



ICAO

ENVIRONMENT



**ACT**  **SAF**

HELPING COUNTRIES TAKE ACTION ON THE DEVELOPMENT  
AND DEPLOYMENT OF SUSTAINABLE AVIATION FUELS



## Aviation and Green Taxonomy



**To explore how green taxonomy can drive environmentally responsible practices within the aviation industry.**



## Giorgio Parolini

Aviation Decarbonization  
Lead  
World Economic Forum



## Rafal Rowinski

Policy Officer  
European Commission  
(DG MOVE)



## Luciano Lopes de

### Azevedo Freire

Civil Aviation Specialist  
Anac Environment and  
Energy Transition Division  
Brazil



## Bettina Paschke

VP ESG Accounting,  
Reporting & Controlling  
DHL International GmbH



## Najwa Abu Bakar

Senior Programme  
Director  
Sustainable Finance  
Institute Asia





- Opening remarks by ICAO
- ICAO update on ACT-SAF activities
- Introduction to Aviation and Green Taxonomy by World Economic Forum
- Presentations followed by a panel discussion with:
  - European Commission
  - ANAC Brazil
  - DHL International GmbH
  - Sustainable Finance Institute Asia
- Questions and answers with the audience
- Closing remarks by ICAO



ICAO

ENVIRONMENT

**ACT**  **SAF**



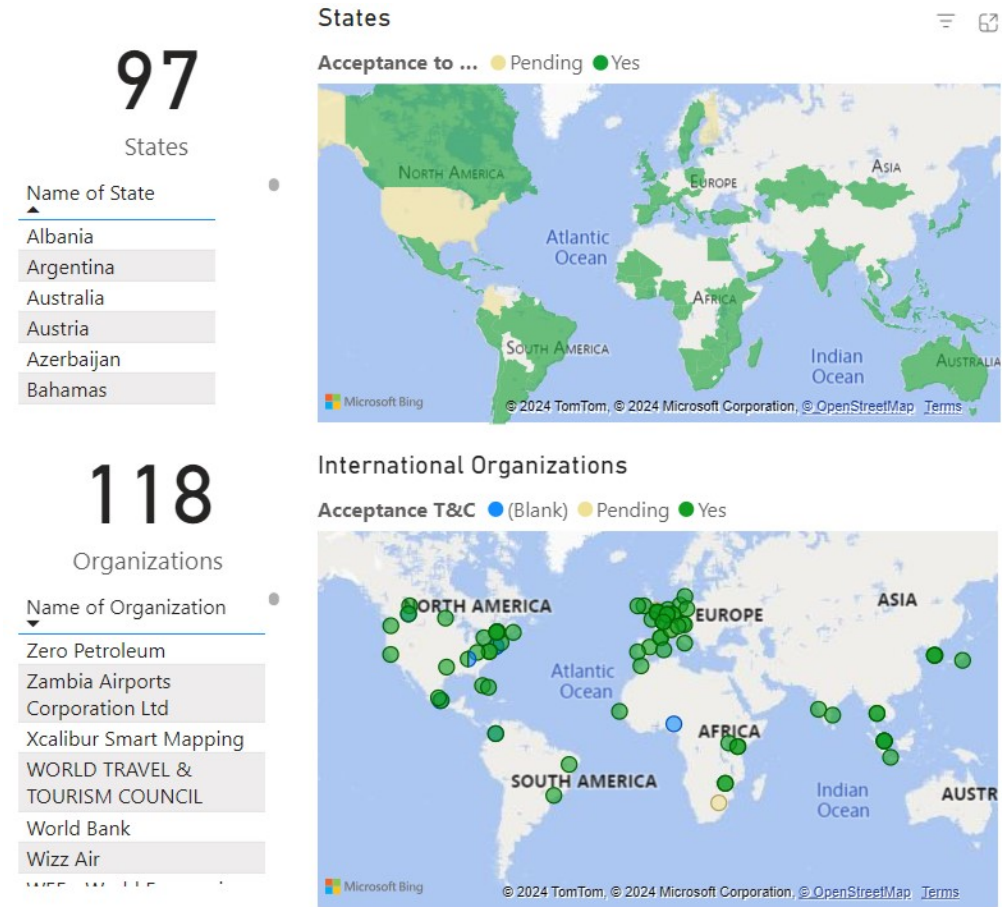
# ICAO update on ACT-SAF programme



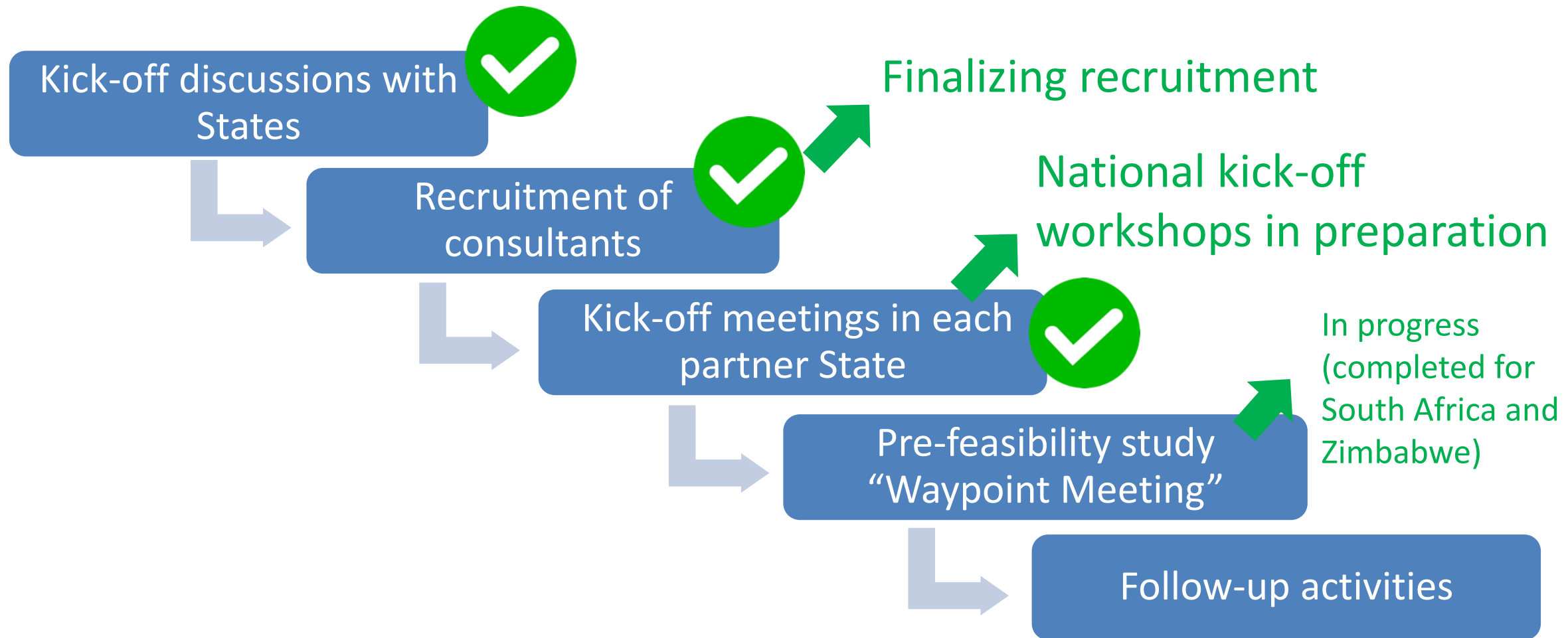


# Marked increase in number of ACT-SAF partner States/Organizations

- **Increased opportunities for expert contributions towards training, feasibility studies, etc.**
