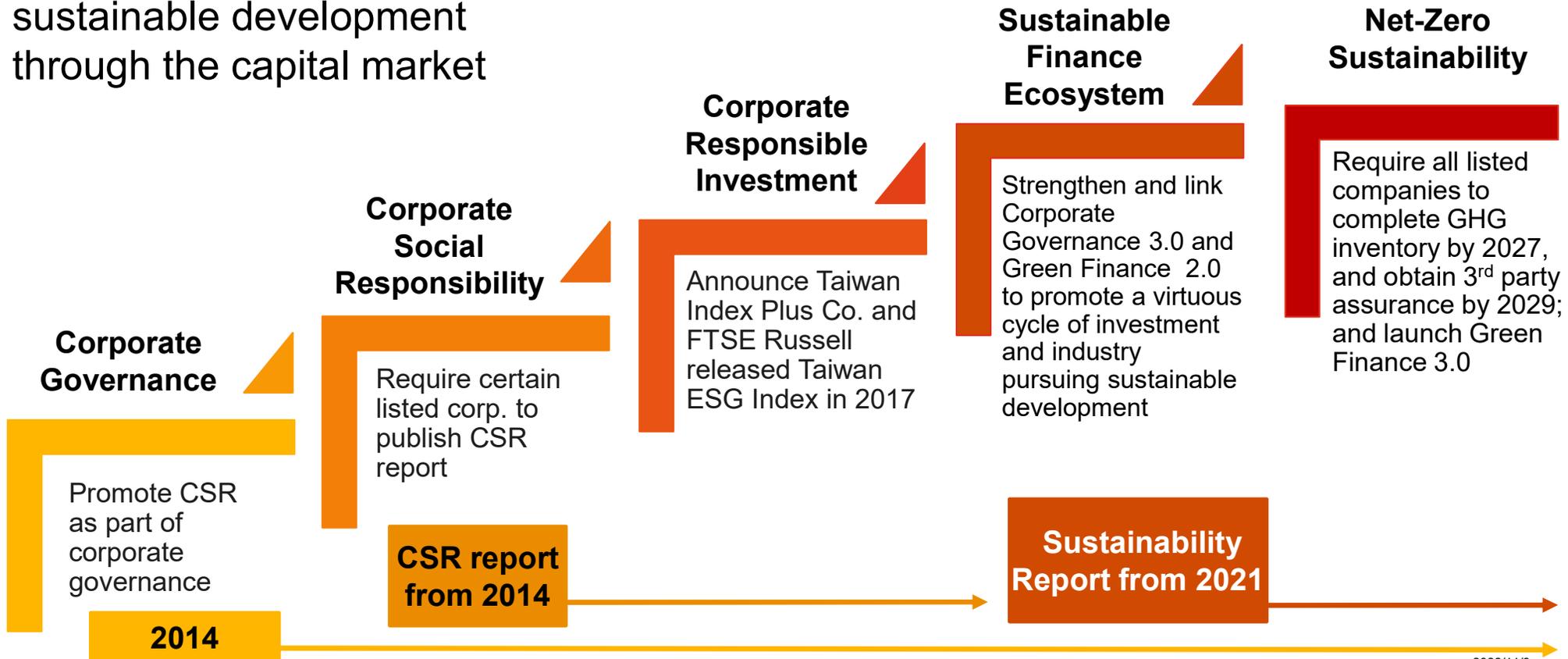


2

How Taiwan Fosters
Sustainable Finance

Taiwan capital market regulator's ESG sustainability roadmap

Guiding the process of sustainable development through the capital market

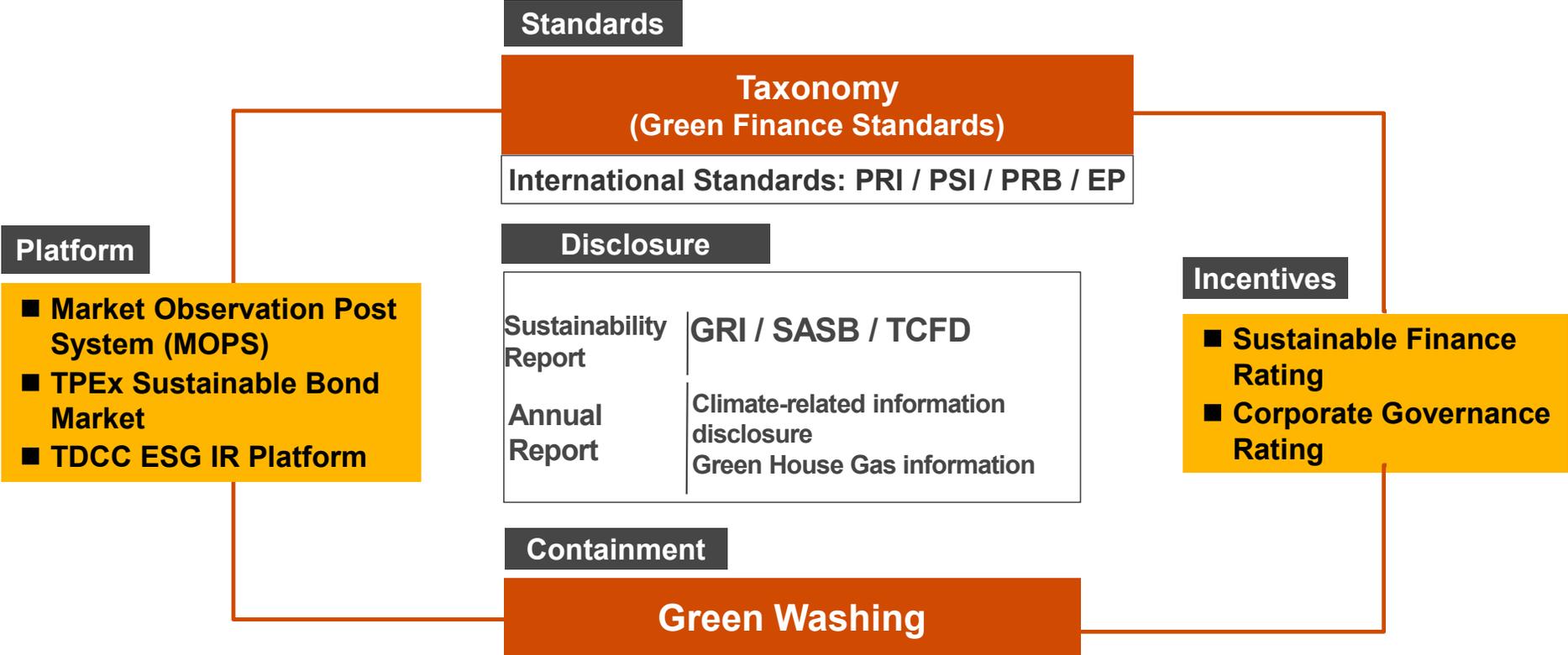




2.1

Policies Driving the Development of Taiwan's Sustainable Financial Market

Regulators takes comprehensive measures to promote and mandate sustainable finance



Principles for the Review and Supervision of Information Disclosures for Environment, Social and Governance (ESG) Themed Securities Investment Trust Funds

Official platform provides ESG ratings information to facilitate ESG investment

Ticker/Company	Sustainalytics ESG Risk Ratings (100-0, 0 is the best)	MSCI ESG Ratings (AAA-CCC, AAA is the best)	FTSE Russell ESG Ratings (0-5, 5 is the best)	ISS ESG Ratings (A-D, A is the best)	S&P Global ESG Scores (0-100, 100 is the best)	Taiwan Corporate Governance Evaluation (Top 5% is the best)
1101 TCC	21.41	BBB	3.3	D+	74	6%~20%
1102 ACC	27.48	CCC	3.5	D+	70	6%~20%
1103 CHC	38.46	-	2	-	29	6%~20%
1104 UCC	30.92	-	-	-	12	36%~50%

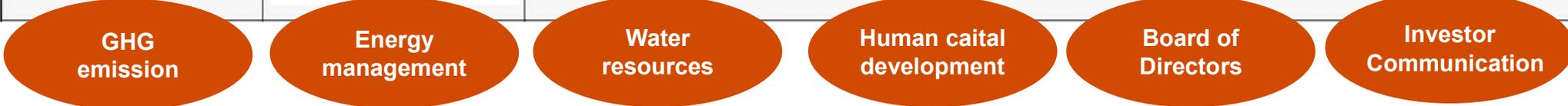
Source: <https://irplatform.tdcc.com.tw>

Listed companies are required to disclose 29 ESG indicators



Topic	Indicators	2021			
Dimension		Data	Scope	verification body	verification standard
GHG emission (ton CO2e)	Scope1 Emission	77.7000	本公司(竹南廠)	-	-
	Scop2 Emission	4,216.8140	本公司(台北辦公室+竹南廠)	-	-
	Scope3 Emission		無統計相關數據		
	Emission intensity (ton CO2e/ revenue)	0.6300	範疇一+二		
	Strategy, approach, target	N/A			

Example



Taiwan announced phase I taxonomy to define sustainable economic activities

Taiwan Taxonomy

Define 「Green」 :

- Contribute substantially **to** one or more **of the environmental objectives**:
 1. Climate change mitigation
 2. Climate change adaptation
 3. Sustainable use and protection of water and marine resources
 4. Transition to a circular economy, waste prevention and recycling
 5. Pollution prevention and control
 6. Protection of healthy ecosystems
- Comply with **minimum social safeguards**

Phase 1 Industries

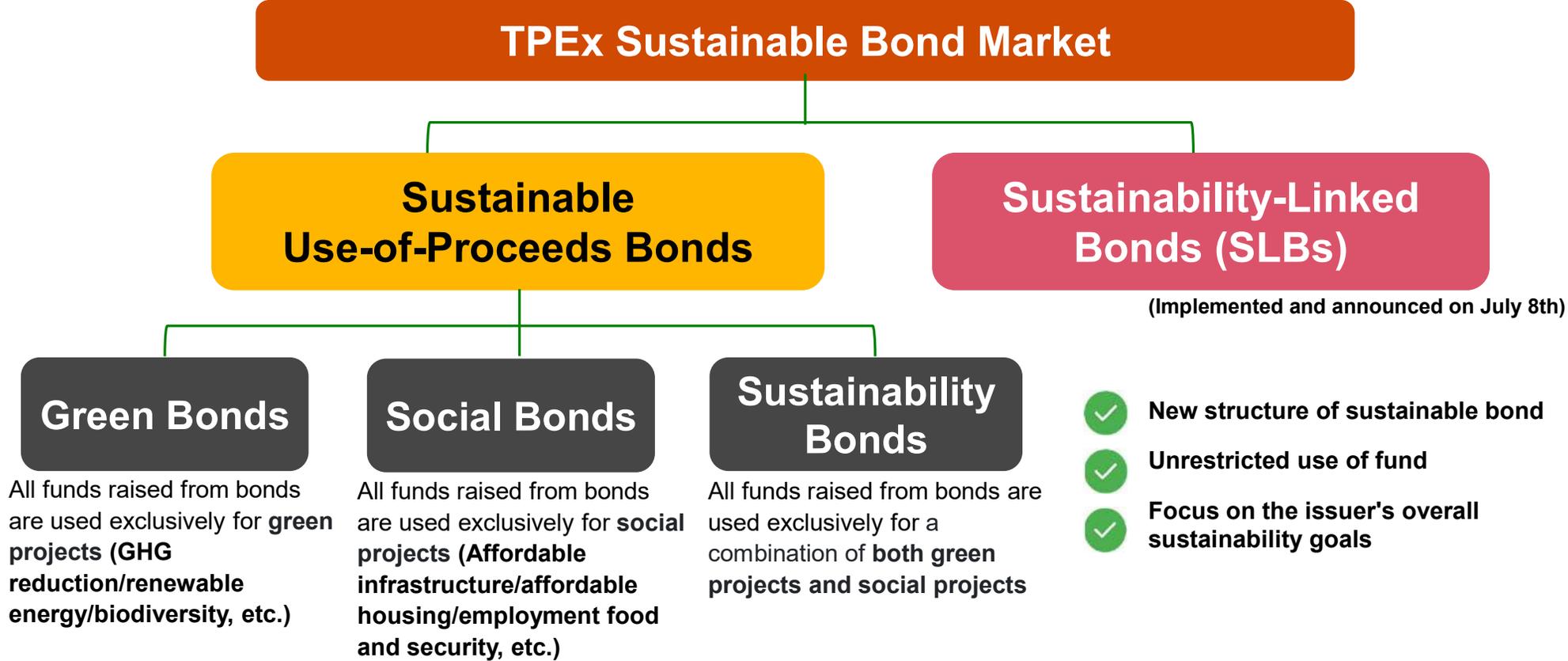
Manufacturing

Construction

Transportation
and
Warehousing

**Disclosure of
quantitative indicators by industry**
(e.g. emission intensity, Green Building Label, Energy Use Intensity(EUI),...)