  - More than 200 ACT-SAF Partner States and Organizations
  - Supports further outreach of SAF development and deployment initiatives
  - Upcoming survey to Partner Organizations to enquire how best they can support States



# Projects already initiated for: Chile (NL), Ethiopia (EU), Rwanda (FR), India (EU), Jordan (NL), South Africa (EU) and Zimbabwe (UK)





ICAO

ENVIRONMENT

**ACT**  **SAF**



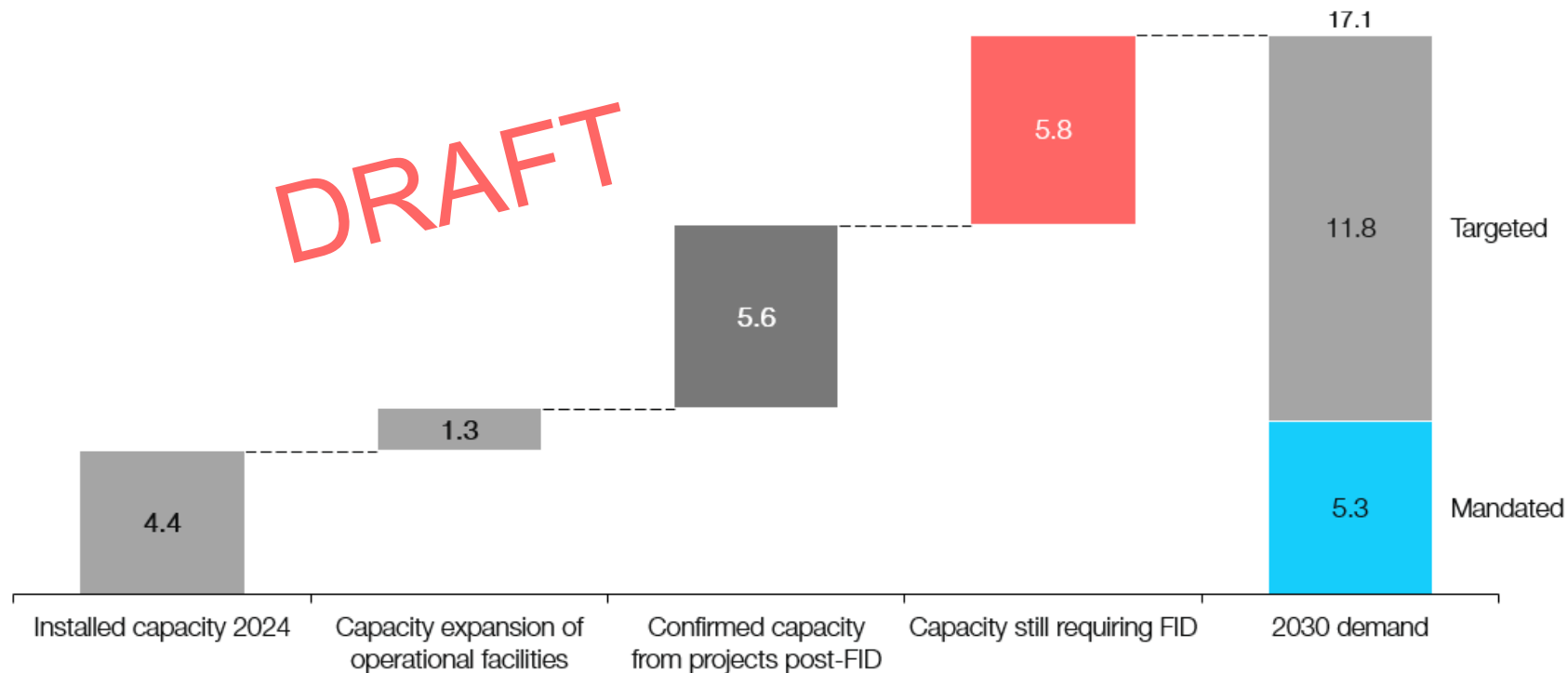
# Introduction to Aviation and Green Taxonomy by World Economic Forum





# More SAF production capacity needs to achieve final investment decision to meet 2030 ambitions

Overview of SAF capacity ramp-up needed between 2024 and 2030 (Mt)



Sources: Kearney analysis, S&P Platts, IEA and airline announcements

# \$20bn may be needed to scale SAF in the short term, but this may increase to boost PtL specifically

## Overview of total estimated CAPEX by scenario

Scenario 1	% mix	SAF capacity (Mt)	Yield (max SAF)	Plant capacity (Mt)	Cost/ton (k USD)	Cost (b USD)
HEFA	99%	5.75	48%	12.11	\$1,5	\$18
AtJ	1%	0.06	46%	0.13	\$4,3	\$0.6
G-FT	0%	-	60%	-	\$7,2	-
PtL	0%	-	60%	-	\$12,7	-

**\$18.6bn**

Scenario 2	% mix	SAF capacity (Mt)	Yield (max SAF)	Plant capacity (Mt)	Cost/ton (k USD)	Cost (b USD)
HEFA	81%	4.73	48%	9.96	\$1,5	\$14.8
AtJ	3%	0.20	46%	0.43	\$4,3	\$1.8
G-FT	6%	0.34	60%	0.57	\$7,2	\$4.0
PtL	9%	0.54	60%	0.90	\$12,7	\$11.5