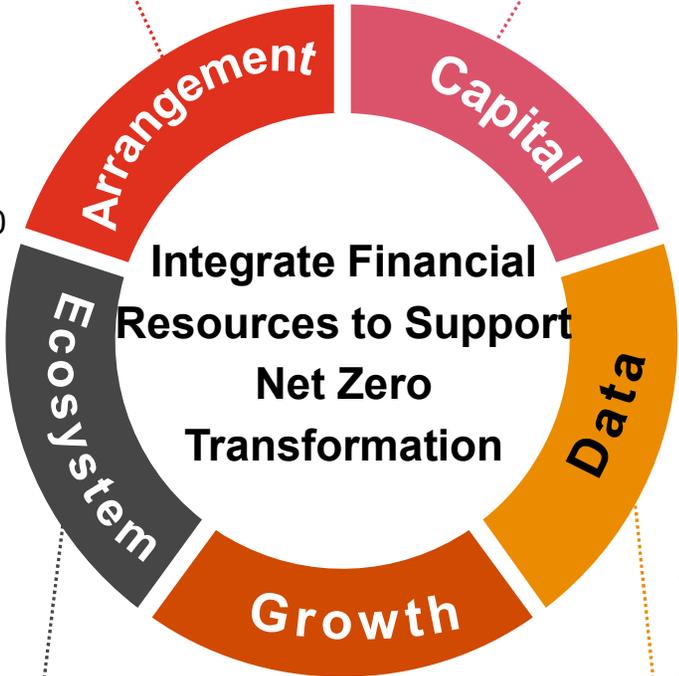
TPEX Sustainable Bond Market helps raising funds for sustainability



Source: <https://www.tpex.org.tw/web/bond/sustainability/institution.php?l=zh-tw>

Taiwan regulator announced Green Finance 3.0

- Promote financial institutions to disclose **carbon emission** information
 - Set **medium and long-term carbon reduction targets and strategies** for Scope 1, 2 and 3 with reference to science-based targets or the national 2050 net zero emission pathway, etc.
 - Promote **climate change stress testing**
 - Research on the **monitoring mechanism of climate risks**
-
- Promote the **first mover alliance**
 - Form a **group for promoting net zero transformation in financial sector**
 - Conduct **sustainable finance rating**
 - Hold thematic promotion of green fintech



- Introduce **sustainable finance license**
- Strengthen sustainable finance training for directors, senior executives and staff

- Encourage financial institutions to incorporate **the guidelines of identifying sustainable economic activities** into strategic planning, investment, and financing evaluation
 - Discuss the second set of guidelines for the identification of sustainable economic activities
 - Continue to encourage and promote **green financial products, investing and credit evaluation**
-
- Build an **ESG information platform**
 - Discuss with relevant organizations to optimize **climate-related databases**
 - Build a **sustainable finance website** to summarize statistics, relevant regulations, exchanges, and evaluation information of sustainable finance



2.2

Sustainable finance actions in Taiwan

Financial institutions actively integrate with international sustainable finance frameworks

#17 institutions signed EP

Equator Principles (EP)

A risk management framework adopted by large international financial institutions to determine, measure and manage environmental and social risks arising from project financing

Principles for Sustainable Insurance (PSI)

Provide insurance companies with a voluntary compliance framework to manage risks and opportunities related to ESG issues and support corporate sustainability

Loan & Financing by Financial Institutions

Investment & Asset Management

Principles for Responsible Investment (PRI)

Assist investors to understand the important role ESG plays in investment, help and encourage investors to incorporate ESG into investment considerations

Integrate ESG into business strategy and proactively disclose key performances

Insurance Products & Services

Bank Financial Business

Principles for Responsible Banking (PRB)

Integrate elements of sustainable development into banking business. Make positive contributions to a sustainable society, and achieve the goals of SDGs and Paris Agreement

Note: While Taiwan is not a member of the United Nations, it cannot directly sign the PSI/PRI/PRB issued by organizations under the United Nations. Financial institutions can only adopt on a self-proclaimed basis

Taiwan banks promote SLL to create ESG impact

- Financial institutions are actively promoting Sustainability Linked Loan (SLL), **helping enterprises achieve sustainable growth strategies through SLL.**
- Sustainability Linked Loan(SLL) offers a **reduced interest rate** for **loans used for environmental protection, social responsibility, corporate governance** and other operational needs.

Taiwan's largest SLL: TSMC

- Signed a nearly NT\$90 billion SSL with Standard Chartered Bank and DBS Bank
- The bank continued to track TSMC's sustainable performance during the loan period and reduced the loan interest rate according to the extent of achievement
- KPI items that Standard Chartered and TSMC agreed-upon: **greenhouse gas emissions, renewable energy usage, and effective reduction of air and water pollutant emissions**

First SLL for state-owned businesses: CPC

- Signed with Taipei Fubon Bank
- The linked indicators are the key topics of sustainability transformation of Taiwan CPC: **"Carbon Emission" and "Renewable Energy Installation Capacity"**, which encourage Taiwan CPC to continue to invest in carbon reduction and build renewable energy power plant
- Review the performance indicators every 6 months in comparison with the previous year; an interest rate discount is granted if the targets are achieved

Financial sector moves towards SBT and Net Zero

148 Global Financial Institutions Committed
37 Global Financial Institutions Targets Set

36 Asia Financial Institutions Committed
9 Asia Financial Institutions Targets Set

5 Taiwan Financial Institutions Committed
5 Taiwan Financial Institutions Targets Set

CHANG HWA COMMERCIAL BANK
China Development FHC
CTBC FHC, SinoPac FHC
Taiwan Cooperative FHC

Cathay FHC, E.SUN FHC, Fubon FHC, Yuanta FHC, Taishin FHC

As of 2022/10/25

GHG emission reduction Science-Based Target



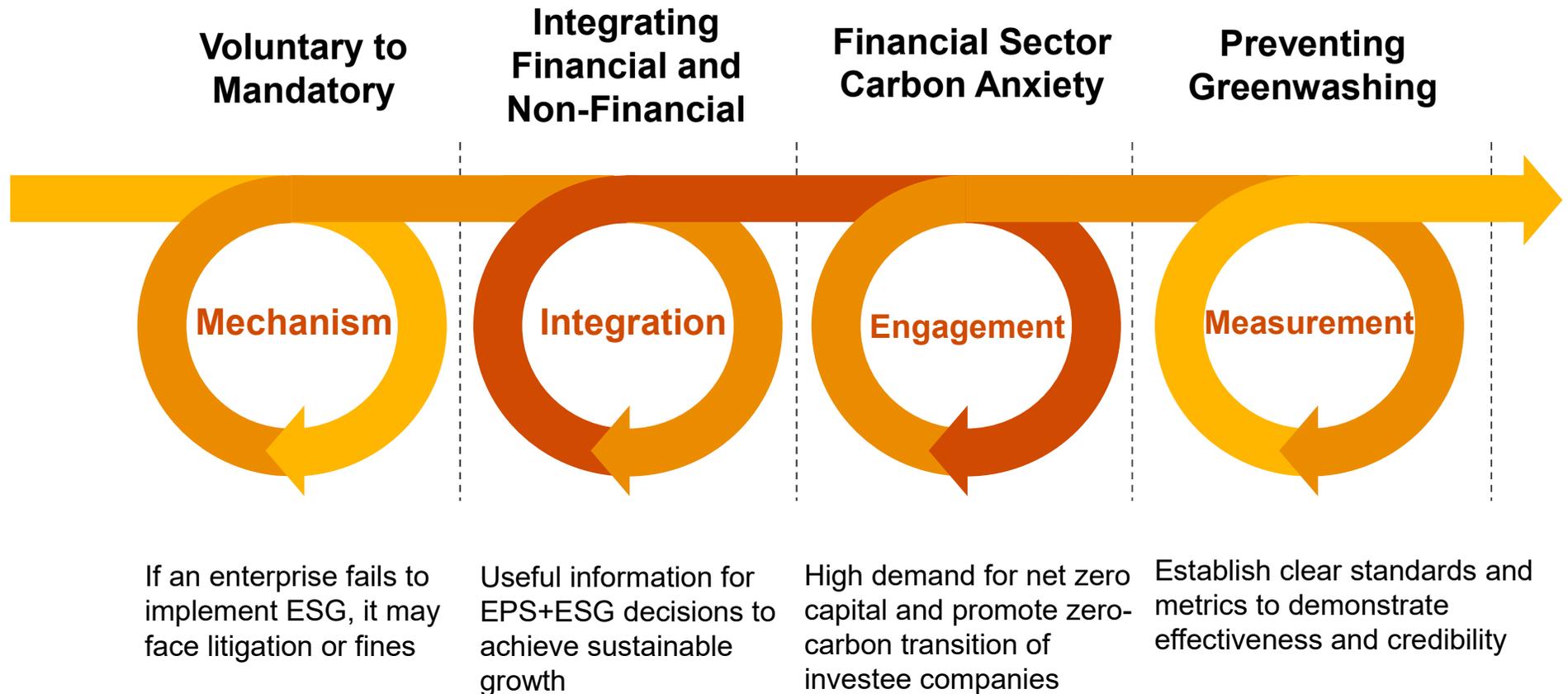
Category 1 and 2		42% absolute reduction compared to 2020	
Category 5.4 (By Investment and Financing Target)	Electricity generation project finance	49% reduction in GHG emissions per MWh by 2030 in comparison to 2019 for electricity generation project finance portfolio	
	Corporate loan	Commercial real estate	59% reduction in GHG emissions per square meter by 2030 in comparison to 2019 for corporate loan portfolio for commercial real estate sector
		Electricity generation	49% reduction in GHG emissions per MWh by 2030, in comparison to 2019 for corporate loan portfolio for Electricity generation sector
		Other long-term debt	58% reduction in GHG emissions per square meter by 2030, in comparison to 2019 for corporate long-term loan portfolio for finance, retail, service, food and lodging, and real estate development sectors
Listed equity and bonds ^(Note2)	38% reduction in GHG emissions by 2027 for corporate long-term loan portfolio for fossil fuel ^(Note 1) , electrical and electronic equipment as well as general manufacturing sectors (calculated based on the loan value)		
		SBT targets are set at 39% (out of the invested value) by 2027 for investment portfolio for listed equity and bonds	

2022/11/3

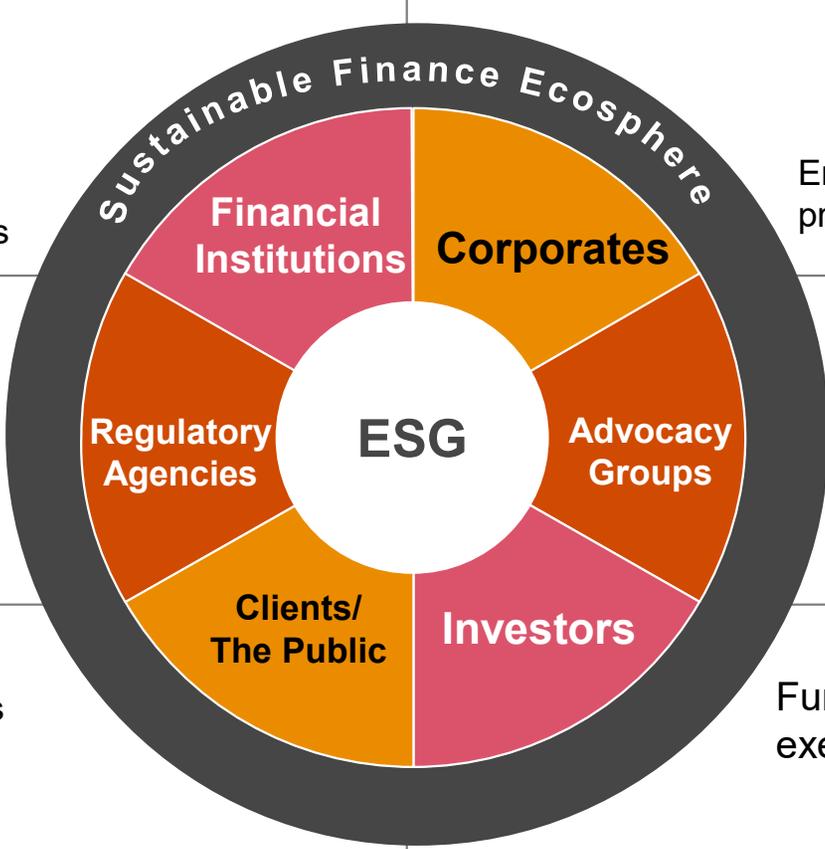
3

Ending Message

The sustainable financial development trends



Sustainable finance ecosystem drives Taiwan's sustainable future



Perform core financial system functions and continue to develop green financial products

Embed ESG in a business's DNA, promoting ESG disclosures

Promote important ESG policies and regulations, aligning Taiwan's industry with international standards

Promote important ESG initiatives, urging financial institutions and enterprises to follow

Urge ESG implementation and support green financial products with practical actions

Fund invested in ESG targets, exerting green impact

An aerial photograph of a vast green agricultural field. A single white wind turbine stands prominently in the lower right quadrant. The field is divided into sections by dark lines, likely furrows or irrigation channels. The overall scene is bright and green, suggesting a healthy, sustainable environment.

If finance won't move, the world won't move

Under-Secretary-General of the United Nations and Executive
Director of the UN Environment Programme (Inger Andersen)



資誠與您 攜手並進 共創價值

Together, Stronger! We Can Make the World Better!

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Partnership for Carbon Accounting Financials

Enabling financial institutions to assess
and disclose the GHG emissions of their
financial activities

Prepared for Asian Bankers Association

November 2022

Introduction to PCAF

Financial institutions are increasingly aware of their responsibility to finance the decarbonization of the global economy...

The Paris Agreement stresses the vital role of the financial industry



Article 2 of Paris Agreement
Para 1

(a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

The financial industry faces mounting pressure from regulators

Bank of England boss says global finance is funding 4C temperature rise

Mark Carney says capital markets are financing projects likely to fuel a catastrophic rise in global heating

REPORTING CLIMAT : LES GRANDS INVESTISSEURS FRANÇAIS SE MOBILISENT

Will France's corporate climate reporting model go global? Global Climate Regulation Looms on the Horizon. Are Banks and Insurers Ready?

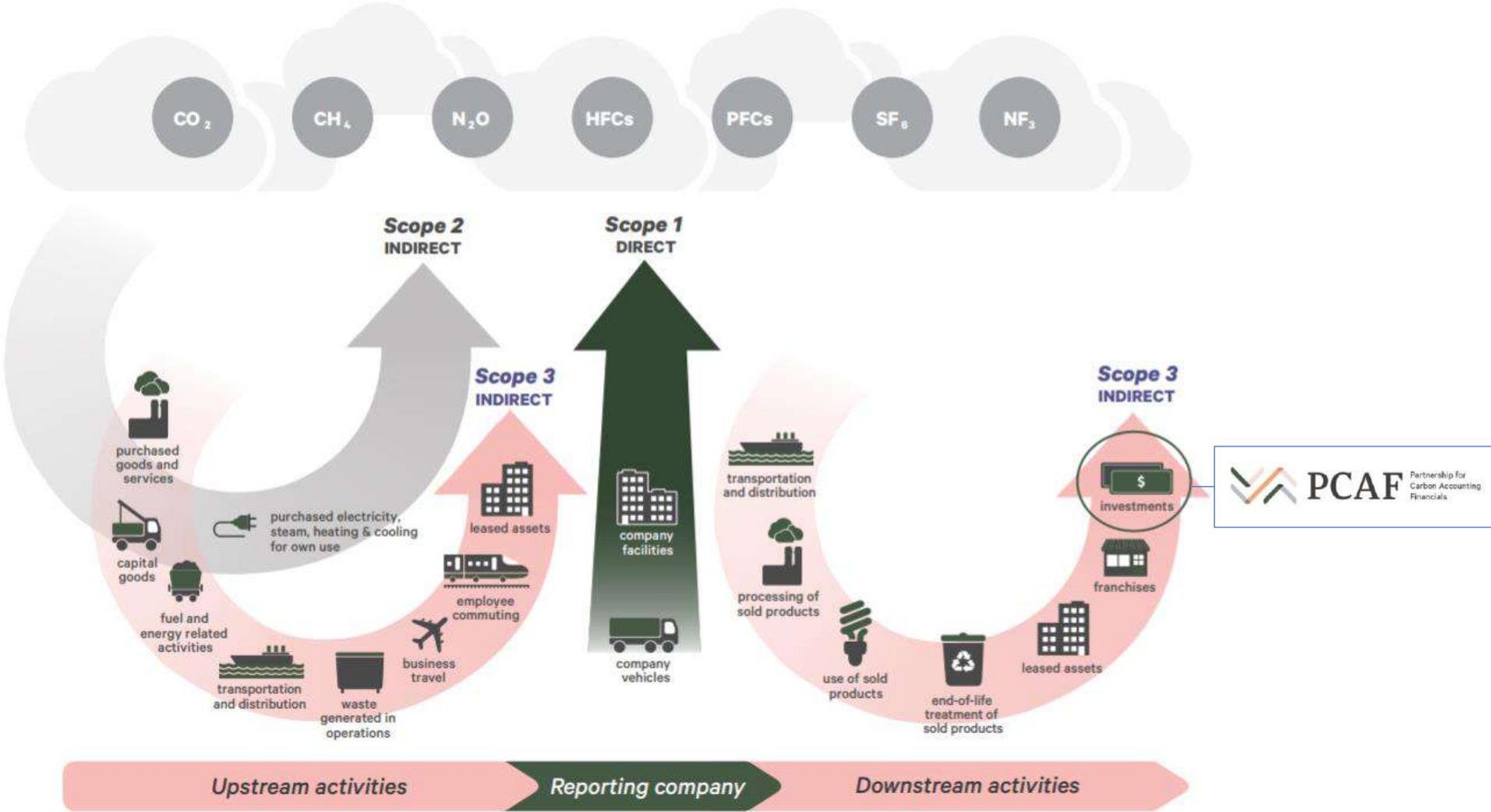
Customers demand transparency on financial flows



Photo source: The Guardian

...Measuring financed emissions in a harmonized and transparent way helps the financial industry assess its actual contribution to decarbonization...

The key principle is that financial institutions indirectly create a climate impact through their loans and investments



PCAF: A global industry-led initiative to standardize the measurement and disclosure of financed emissions

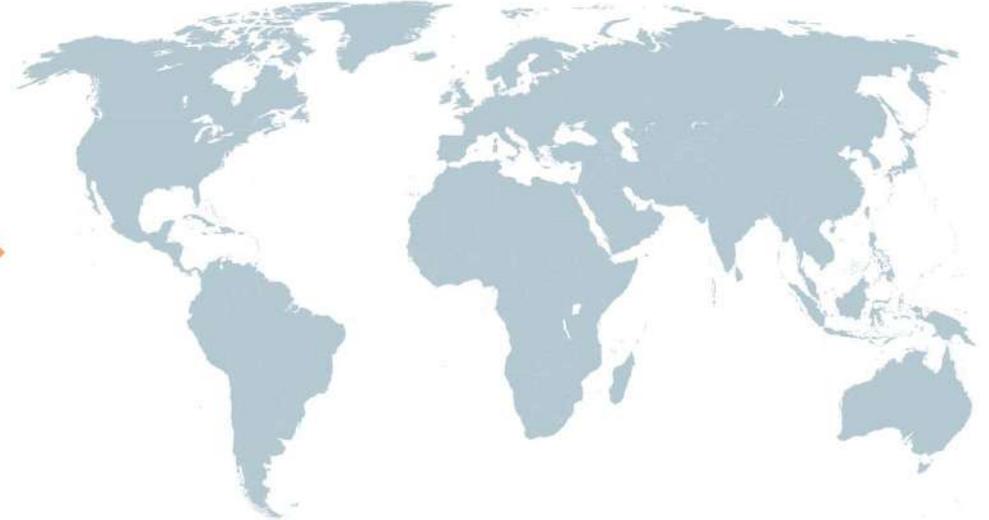
2015: Netherlands



2018: North America



2019: Global



Global Steering Committee



Since 2015, PCAF participants have developed and tested GHG accounting methods, leading to a globally harmonized Standard



The GLOBAL GHG ACCOUNTING & REPORTING Standard

FOR THE FINANCIAL INDUSTRY



“This standard has been reviewed by the GHG Protocol and is in conformance with the requirements set forth in the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, for Category 15 investment activities.”

The GLOBAL GHG ACCOUNTING & REPORTING Standard

FOR THE FINANCIAL INDUSTRY



Listed Equity and Corporate Bonds

$$\frac{\text{Outstanding amount}}{\text{EVIC or Total company equity + debt}} \times \text{Company emissions}$$

EVIC = enterprise value including cash



Business Loans and Unlisted Equity

$$\frac{\text{Outstanding amount}}{\text{EVIC or Total company equity + debt}} \times \text{Company emissions}$$

EVIC = enterprise value including cash



Project Finance

$$\frac{\text{Outstanding amount}}{\text{Total project equity + debt}} \times \text{Project emissions}$$

GHG accounting for six asset classes



Commercial Real Estate

$$\frac{\text{Outstanding amount}}{\text{Property value at origination}} \times \text{Building emissions}$$



Mortgages

$$\frac{\text{Outstanding amount}}{\text{Property value at origination}} \times \text{Building emissions}$$



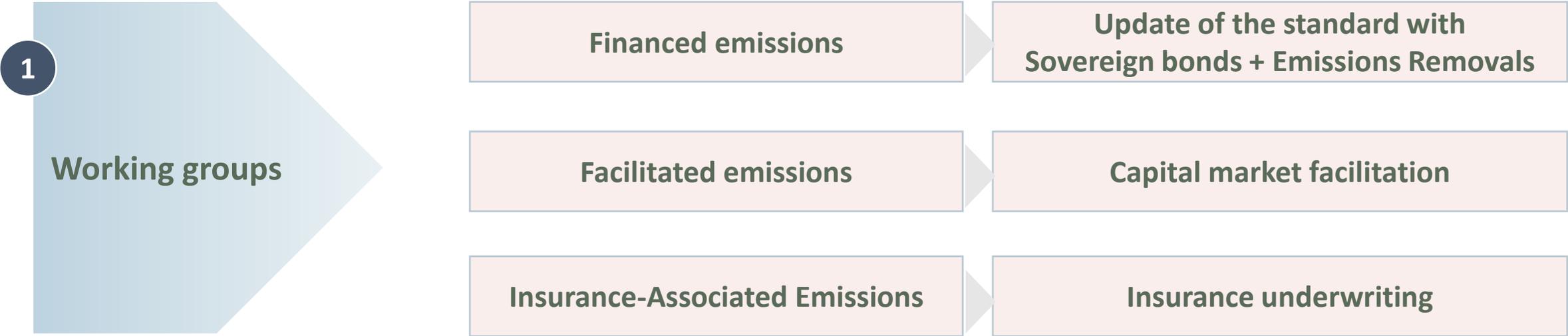
Motor Vehicles Loans

$$\frac{\text{Outstanding amount}}{\text{Total value at origination}} \times \text{Vehicle emissions}$$

The PCAF Core Team continues to expand on the Standard with more methodologies and case studies



PCAF is finalizing three new reports + case studies

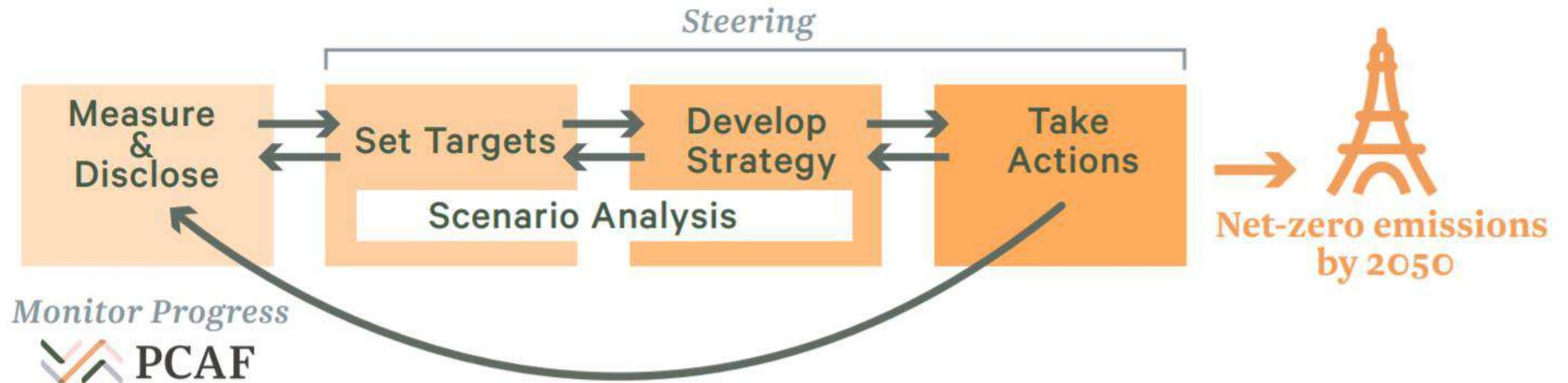


The value of measuring financed emissions

Measuring and disclosing financed emissions furthers climate-related business goals and aligns with other initiatives