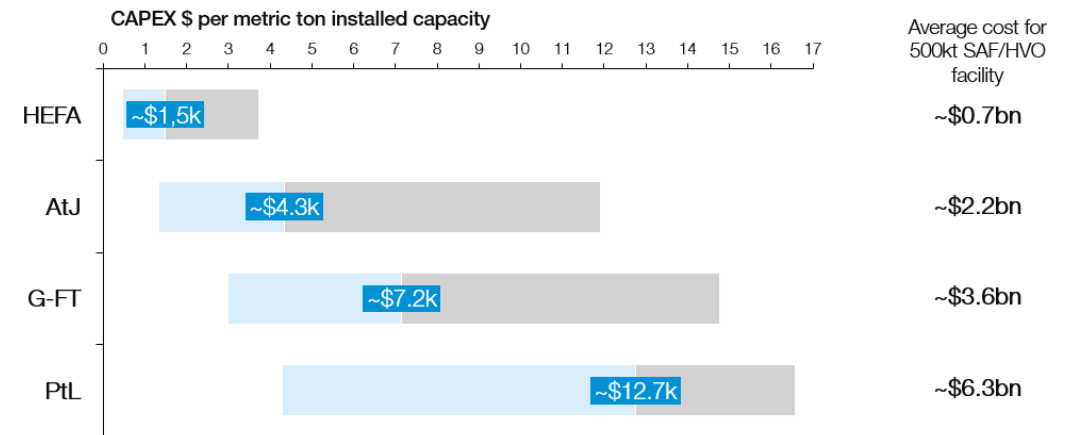
**\$32.2bn**

Scenario 3	% mix	SAF capacity (Mt)	Yield (max SAF)	Plant capacity (Mt)	Cost/ton (k USD)	Cost (b USD)
HEFA	60%	3.49	48%	7.34	\$1,5	\$10.9
AtJ	15%	0.87	46%	1.88	\$4,3	\$8.1
G-FT	10%	0.58	60%	0.97	\$7,2	\$6.9
PtL	15%	0.87	60%	1.45	\$12,7	\$18.5

**\$44.5bn**

Sources: Kearney analysis, S&P Global

## Overview of CAPEX/ton requirements for greenfield SAF refinery by pathway



Sources: Kearney analysis and disclosure from ~50 SAF bio-refineries with minimum capacity of 80kt.

**DRAFT**

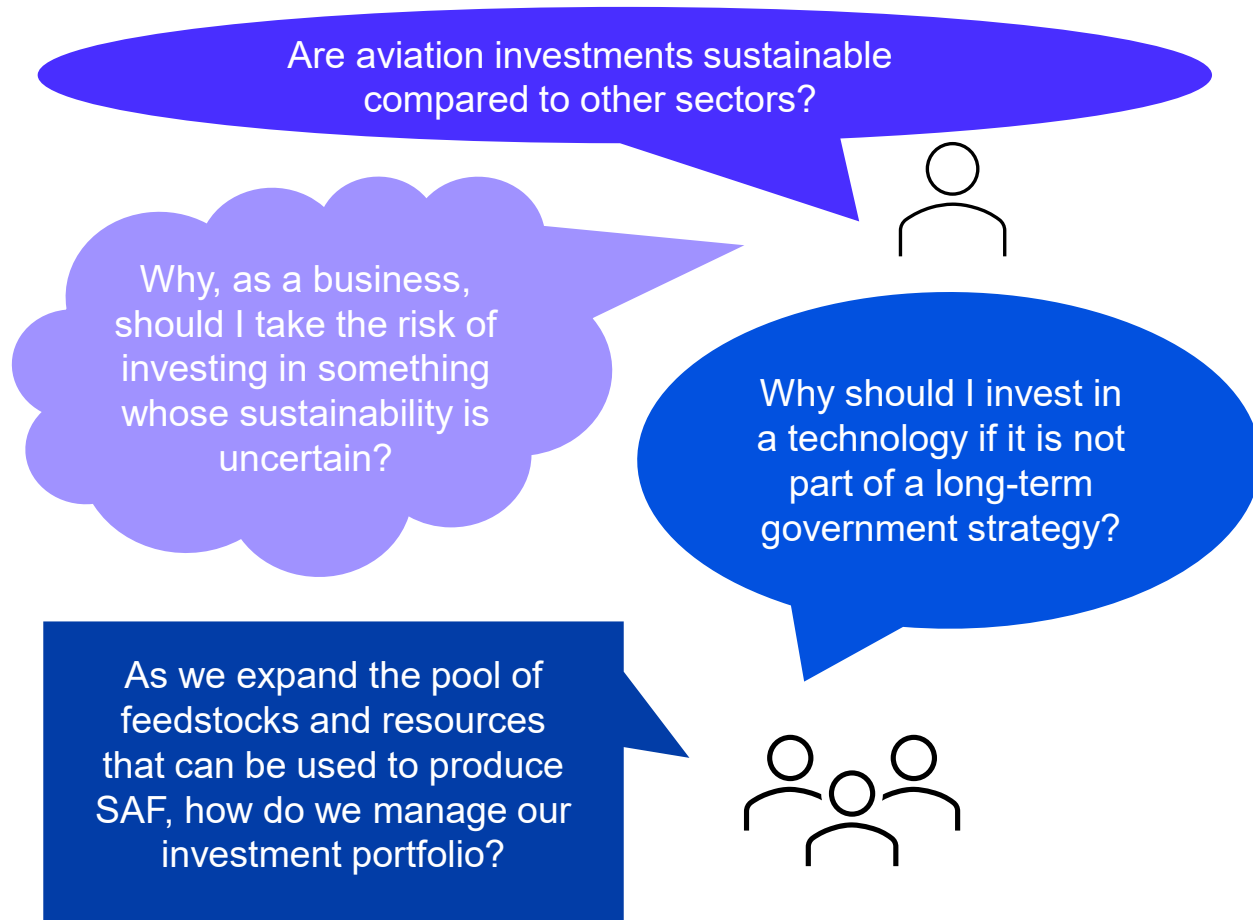
# SAF is one of the decarbonization levers needed to achieve the LTAG, which comes with high investment needs

As part of the long-term aspirational goal analysis, ICAO estimated the investment needs associated with the highest ambition scenario needed **to achieve the LTAG by 2050** across each stakeholder group as below:

Stakeholders	Integrated Scenario 3
States	\$160b
Air Navigation Service Providers	\$20b
Aircraft manufacturers	\$350b
Fuel suppliers	\$3,200b
Airports	\$125b

Note: Some investments from upstream stakeholders are passed on downstream (e.g. operators) in the form of incremental price of products

# Green taxonomies can help define what constitutes a 'sustainable investment' to attract private capital



## What is a taxonomy?

In sustainable finance, a “taxonomy” is a classification system identifying **activities, assets, and/or project categories that deliver on key climate, green, social or sustainable objectives** with reference to identified thresholds and/or targets. It may be time-specific.