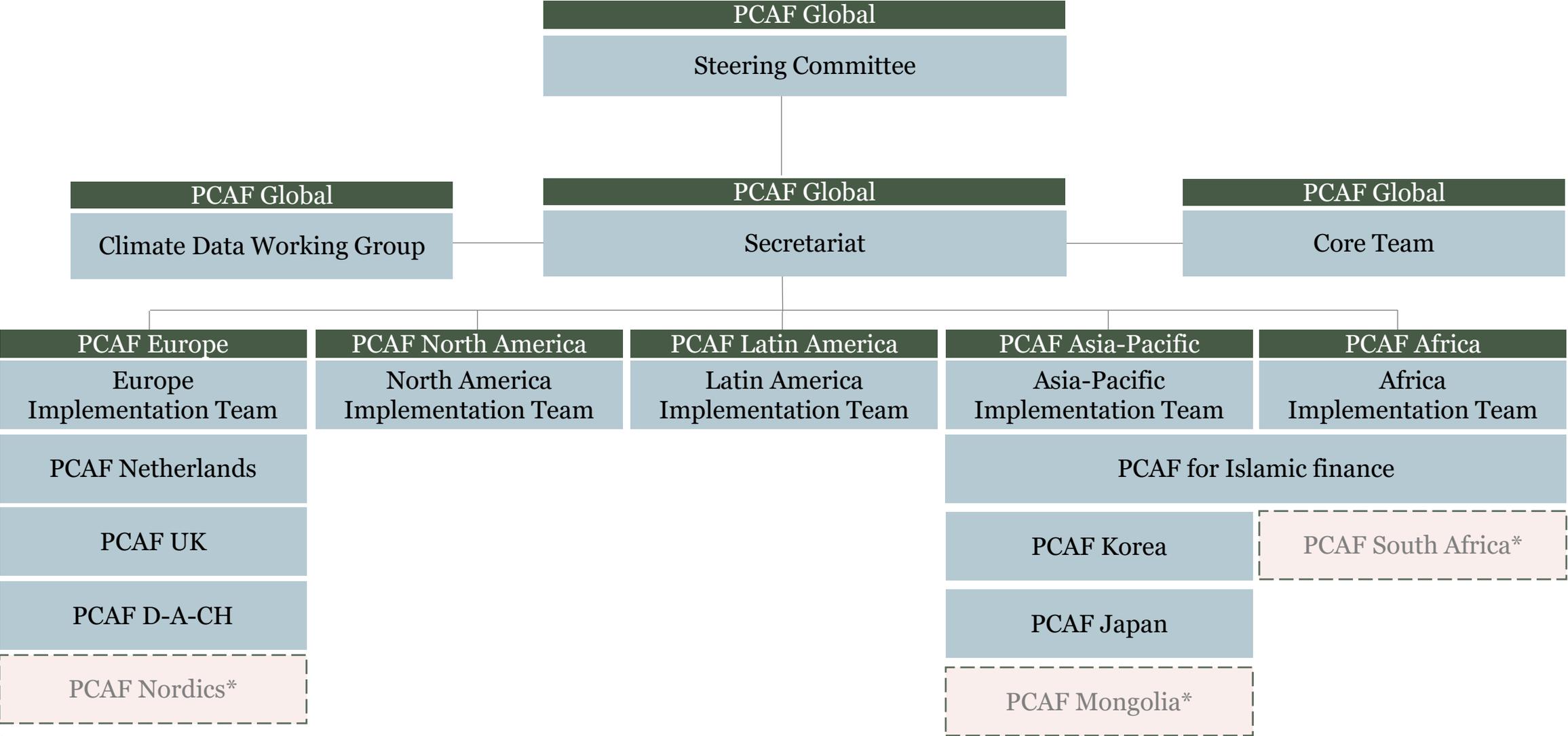
GHG accounting allows financial institutions to measure, disclose and monitor progress towards net zero



[DOWNLOAD THE STRATEGIC FRAMEWORK \(PDF, 2.1 MB\)](#)

GHG ACCOUNTING IMPLEMENTATION

PCAF drives implementation through regional and national collaborations



*Under consideration. Additional national chapters can be created upon demand.

PCAF's open-source database enables financial institutions to start with GHG accounting at asset class level

The screenshot shows the PCAF emission factor database interface. It includes a navigation bar with 'main' and 'logs' links, a search bar, and a 'Tool bar I' with 'Add new', 'Refresh', 'Export', and 'Print' buttons. A 'Tool bar II' contains a 'Quick search' field and icons for search, filter, sort, and page settings. A callout box labeled 'Administration hub' points to the top navigation area, and another callout labeled 'Database' points to the table of emission factors.

Actions	Id	Region	Country	Asset Class	Emission Type	Sector	Subsector	Subsubsector	Functional Unit Of Emission Factor 1	Functional Unit Of Emission Factor Description	Functional Unit Of Emission Factor 2	Emission Factor Unit	Quality Of Emission Factor	Scope 1 Emission Factor	Scope 2 Emission Factor	Scope 3 Emission Factor	Generic Emission Factor
	1	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Paddy rice	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	n.a.	n.a.	n.a.	n.a.
	2	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Wheat	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	657.516	14.591	70.802	n.a.
	3	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Cereal grains nec	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	608.732	11.222	51.664	n.a.
	4	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Vegetables, fruit, nuts	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	156.161	22.807	59.742	n.a.
	5	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Oil seeds	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	467.437	5.764	50.186	n.a.
	6	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Sugar cane, sugar beet	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	350.350	3.487	22.857	n.a.
	7	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Plant-based fibres	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	72.570	19.029	408.804	n.a.
	8	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Crops nec	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	148.065	0.079	0.363	n.a.
	9	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Cattle	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	4,782.990	41.529	288.076	n.a.
	10	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Pigs	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	349.107	15.800	179.814	n.a.
	11	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Poultry	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	214.644	31.658	275.109	n.a.
	12	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Meat animals nec	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	2,858.460	77.214	576.044	n.a.
	13	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Animal products nec	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	2,505.400	109.248	807.890	n.a.
	14	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Raw milk	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	1,701.330	2.229	16.272	n.a.
	15	Europe	Austria	Listed/private equity & Corporate bonds/loans & project finance	Emissions	Agriculture, hunting, forestry & fishing	Wool, silk,worm cocoons	n.a.	Revenue	Revenue generated per year	ME	ICO2a/ME	Medium	0.307	0.001	0.010	n.a.

- ## Characteristics
- Free access for PCAF participants
 - Transparent
 - Editable and thus extendable through “authorized” users
 - Comprehensive with as many geographies, asset classes & sectors as possible
 - Includes data quality score card

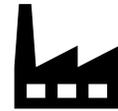
Emissions are attributed to financial institutions based on robust and consistent accounting rules

GHG accounting for financial institutions is the annual accounting and disclosure of the GHG emissions of loans and investments, for both positive and negative impact

$$\text{GHG Emissions}_{\text{Bank}} = \text{GHG Emissions}_{\text{Client}} \times \frac{\text{Outstanding amount}_{\text{Bank}}}{\text{Equity} + \text{Debt}_{\text{Client}}}$$

Client can be:

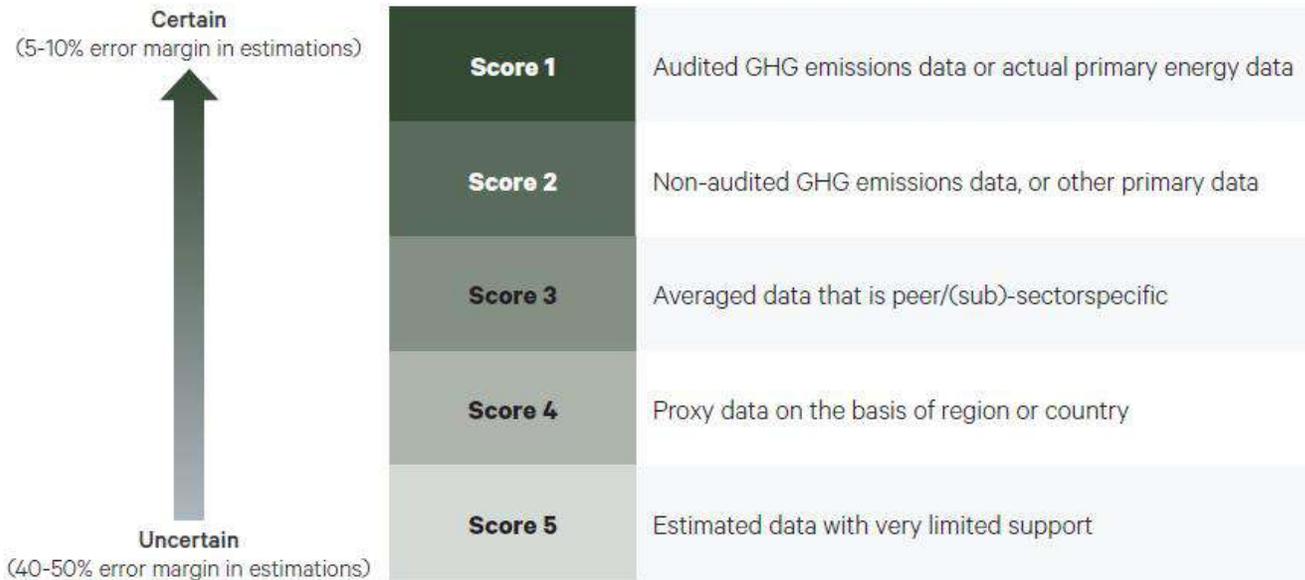
- Company
- Property
- Nature/forest
- Project



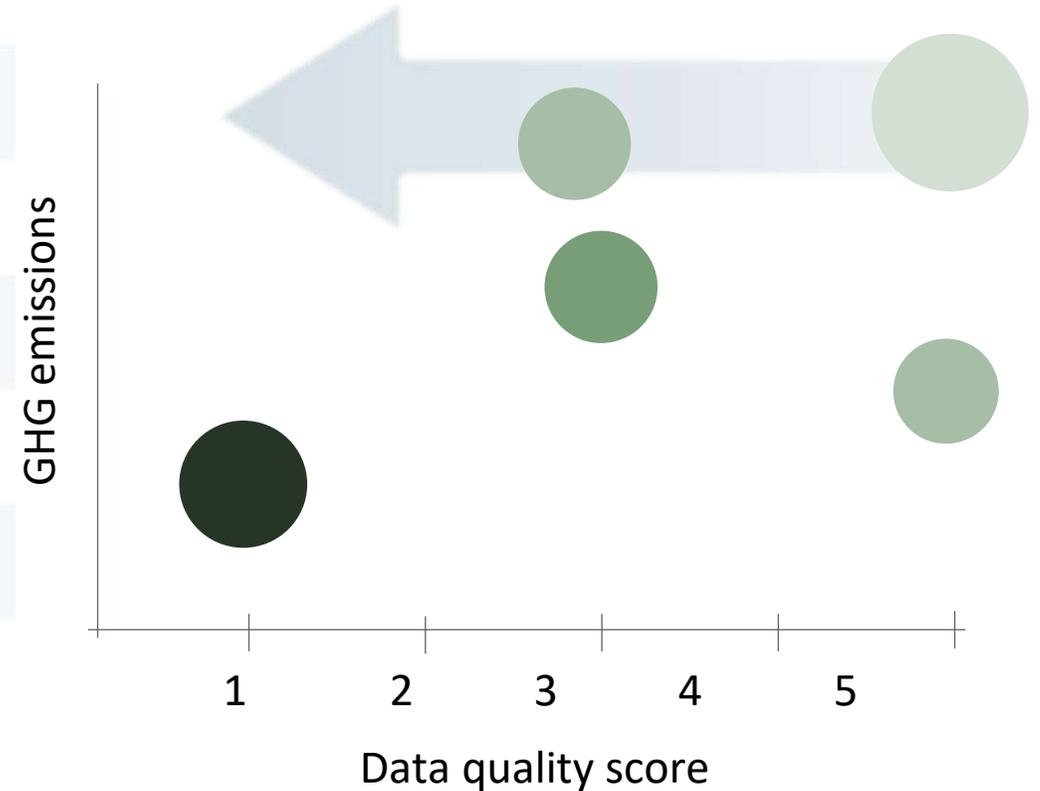
Attribution factor

PCAF proposed to score data quality to measure accuracy and progress

Data quality scoring from 1 to 5....



...enables a bank to develop a strategy to improve data over time



Participation in PCAF

Financial institutions join PCAF to contribute to transparency and harmonization, as well as to prepare for the future

Why join PCAF?

Transparency

- ✓ Interact with data providers and clients to understand data quality and approaches used
- ✓ Manage stakeholders that increasingly demand transparency

Harmonization

- ✓ Measure consistently to have a better understanding of portfolios climate impact and climate risks

Groundwork

- ✓ Manage risks, steer on emissions reduction goals and take action based on transparent and harmonized emissions accounting
- ✓ Prepare for regulation

Joining PCAF also brings multiple additional benefits



Network expansion

- Investors, banks and experts globally
- Link to SBTi-FIs, UNEP FI's NZ AoA, NZBA, GFANZ, TCFD and CDP

Decision-making authority

- The Global GHG Accounting and Reporting Standard (when joining the PCAF core team)
- Local-tailored guides
- Best practices

Leadership recognition

- Global and regional events on climate finance
- Social media via PCAF marketing channels

Technical support

- Workshops and trainings
- Technical guides and case studies

PCAF participants commit to assess and disclose the greenhouse gas emissions of its financial portfolio

Commitment in short:

Measure and disclose GHG emissions of their financial activities within three years of signing the commitment letter (portfolio coverage is up to the institution)

Commitment Letter

All financial institutions involved in the Partnership for Carbon Accounting Financials (“PCAF”) subscribed and adhere to the following commitment. By joining PCAF, also our financial institution commits to adhere to this:

Addressing the urgent challenge of climate change, and decarbonizing our economy, is more pressing now than ever. That is why we have committed to measure and disclose the greenhouse gas (GHG) emissions associated with our portfolio of loans and investments within a period of three years using jointly developed carbon accounting methodologies, in order to ultimately enable the alignment of our portfolio with the Paris Climate Agreement.

We want to share and learn from credible carbon accounting practices to find solutions to shared challenges. We hope this will encourage and stimulate the adoption of carbon accounting and target setting in the financial sector on a larger and mainstream scale.

We will contribute to the overall objective of PCAF, which is to secure the public commitment (via signed commitment letters) of at least 100 participating financial institutions globally to measure and disclose the GHG emissions of their loans and investments within a period of three years. Together we will collaborate to achieve transparency and uniformity in carbon accounting.

We acknowledge that our commitment will be recognized on the PCAF website and social media account, as well as at other communication activities such as events where the initiative is showcased.

[DOWNLOAD COMMITMENT LETTER](#)



PCAF

Partnership for
Carbon Accounting
Financials

carbonaccountingfinancials.com

| info@carbonaccountingfinancials.com

| [@pcafglobal](https://twitter.com/pcafglobal)



WWF

Greening Finance and Financing Green: A Central Bank and Financial Supervision Road Map towards Net Zero and Nature Positive Economy

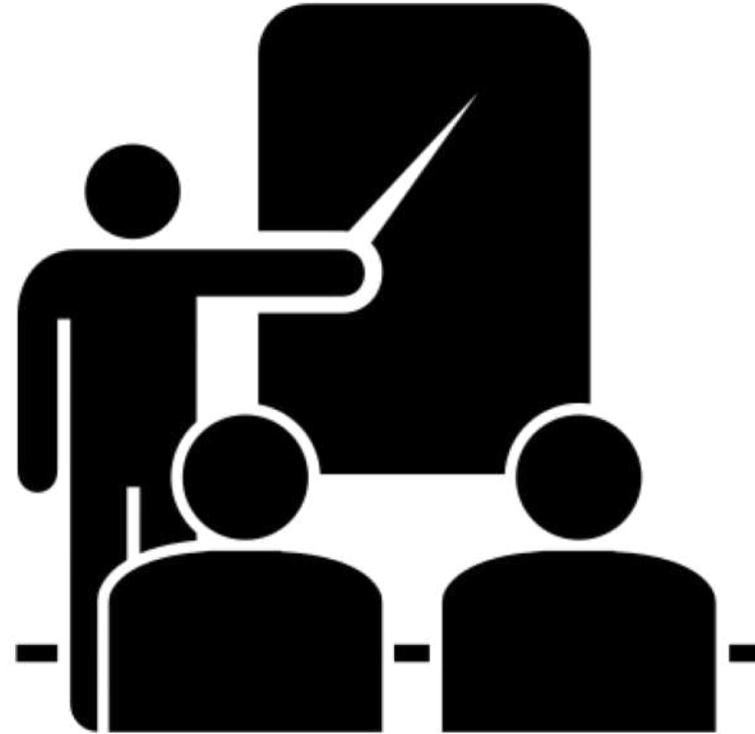
Ed Tongson
Sustainable Finance
WWF - Philippines

Presented at the 38th ABA Conference, Nov 4, 2022

Outline



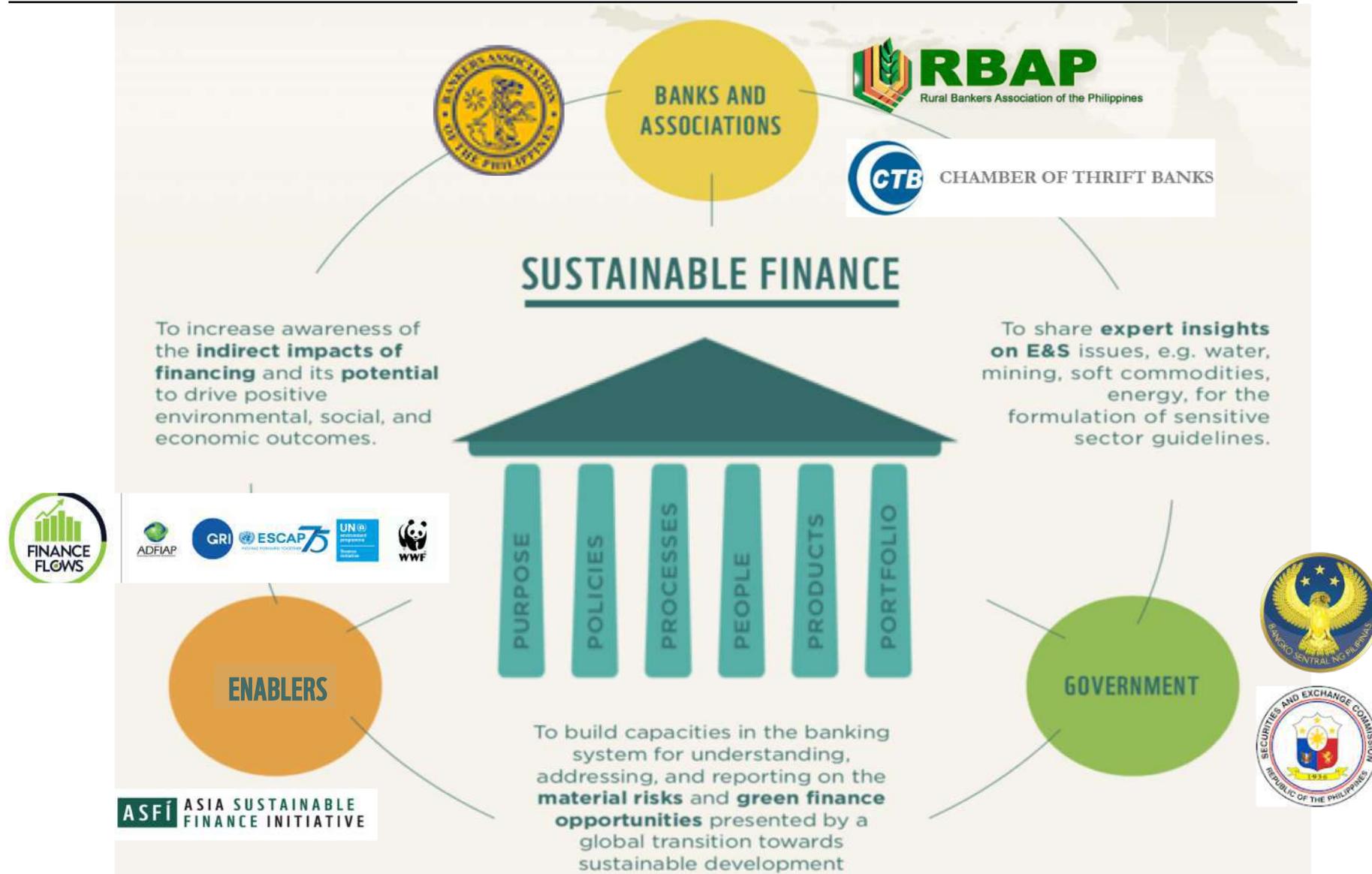
- **What we do**
- **Building the case for nature**
- **Regulatory pressures**
- **Call to Action**
- **Q&A**



What we do?



What we do - Greening Finance to Financing Green





Welcome to Finance Flows' Sustainable Banking Academy

Explore our new e-learning course catalog designed for Asia-based finance professionals.



Featured courses
Five courses
the Principles
Responsible
Designed for commercial b
course corresponds to one
PRB principles and takes b
and 1.5 hours to complete



My courses

See courses you are enrolled in



Transcript

View Transcript



FAQs

Click to learn more

Core Courses

Finance Flows' Sustainable

- (1) Aligning financial flows with sustainable development
Online Course - 1h - 1h30m
- (2) Incorporating sustainability into banks' Online Course - 1h - 1h30m

Level 1

ASFI Academy

- Responsible Investment 101: How to get started
Online Course
- Responsible Lending 101: How to get started
Online Course

Level 2

ASFI Academy

- AFF Series: (1) Agriculture & the environment at a glance
Online Course
- AFF Series: (2) Materiality & risk transmission across
Online Course

External

ASFI Academy

- Infrastructure Series: (3) E&S metrics & tools for
Online Course
- Infrastructure Series: (4a) Strategies for responsible
Online Course

← FIVE-PART PRINCIPLES FOR RESPONSIBLE BANKING (PRB) SERIES

My Courses ▶ Level 1: Introductory courses ▶ Five-part Principles for Responsible Banking (PRB) series

Alphabetical



(1) Aligning financial flows with sustainable
Online Course · 1h - 1h 30m
Completed ✓



(2) Incorporating sustainability into banks'
Online Course · 1h - 1h 30m
Completed ✓



(3) Measuring and managing E&S impacts
Online Course · 1h - 2h
Completed ✓



(4) Engaging customers, clients and stakeholders
Online Course · 1h - 1h 30m
Completed ✓



(5) Sustainability reporting: A critical tool
Online Course · 1h - 1h 30m
Completed ✓



Accessing the courses



enrolment key	integrate into existing LMS
<ul style="list-style-type: none"> institution does not maintain LMS 	<ul style="list-style-type: none"> institution is maintaining own LMS
<ul style="list-style-type: none"> individual accounts set up via Academy 	<ul style="list-style-type: none"> SBA modules for integration into LMS
<ul style="list-style-type: none"> recommendations for further capacity building 	<ul style="list-style-type: none"> commitment to tracking and reporting learners and their progress
<p>Academy resources combined with your institution’s training curriculum</p>	

Asia Sustainable Finance Initiative Academy
 Kate Ansbro Laya | klaya@wwf.sg

Finance Flows Sustainable Banking Academy
 Joseph Eijansantos | jeijansantos@wwf.org.ph

With support from:



based on a decision of the German Bundestag

What's new in SUSREG 2022



38->44 jurisdictions



New **insurance framework**
(83 indicators)



68 -> 85 banking indicators



Additional **CBFS**



Enhanced **assessment criteria**



Specific **climate & nature**
indicators



CLIMATE RISKS: 1.5°C VS 2°C GLOBAL WARMING

EXTREME WEATHER

340% increase in flood risk vs 170% increase in flood risk.

SPECIES

6% of insects, 4% of plants and 4% of vertebrates will be affected. vs 18% of insects, 16% of plants and 8% of vertebrates will be affected.

WATER AVAILABILITY

303 million urban residents exposed to severe drought by 2100. vs 410 million urban residents exposed to severe drought by 2100.

ARCTIC SEA ICE

Ice-free summers in the Arctic at least once every 100 years. vs ice-free summers at least once every three to ten years.

PEOPLE

0% of the world's population (700 million people) will be exposed to extreme heat waves at least once every 20 years. vs 28% of the world's population (2 billion people) will be exposed to extreme heat waves at least once every 20 years.

SEA-LEVEL RISE

48 million people impacted by sea-level rise of 48cm by 2100. vs 49 million people impacted by sea-level rise of 56cm by 2100.

COSTS

Lower economic growth at 2°C than at 1.5°C for many countries, particularly low-income countries.

OCEANS

Lower risks to marine biodiversity, ecosystems and their ecological functions and services at 1.5°C compared to 2°C.

FOOD

Every half degree warming consistently lead to lower yields and lower nutritional content in tropical regions.

CORAL BLEACHING

73% of world's coral reefs are lost by 2100. vs Virtually all (99.7%) lost by 2100.

Based on the IPCC SRO and SREX



TRANSITIONING TO A NET ZERO AND NATURE POSITIVE ECONOMY

Central banks and financial supervisors mandate to tackle twin environmental crisis

TECHNICAL BACKGROUND REPORT 2022



Building the case for nature



WHILE THE PANDEMIC IS EXPECTED TO COST THE GLOBAL ECONOMY OVER US\$ 13.8 TRILLION THROUGH 2024, ANOTHER THREAT IS LOOMING: A SINGLE TWIN CRISIS OF BIODIVERSITY LOSS AND CLIMATE CHANGE COULD BE WORSE AND IRREVERSIBLE.