## What is not a taxonomy?

A taxonomy clarifies whether individual activities are sustainable hence it differs from **reporting frameworks**. These mandate companies to report against specific taxonomy criteria, increasing **transparency** or provide investors with the information needed to assess sustainability-related investments **at a corporate level**.

# Green taxonomies were initiated by industry, with a few established market-based taxonomies (1/2)

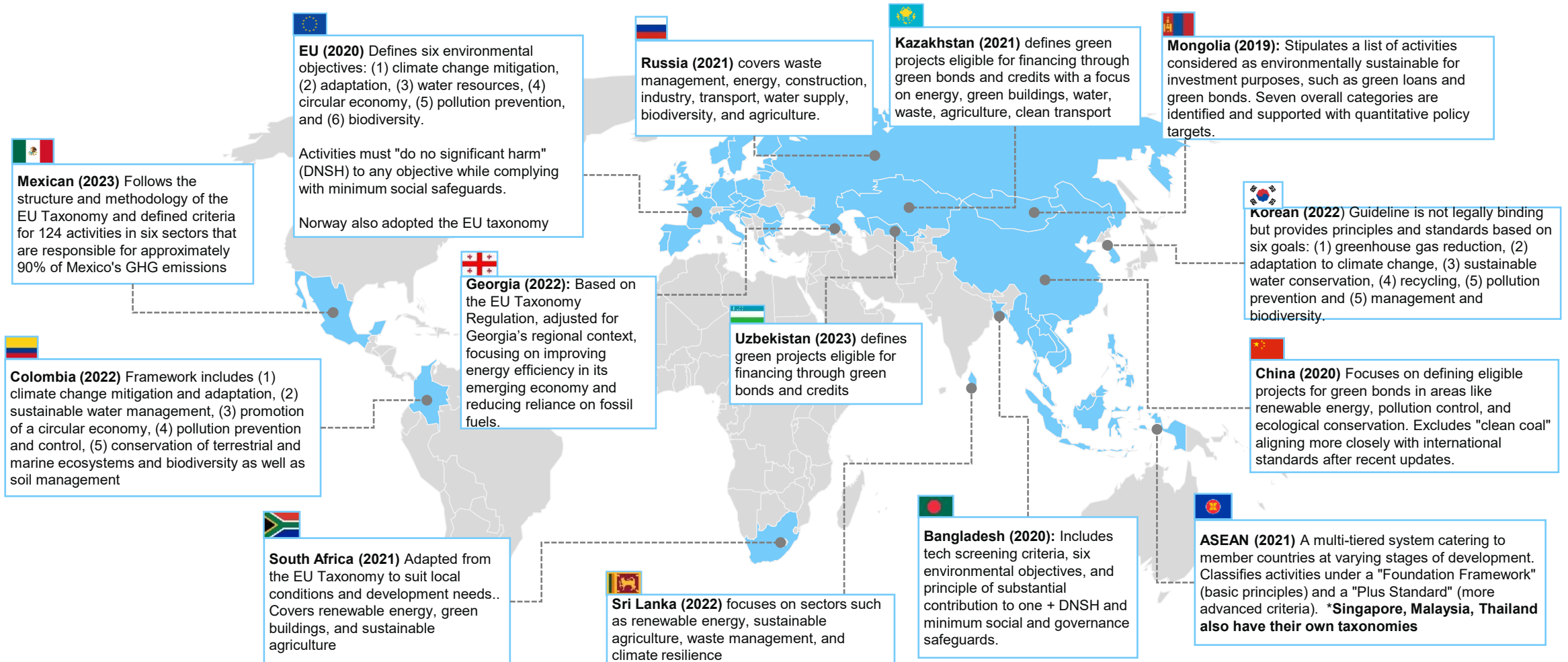
	Climate Bonds Initiative (CBI) Taxonomy	MDBs-IDFC Common Principles	ISO 14030 – Environmental performance evaluation – green debt instruments
<b>Launch date</b>	2013	2015	2021
<b>Owner</b>	Climate Bonds Initiative (NGO in the green bond market)	Nine multilateral development banks and the International Development Finance Club	International Organization for Standardization
<b>Purpose</b>	Provide an overview of green investment opportunities across the major economic sectors	Align tracking and reporting of climate development finance and provide definitions for climate-related financing	Drive global harmonization of standards and provide assurance projects will deliver expected environmental benefits
<b>Methodology</b>	Definition of assets with “traffic light” system defining eligibility criteria (e.g. “green”: automatically eligible; “orange”: eligible if they meet certain screening criteria)	Classification of activities which drive climate change mitigation across ten sector categories and broken down into 28 sub-sectors	List of assets and projects that are eligible for green financing, outlining the processes for green bonds and loans
<b>Relevance for sustainable aviation</b>	Facilities producing biofuel for transport can be considered green if they can demonstrate 80% GHG emission reduction and sourced from sustainable feedstocks.	<ul style="list-style-type: none"> <li>– Production, transport and storage of low-carbon hydrogen and its products (2.3)</li> <li>– Aircrafts and supporting infrastructure (8.6)</li> <li>– Transport operations using biofuels or synthetic fuels with low lifecycle GHG (activity 8.7)</li> </ul>	Limited data available, focus on SAF production with minimum threshold of 80% GHG emission savings and limitations on in-scope feedstock



# Green taxonomies were initiated by industry, with a few established market-based taxonomies (2/2)

International Sustainability Standards Board (ISSB) Standards	
<b>Launch date</b>	Announced in November 2021 at COP26. Ongoing.
<b>Owner</b>	Established under the International Financial Reporting Standards (IFRS) Foundation.
<b>Purpose</b>	Aims to develop a global baseline of sustainability disclosures that meet the information needs of investors and financial markets. This includes providing high-quality, transparent, reliable, and comparable reporting on climate and other environmental, social, and governance (ESG) matters
<b>Methodology</b>	The ISSB builds on existing frameworks such as the Climate Disclosure Standards Board (CDSB), the Task Force for Climate-related Financial Disclosures (TCFD), and the Value Reporting Foundation's Integrated Reporting Framework. It focuses on creating standards that are cost-effective, decision-useful, and market-informed, ensuring companies can provide comprehensive sustainability information to global capital markets.
<b>Relevance for sustainable aviation</b>	ISSB standards (IFRS S1 and IFRS S2 – in force since 2023) can provide a framework for disclosing sustainability-related risks and opportunities. This can help aviation companies to report on their environmental impact with transparency and accountability, with a view to facilitate investment.

# In recent years, a range of official taxonomies have emerged mainly in Europe, Asia and Latin America



# All taxonomies recognise biofuel production as sustainable but assess other levers differently

	Airport infrastructure	Fleet modernization	Operational improvements	Sustainable aviation fuels	Disruptive propulsion technologies	Carbon dioxide removals
ASEAN						
Bangladesh						
China						
Colombia						
EU						
Georgia						
Kazakhstan						
Korea						
Mexico						
Mongolia						
Russia						
South-Africa						
Sri Lanka						
Uzbekistan						



ICAO

ENVIRONMENT

**ACT**  **SAF**



# Presentation by the European Commission (DG MOVE)





ICAO

ENVIRONMENT

# Agenda

# ACT»SAF

1. EU taxonomy framework
2. Aviation related criteria



# EU taxonomy framework



## A classification system

Provides clarity on what is an environmentally sustainable activity.



## A measuring tool

Measures the degree of sustainability of investment and of companies' activities



## A transition tool

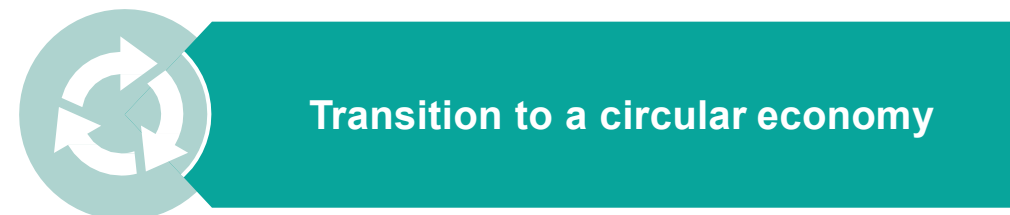
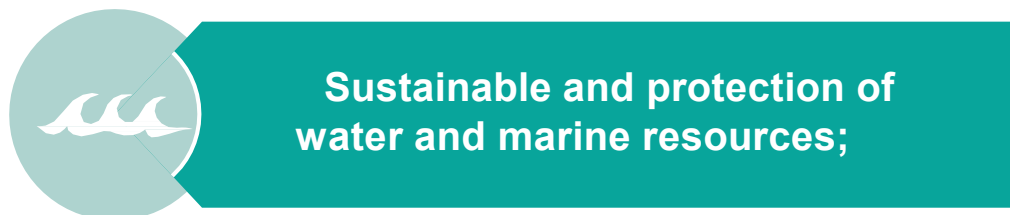
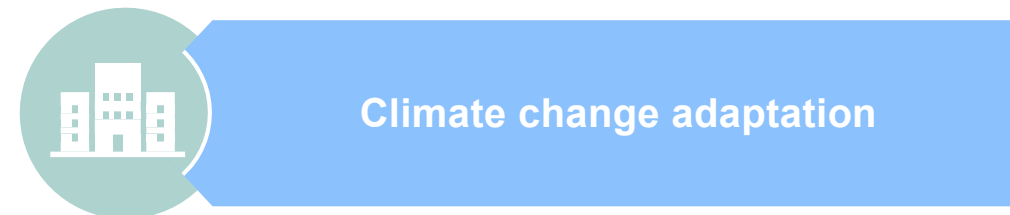
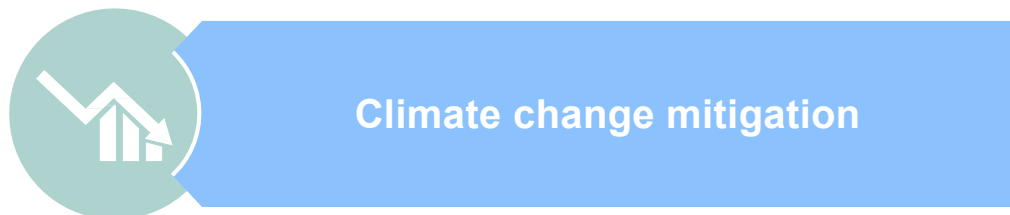
Sets the objectives and the direction of travel for different economic activities.

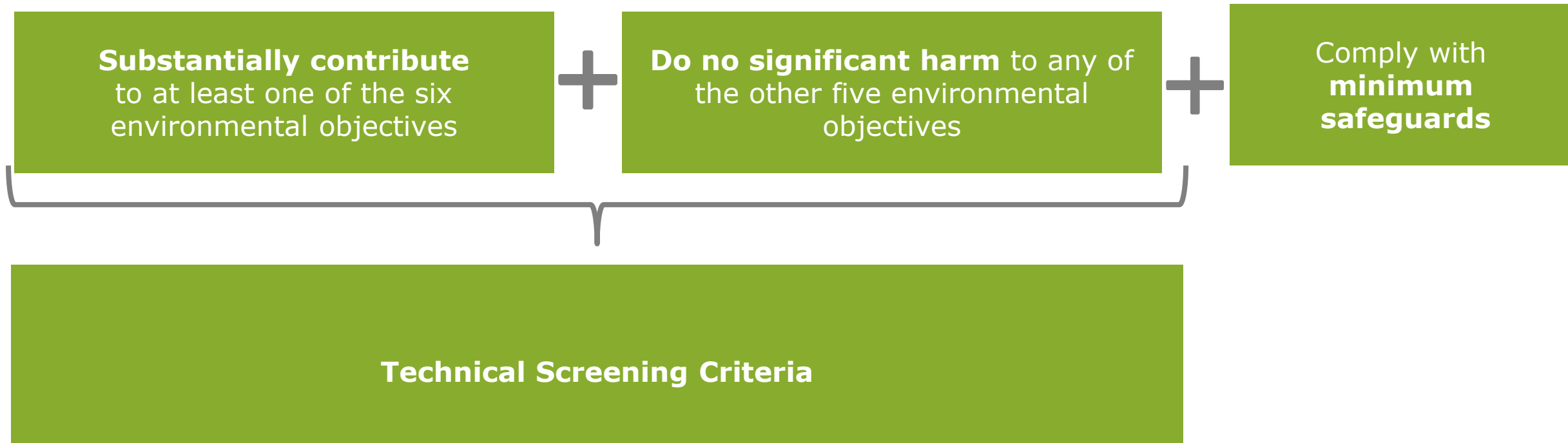
Ultimately, it helps raise investments to build a net zero, resilient and environmentally sustainable economy.