“Economies are embedded in nature and depend profoundly on the flow of goods and services it generates, such as food and raw materials, pollination, water filtration, and climate regulation. “

Economic Case for Nature – World Bank 2021

According to the World Economic Forum, US\$ 44 trillion of economic value generation, accounting to more than half of global GDP, is moderately or heavily reliant on nature and its services, putting it at risk from environmental degradation.

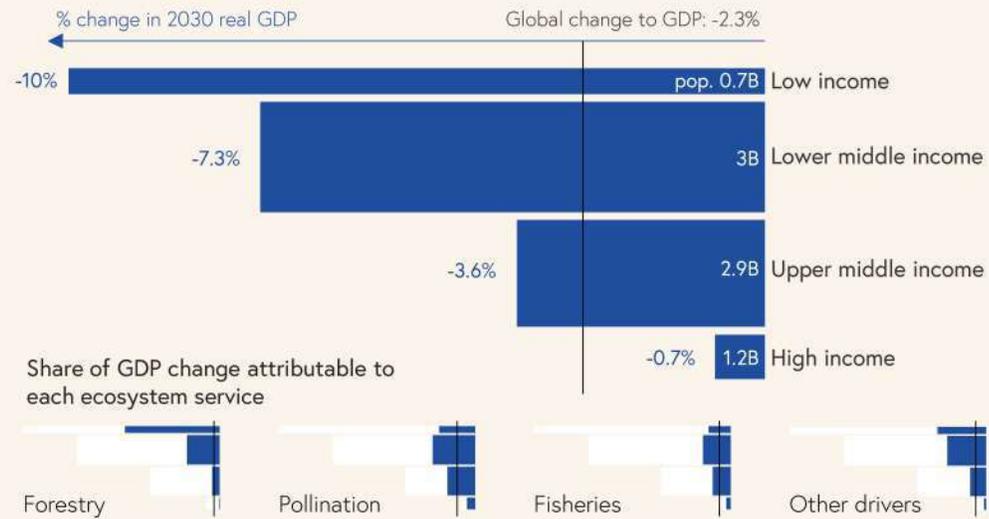
Given our dependence on nature, a collapse of ecosystem service is estimated to cost US\$ 2.7 trillion or 2.3% of global GDP annually by 2030, according to the World Bank.

About the WB economy-environment model

- **Macroeconomic models typically do not account for the systemic risks associated with ecosystem services collapse.** Macroeconomic models mostly represent the global economy as *external to*—rather than *embedded in*—the biosphere.
- The **WB economy-environment model** assesses the impact of the collapse—a 90 percent reduction in the flow of ecosystem services value—of wild pollination, marine fisheries, and timber provision on real economic sectors between 2021 and 2030
- The results are considered conservative for several reasons.
 - Selected ecosystem services
 - Effects of climate change
 - CGE overestimates economies' ability to adjust; underestimates impacts on informal sectors
 - Geo-political and societal conflicts not considered

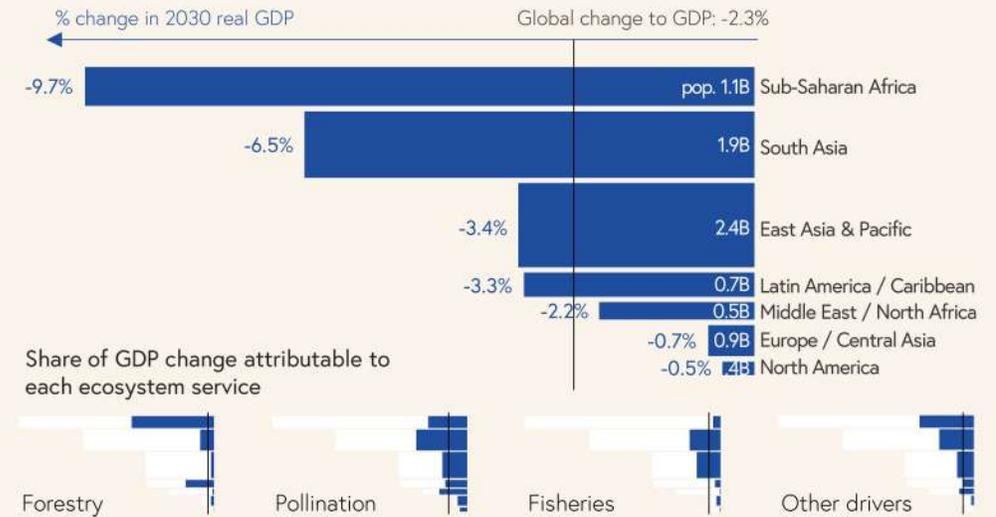
Change in 2030 real GDP under the partial ecosystem collapse scenario compared with the no-tipping-point scenario

A) By income group (the bars are proportional to the population in 2030)



Change in 2030 real GDP under the partial ecosystem collapse scenario compared with the no-tipping-point scenario

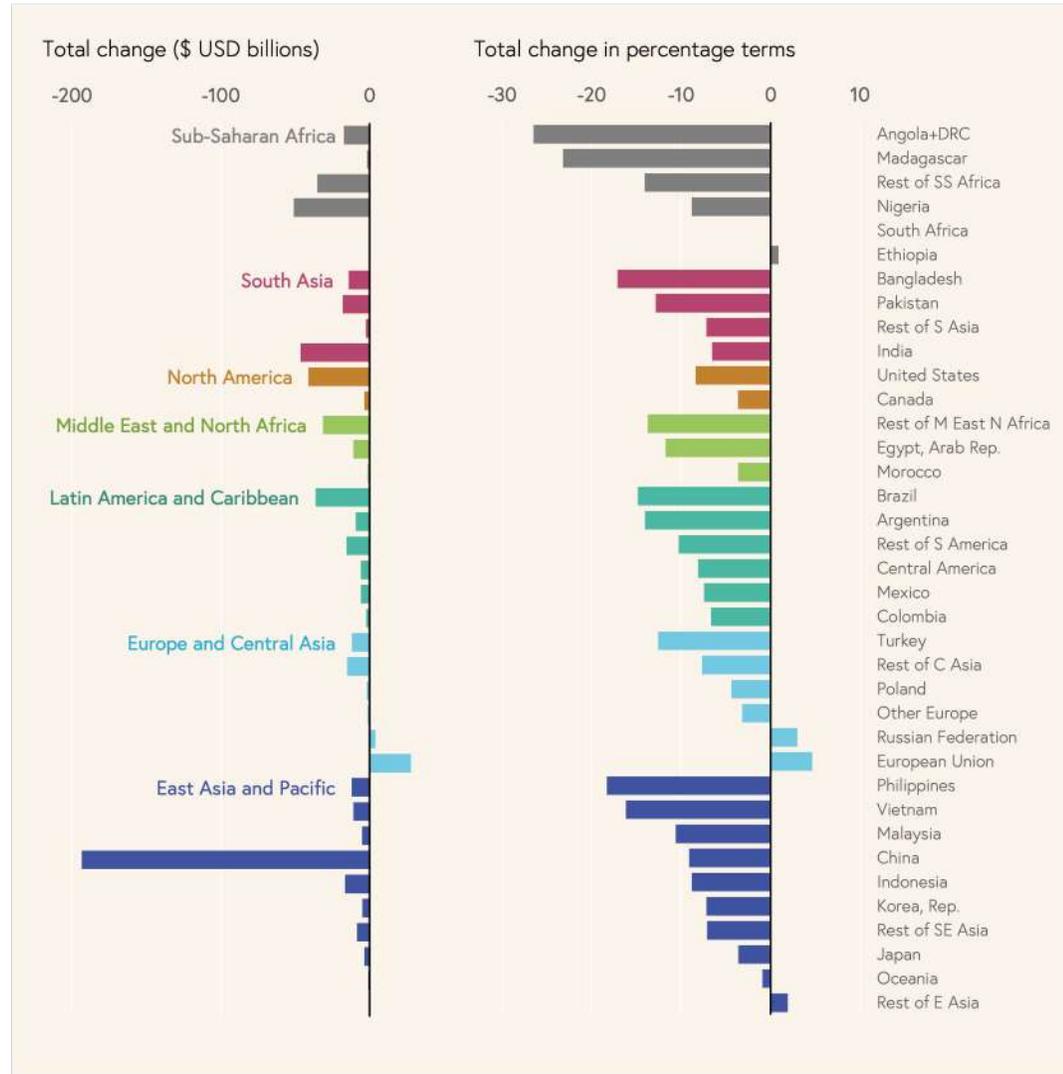
B) By geographic region (the bars are proportional to the population in 2030)



As a result of the collapse of wild pollinators, marine fisheries, and timber provision from tropical forests, global GDP in 2030 declines by 2.3 percent (-\$2.7 trillion), affecting lower-income countries disproportionately. The global aggregate conceals a relatively larger contraction of GDP in lower-income countries, which account for nearly half of the world’s population.

Effects on Sector Outputs

Change in 2030 output for agriculture, livestock, forestry, and fishery under the partial ecosystem collapse scenario compared with the no-tipping point scenario, by GTAP country unit



The output of sectors that rely directly on ecosystem services could drop by 8 percent (-\$602 billion) by 2030. Philippine output drops by -18 percent or \$12.2 billion

In agriculture sector sector, the world's crop output contracts by 9 percent (-\$400 billion) by 2030. Philippine output drops -17 percent or \$5 billion.

Global fisheries output in 2030 contracts by 15.4 percent (-\$94 billion). Philippines output drops by -22 percent or \$3.5 billion.

The impacts of ecosystem regime shifts go beyond the primary sector, with negative impacts on manufacturing and services

GLOBAL DEBT CAPITAL MARKET

USD
124
TRILLION

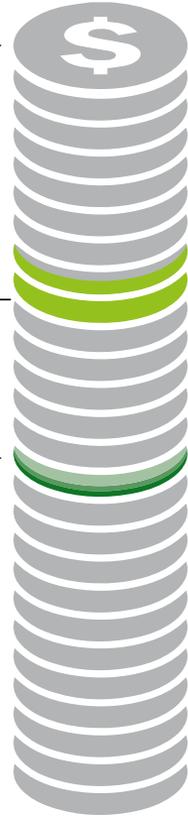
OUTSTANDING FOSSIL
FUEL DEBT USD **8** TRILLION

SUSTAINABLE DEBT
INSTRUMENTS USD **3.4** TRILLION

GLOBAL GREEN &
SUSTAINABLE BONDS MARKET USD **1.7** TRILLION

GLOBAL GREEN &
SUSTAINABLE LOANS MARKET USD **0.7** TRILLION

CLIMATE ALIGNED
BONDS USD **0.9** TRILLION



GLOBAL EQUITIES MARKET

USD
95
TRILLION

SOVEREIGN
WEALTH FUND USD **8** TRILLION

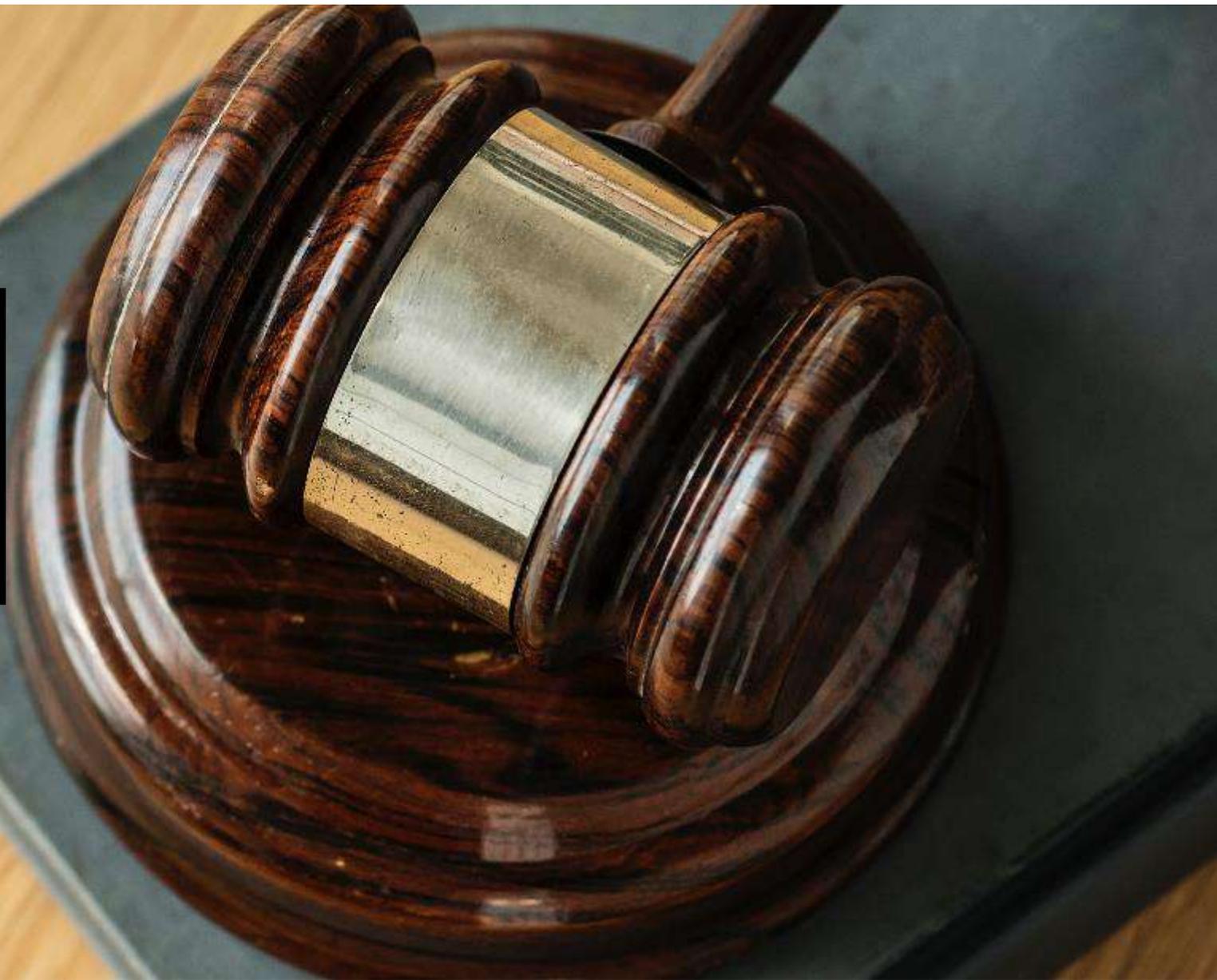
PRIVATE
EQUITY USD **4.5** TRILLION

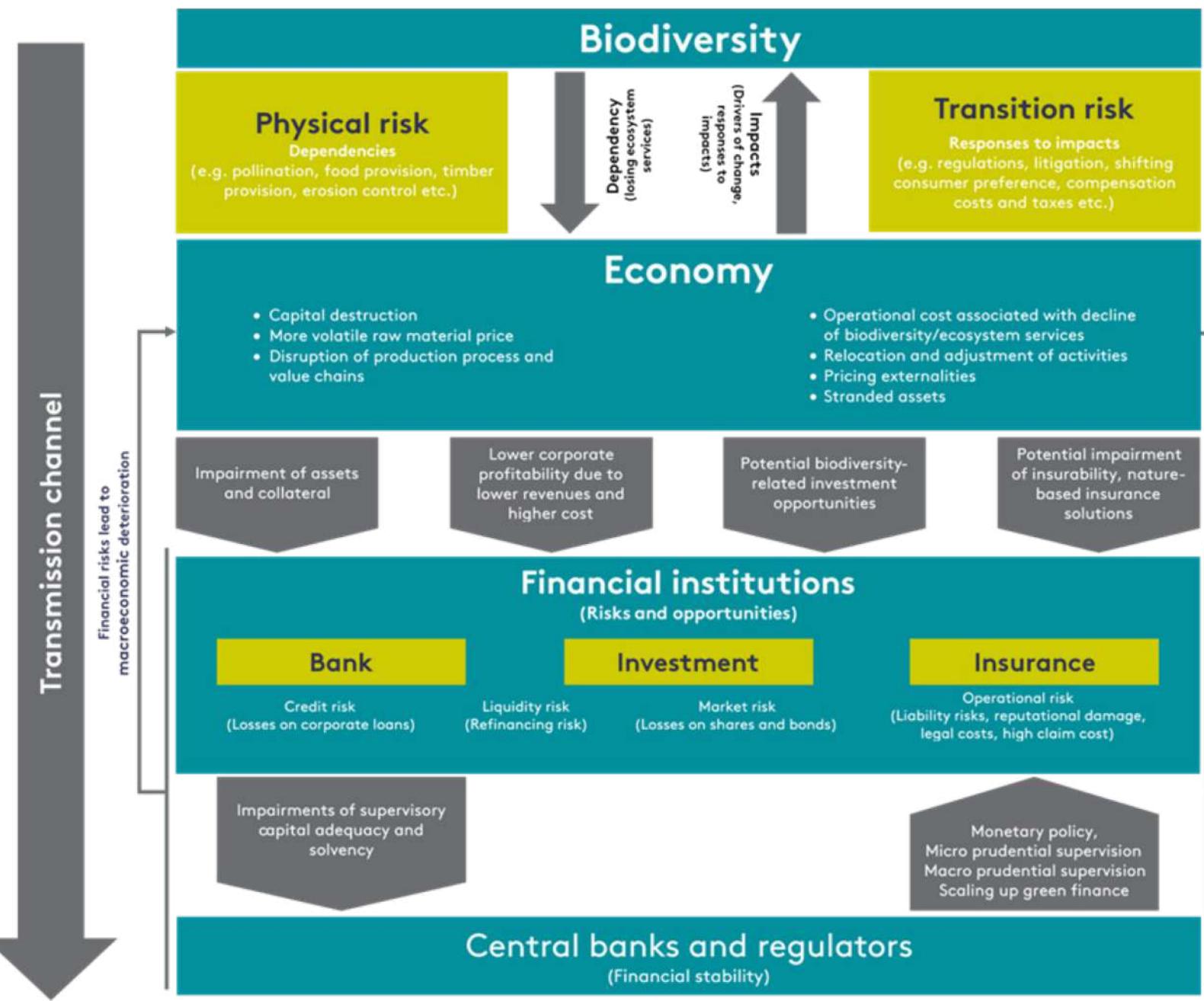


5-12%

THE SUSTAINABLE FINANCE LAB
OF THE UTRECHT UNIVERSITY
CONCLUDED THAT ALONE FOUR
CENTRAL BANKS POLICIES
SUPPORTING THE ECOLOGICAL
TRANSFORMATION COULD
INDUCE A GLOBAL REDUCTION
OF GHG EMISSIONS OF 5-12%.

Regulatory pressure





Finance and economy is embedded in Nature.
Managing Climate and Nature Financing Risks are within the mandate of Central Banks



NGFS Occasional Paper

Central banking and supervision in the biosphere:
An agenda for action on biodiversity loss, financial risk and system stability

Final Report of the NGFS-INSPIRE Study Group on Biodiversity and Financial Stability

See NGFS YouTube Video:

<https://www.youtube.com/watch?v=eR13AXnrP-4>

Central banks and supervisors are starting to take action



Source: Adapted from NGFS & INSPIRE (2021)



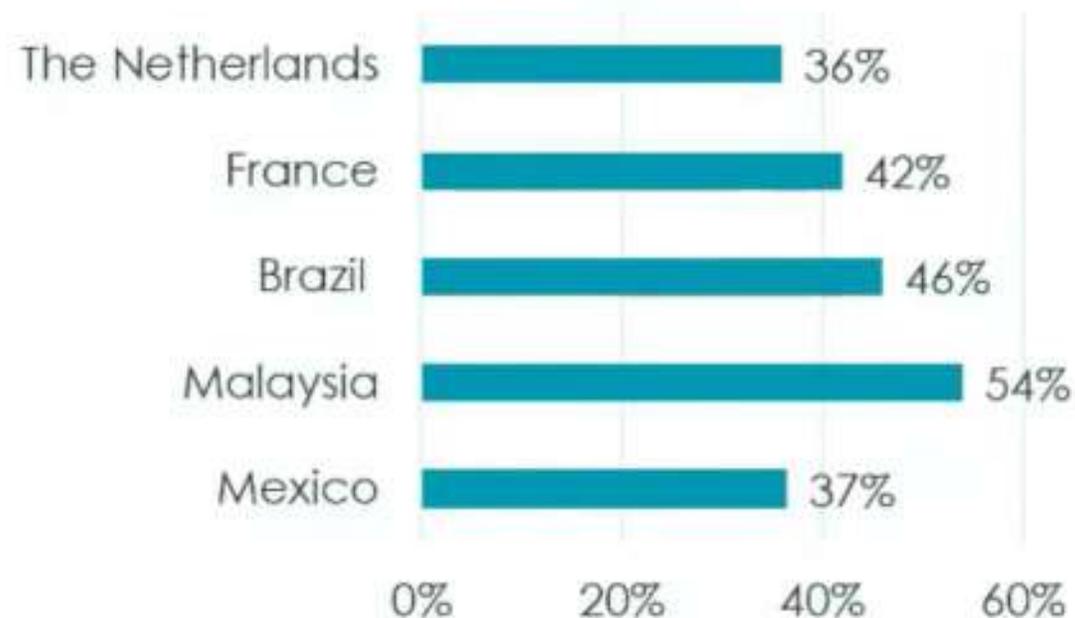
We identified 7 emerging options

Powered by Zoo

Assessment: from biodiversity loss to financial risks

- Some central banks and supervisors are starting to assess the exposure of financial institutions to the **physical risks** posed by biodiversity loss as well as the **transition risks** from negative impacts on nature
- These assessments provide a baseline for prioritising further actions

Exposure of banking sector to biodiversity loss



Note: It is difficult to compare the results of each study, given that the scope of each study is different (some look at securities, others at loans, etc.) but this chart gives an overview of potential financial system exposures

Wider examples: prudential, taxonomies, disclosure, portfolios

Prudential

- Inclusion of biodiversity in climate and environmental risk by *Banco Central do Brasil, European Central Bank, Monetary Authority of Singapore*

Taxonomies

- *The People's Bank of China and Bank Negara Malaysia* have included biodiversity considerations in their green / climate change taxonomies

Disclosure

- *The Bank of England, Banque de France, European Central Bank, Financial Services Agency of Japan and Banco de México* are part of the TNFD Forum

Portfolios

- *Banque de France, Banca d'Italia and Swiss National Bank* have started to integrate biodiversity into their investment portfolios



Still early stage efforts

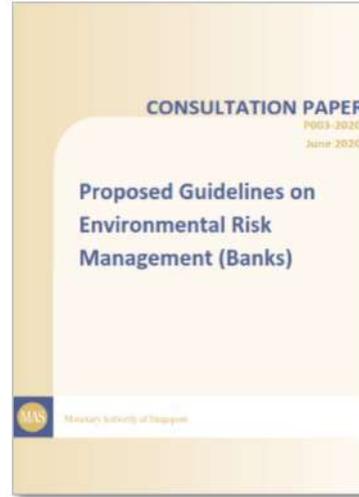


Powered by Zoom

And so are ASEAN Central Banks

New regulations in ASEAN expect banks to integrate sustainability considerations in their strategy, governance, and risk management processes.

Singapore



Indonesia



Malaysia



Cambodia



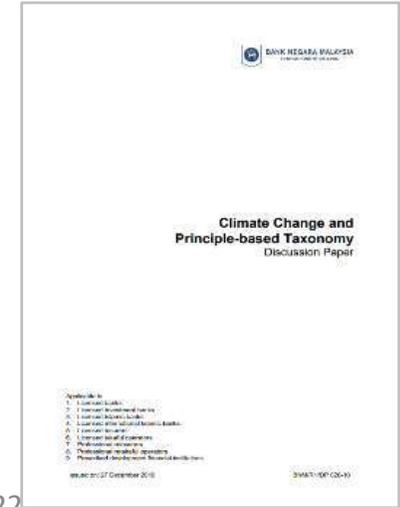
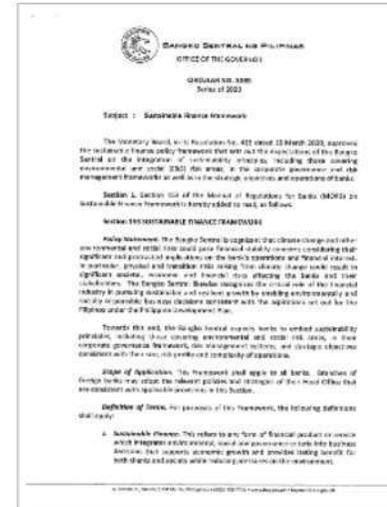
Thailand



Vietnam



Philippines



A close-up photograph of a wooden gavel resting on its sound block. The gavel is made of dark, polished wood with a silver metal head. The sound block is also made of dark wood and has a circular, fluted design. The background is a light-colored wooden surface. A black horizontal bar is overlaid on the left side of the image, containing the text 'Call to Action' in white.

Call to Action

What can central banks do?



Central banking and supervision
in the biosphere:

An agenda for action on biodiversity
loss, financial risk and system stability

Final Report of the NGFS-INSPIRE Study Group on
Biodiversity and Financial Stability

Action points

build a scientifically-grounded analytical framework

assess the degree to which financial systems are exposed to biodiversity loss, by, for example, conducting assessments of impact and dependency, developing nature-related scenario analysis and stress-tests;

Assess the interactions between nature, the macroeconomy and the financial system, in a way that is both comprehensive and actionable;

bridge the likely data gaps that will emerge

use this new framework and datasets to align policies with environmental sustainability and inform the assessment of nature-related financial risks.