## What the EU Taxonomy is **not**:



- It's not a mandatory list to invest in
- It's not a rating of the “greenness” of companies
- It does not make any judgement on the financial performance of an investment
- What's not green is not necessarily brown.





## User obligations



### Financial market participants

- How and to what extent the Taxonomy was used in determining the sustainability of the underlying investments;
- To what environmental objective(s) the investments contribute;
- The **proportion of underlying investments that are Taxonomy-aligned**, as a percentage of the investment, fund or portfolio.



### Large companies

Proportion of **turnover** aligned with the EU taxonomy;  
**CAPEX** and **OPEX** aligned with the EU taxonomy.



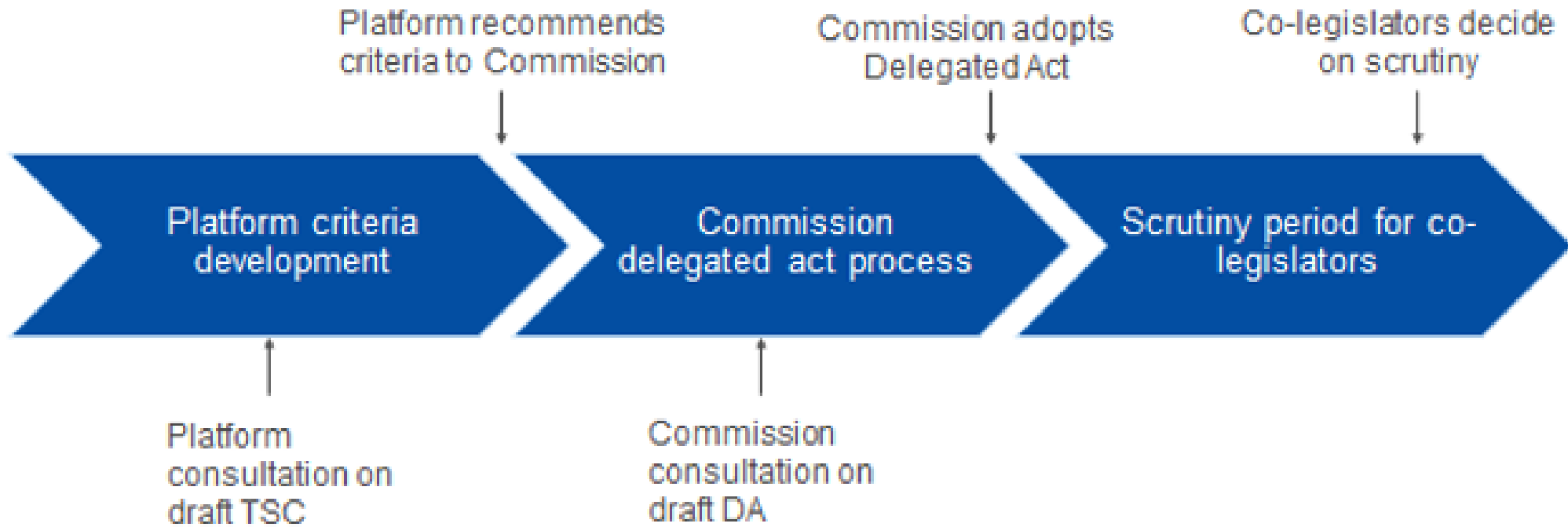
### The EU and Member States

When setting out measures on **standards or labels for green financial products** or green (corporate) bonds





# Three phases in taxonomy criteria development



# Aviation related activities and criteria

## Aviation related activities in the EU Taxonomy

- Manufacturing of aircraft
- Leasing of aircraft
- Passenger and freight air transport
- Low carbon airport infrastructure
- Air transportation ground handling operations
- Manufacture of hydrogen (includes e-fuels)
- Manufacture of biogas and biofuels for use in transport and of bioliquids
- Renewable energy: solar, wind, geothermal etc.

## Main principles of the aircraft manufacturing, leasing and passenger and freight air transport criteria

- Zero emission aircraft
- Transitional activities:
  - ✓ Fleet renewal with best in class aircraft
  - ✓ Strong emphasis on SAF both on the level of aircraft manufacturing and operations.



ICAO

ENVIRONMENT

**ACT**  **SAF**



# Presentation by ANAC Brazil



- **Current stage:** under public audience until 31 January 2024
  - ❖ <https://www.gov.br/fazenda/pt-br/orgaos/spe/taxonomia-sustentavel-brasileira/taxonomia-sustentavel-brasileira.pdf>
  - ❖ <https://www.gov.br/participamaisbrasil/taxonomia-sustentavel-brasileira>
- **Importance:** a taxonomy provides the means for the private sector to decarbonise, especially in developing countries



## Current stage: under public audience until 31 January 2024



### H7: Transporte aéreo

#### CNAE

- 51: Transporte aéreo

#### Descrição:

Esta atividade compreende o transporte aéreo de passageiros e de carga, doméstico e internacional, em linhas regulares ou não. Inclui, por exemplo, os serviços de táxi aéreo, fretamento de aeronaves com tripulação para o transporte de passageiros para qualquer finalidade, os serviços de aeroclubes com fins de instrução ou recreação, transporte em aeronaves para fins de passeios turísticos.

#### Exemplo de atividades:

- Renovação/compra/aluguel de locação/fretamento de aeronaves para os serviços m  
compra de combustíveis sustentáveis para operação das aeronaves.

< 19/24 >

#### Contribuição substancial para o objetivo 1 - Mitigação da mudança do clima:

Até que haja bases preditivas confiáveis sobre o cenário de redução de emissões para um aumento máximo 1,5 °C na temperatura média global, será revisado para inclusão na TSB. Enquanto se aguarda esse desenvolvimento, a atividade está em conformidade com um dos seguintes critérios:

- Compra/uso de aeronaves com zero emissões diretas, como as movidas a eletricidade ou hidrogênio.
- Conversão ou retrofit da frota aérea existente para tecnologias de propulsão elétrica/hidrogênio.
- Para a utilização do SAF, a atividade está em conformidade com todos os seguintes critérios:
  - Operação da frota/aeronaves para atender à trajetória de % em mistura SAF para a aviação:
    - [x] % das operações de uma aeronave até 2030.
    - [x] % das operações de uma aeronave até 2040.
    - [x] % das operações de uma aeronave até 2050.
  - Matéria-prima SAF
    - O biocombustível de aviação deve ter sido reconhecido e certificado como SAF pela Organização da Aviação Civil Internacional (OACI). Além disso, deve-se respeitar os critérios estabelecidos pelo setor da Indústria de Transformação da TSB.
- A compra e o uso de combustível de aviação sustentável SAF são elegíveis se forem usados nas porcentagens operacionais indicadas dentro dos prazos definidos para a trajetória.