Recognize nature risks as a potential source of economic and financial risk and financial and price stability;

Build the skills and capacity among central bank and supervisory staff as well as market participants to analyze and address nature-related financial risks;

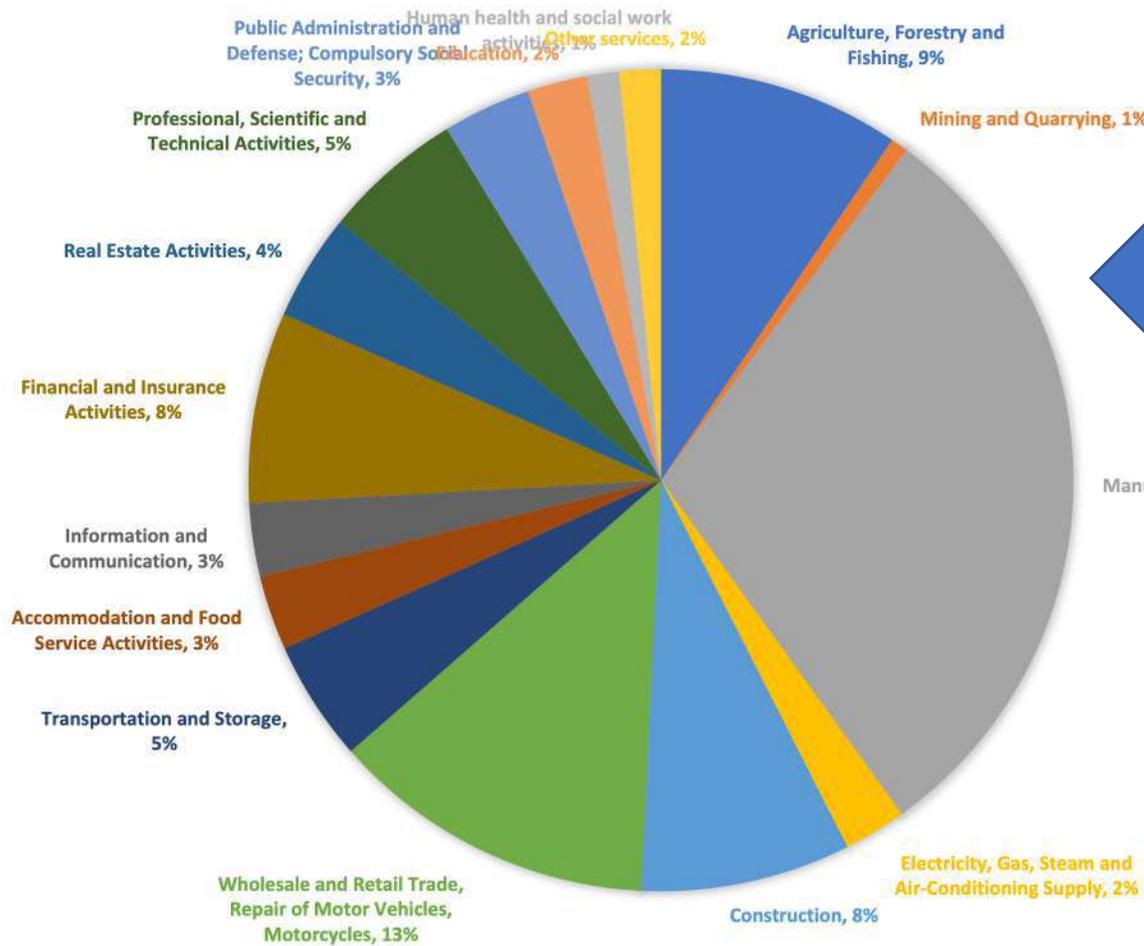
Conduct assessments of impact and dependency, developing nature-related scenario analysis and stress-tests;

explore options for supervisory expectations for financial institutions' governance, risk management, strategy, disclosure and financial conduct in relation to nature related financial risks and opportunities;

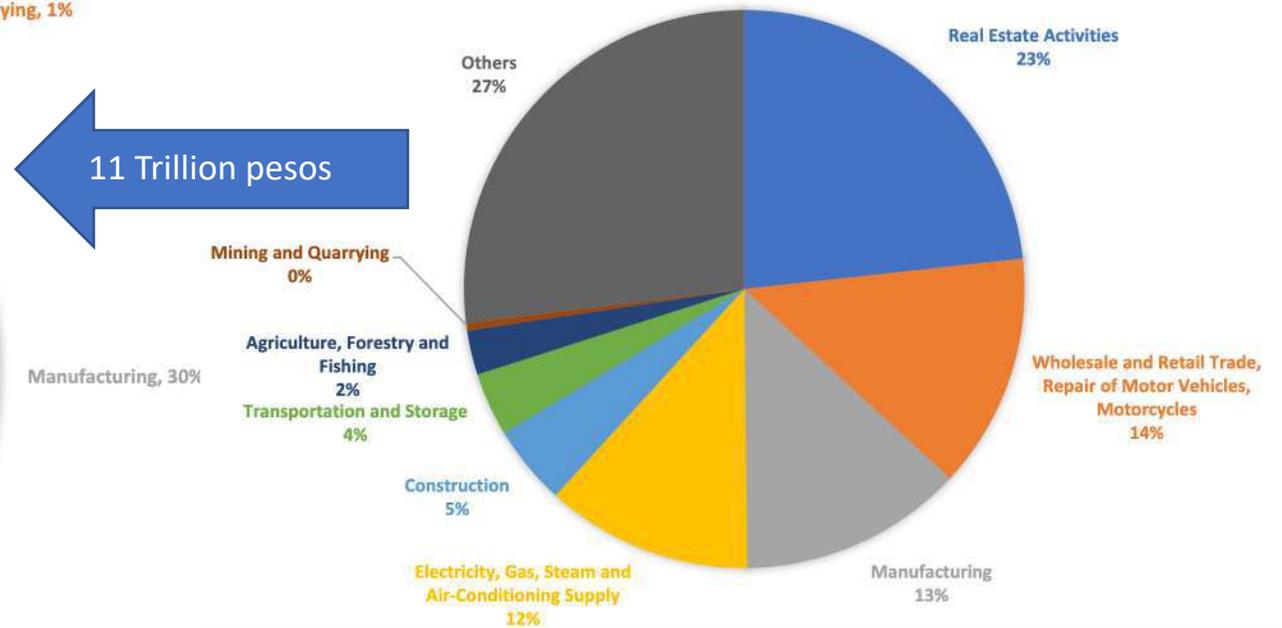
Help build the necessary financial architecture for **mobilizing investment for a nature-positive economy**

Call for PBS to add their “skin in the game”

**OUTPUT CONTRIBUTION BY SECTOR, 2018
(IN PERCENT)**



**TOTAL OUTSTANDING LOANS
PHIL. BANKING SYSTEM
AS OF AUG 2022
TOTAL 11.84 TRILLION PESOS**



Impacts/dependencies of PBS to nature and climate risks

AS OF	Aug-22	DIRECT IMPACTS					DIRECT DEPENDENCIES			
		Land/sea use change	Resource exploitation	Climate Change	Pollution	Invasive Species/others	Physical Input	Enabling Production	Mitigating Direct Impacts	Protecting from Disruption
Total Loans Outstanding by SECTOR, Aug 2022	PBS									
Real Estate Activities	19.7%	Highly Material		Highly Material	Highly Material		Moderately material		Moderately material	Highly Material
Wholesale and Retail Trade, Repair of Motor Vehicles, Manufacturing	11.3%									
Electricity, Gas, Steam and Air-Conditioning Supply	10.6%		Moderately material	Moderately material	Moderately material		Highly Material			
Construction	9.9%	Highly Material					Highly Material	Highly Material		Highly Material
Agriculture, Forestry and Fishing	3.9%	Highly Material	Highly Material	Moderately material	Moderately material	Moderately material	Highly Material	Highly Material	Moderately material	Highly Material
Water supply, Sewerage, Waste management and Recycling	2.2%	Moderately material	Moderately material	Moderately material			Highly Material	Highly Material		Highly Material
Mining and Quarrying	1.2%	Highly Material	Highly Material	Moderately material	Moderately material	Moderately material	Moderately material	Moderately material		Moderately material
Total	0.4%									
	11,843,050									

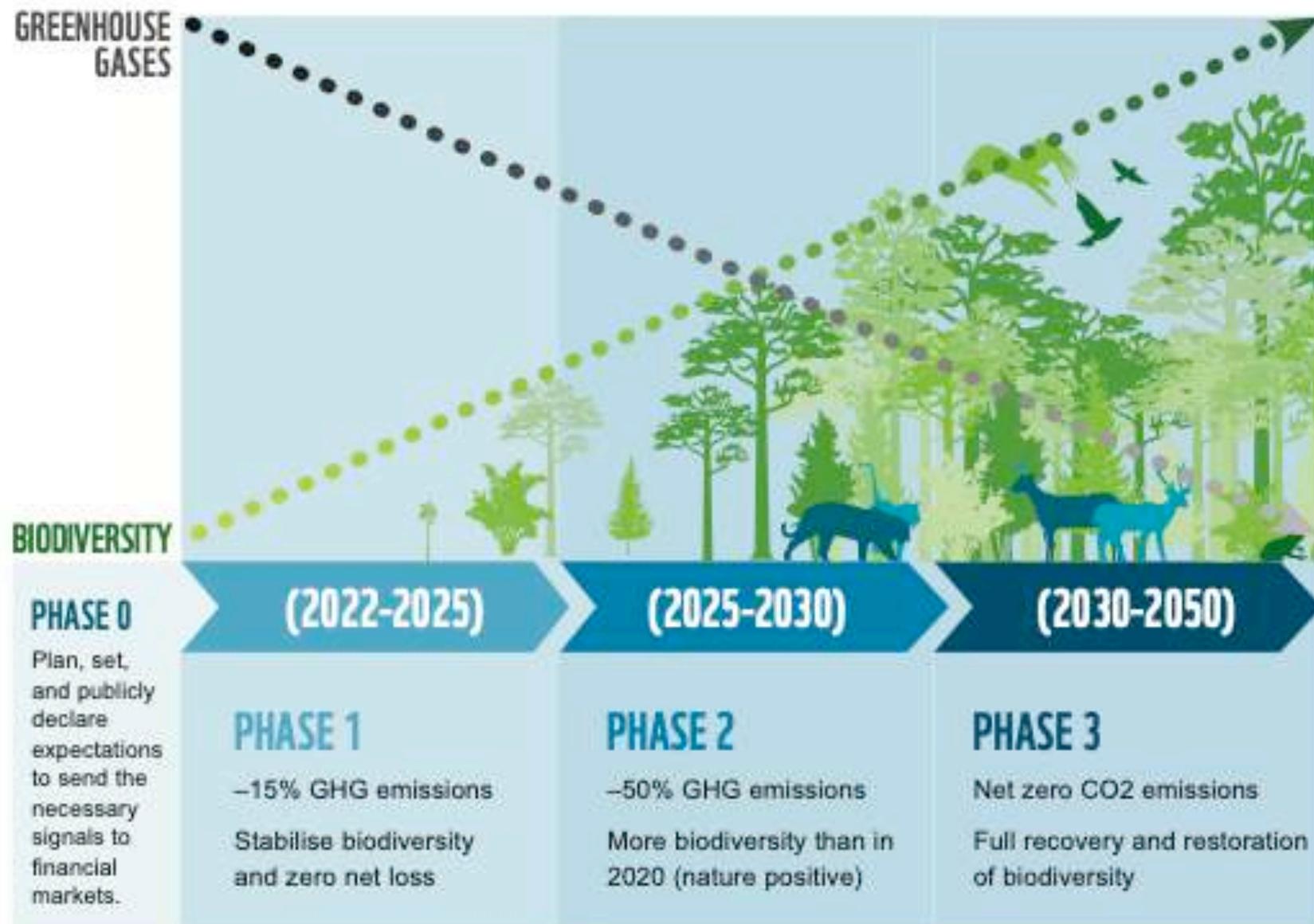
Highly Material
Moderately material

36.1% of PBS lending materially impacts land/water use change, followed by climate change (19%), pollution (19%). Impacting sectors are real estate, power generation, construction, agriculture, mining and quarrying.

28% are lent to sectors that depend on physical inputs, protection and production services from nature. These are in manufacturing, power generation, construction, agriculture and fisheries and water supply & sanitation.

Rural and Coop banks lending to agriculture is 16% of TLO. Of 100% lending to agriculture, 26.4% is on palay growing, followed by ocean fishing (14%), aquaculture (10.7%) and corn growing (7%).

A PATHWAY TO A CLIMATE SAFE AND NATURE POSITIVE GLOBAL ECONOMY





Questions and Answers



Working to sustain the natural world for the benefit of people and wildlife.

together possible™ panda.org

WWF-Philippines