- **Principles:**

- ❖ Provides incentives to, for instance, the industry to use more SAF, purchase aircrafts certified to new emission standards, etc.
- ❖ It works as a “push” to a burgeoning industry in the case of SAF, that initially needs more financing to thrive.
- ❖ Cannot be too stringent → developed systemically to be realistic so that the decarbonization objectives are met.
- ❖ Alignment with multilateral forums in which experts from various countries agree on internationally accepted standards
- ❖ Anchored in reality





- **Effects & Expected Results :**

- ❖ Development of SAF production facilities and infrastructure (thus creating new quality jobs in Brazil)
- ❖ Mitigation of risks from future carbon pricing regulations or penalties, providing economic predictability for airlines and airports.
- ❖ Fostering fleet renewal that boosts the use of the most fuel-efficient aircraft
- ❖ Opening of opportunities for green financing from multilateral organizations and global investors (especially for developing nations)
- ❖ Strengthened partnerships among stakeholders (airlines, airport operators, Brazilian government, fuel suppliers) by providing a shared language and criteria for sustainability





ICAO

ENVIRONMENT

**ACT**  **SAF**



# Presentation by DHL International GmbH



## DHL GROUP – THE WORLD’S LEADING LOGISTICS PROVIDER

With two strong brands, DHL Group connects people and markets, enabling global trade.

<b>220</b> Countries and territories	<b>5</b> Divisions	<b>€82 bn</b> Revenue	<b>€6.3 bn</b> EBIT	<b>€3.3 bn</b> Free cash flow <sup>1</sup>
--------------------------------------	--------------------	-----------------------	---------------------	--

offers a comprehensive range of parcel, express, freight transport and supply chain management services as well as e-commerce logistics solutions.

is the largest mail service provider in Europe and the market leader in the German mail services sector.

DIVISIONS	Express	Global Forwarding, Freight	Supply Chain	eCommerce	Post & Parcel Germany
	Transport of urgent documents and goods reliably and on time from door to door	Air, ocean and overland freight forwarding services	Customized logistics services and supply chain solutions	Domestic parcel shipment in Europe, the US, Asia <sup>2</sup>	Transport, sorting and delivery of documents and goods shipments
	<b>International<sup>2</sup></b> 1.1m shipments per working day <b>Domestic<sup>3</sup></b> 486,000 shipments per working day	<b>Air freight</b> 1.7m metric tons export freight <b>Ocean freight</b> 3.1m TEU <sup>4</sup>	<b>Warehousing and operational space<sup>5</sup></b> 17m m <sup>3</sup>	<b>Parcels</b> >1.5bn annually	<b>Letters</b> 46m per working day <b>Mailboxes</b> 108,200 <b>Parcels</b> 6.3m per working day <b>Packstations</b> >13,000

1 Excl. net M&A | 2 Time Definite International (TDI) | 3 Time Definite Domestic (TDD) | 4 TEU= Twenty-foot equivalent unit. | 5 Owned and leased warehouses. | 6 In selected countries.

13

## SUSTAINABILITY IN FIGURES

<p><b>295</b> aircraft</p> <p><b>123,400</b> vehicles of which</p> <p><b>36,200</b> e-vehicles</p> <p><b>25,000</b> bicycles of which</p> <p><b>14,000</b> e-trikes, <b>5,500</b> e-bikes</p> <p><b>33.27 m metric tons CO<sub>2</sub>e</b> footprint</p>	<p><b>594,000</b> employees globally of which</p> <p><b>4,900</b> apprentices and trainees</p> <p><b>€27 bn</b> in staff costs</p>	<p><b>12,260</b> locations</p> <p><b>60%</b> certified in accordance with ISO 14001 &amp; 50001<sup>1</sup></p> <p><b>3</b> international hubs in Leipzig (DE), Cincinnati (US) and Hong Kong</p> <p><b>1</b> Headquarters in Bonn, Germany</p>
---	--	---

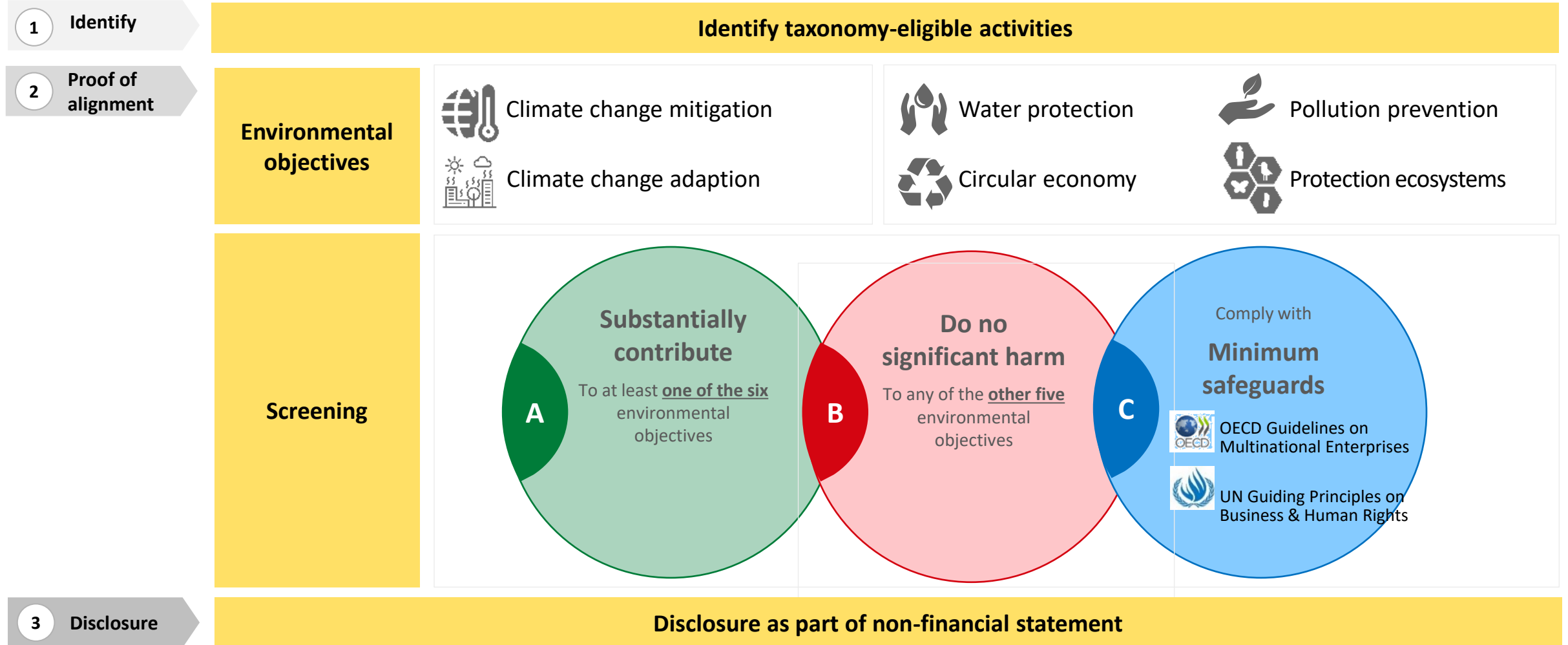
1 Also includes locations that are only certified according to one ISO.

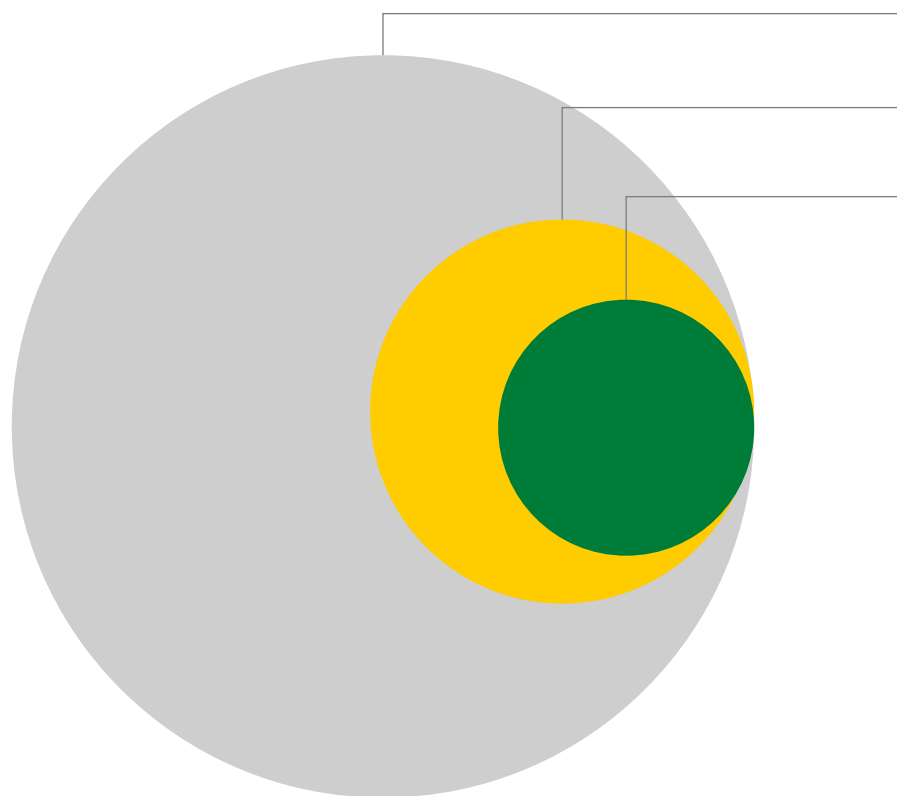
14

## EU Taxonomy

- Legal framework adopted by EU Parliament on June 18<sup>th</sup> 2020 to **classify** economic **activities** as either sustainable or not
- Simplified: **The Taxonomy defines Green activities**, EU legislation, **Global** application
- Intention of **re-orienting capital flows towards** sustainable investments = shopping list for the future
- **Robust definition of GREEN** in line with Paris 1.5 °C target,
- Evolving legislation, will be reviewed every 3 years
- **First binding disclosure requirements for FY2021** in course of 2022
- Users are: All companies that have CSRD reporting obligations<sup>1)</sup>  
Banks (Credit Institutions) and non – financial institutions







Financial reporting as of today

Separate financials for taxonomy **eligible** processes

Screen assets, if they are taxonomy **aligned**

Main KPI's to be disclosed are

Taxonomy aligned share of

***Revenue in %***

***OpEx in %***

***CapEx in % per activity***

# DHL Group Taxonomy Reporting, share per activity

## FY 2023









In 2023 EU Taxonomy was expended by Aviation activities, aligned reporting required for business year 2024

		2022			2023			variance to PY in %		
		Revenue	Capex	Opex	Revenue	Capex	Opex	Revenue	Capex	Opex
<i>in %</i>										
<b>A. Taxonomy-eligible activities</b>		<b>53,5</b>	<b>62,6</b>	<b>57,9</b>	<b>65,0</b>	<b>91,2</b>	<b>82,2</b>	<b>21%</b>	<b>46%</b>	<b>42%</b>
<b>A.1 Environmentally sustainable activities (Taxonomy-aligned)</b>		<b>12,0</b>	<b>25,2</b>	<b>11,4</b>	<b>14,6</b>	<b>29,9</b>	<b>14,7</b>	<b>22%</b>	<b>19%</b>	<b>29%</b>
<i>Transport</i>		12,0	25,2	11,4	14,6	29,4	14,7	22%	17%	29%
- Operation of personal mobility devices, cycle logistics	CCM 6.4.	2,2		1,0	2,5		1,0	14%		0%
- Transport by motorbikes, passenger cars and light commercial vehicles	CCM 6.5.	2,4	2,5	1,8	3,8	4,4	2,7	58%	76%	50%
- Freight transport services by road	CCM 6.6.	0,2	0,2	0,3	0,4	0,9	0,3	100%	350%	0%
- Infrastructure enabling low-carbon road transport and public transport	CCM 6.15.	7,2	22,5	8,3	7,9	24,1	10,7	10%	7%	29%
<i>Construction and real estate activities</i>						0,5				
- Installation, maintenance and repair of renewable energy technologies	CCM 7.6					0,1				
- Acquisition and ownership of buildings	CCM 7.7					0,4				
<b>A.2 Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)</b>		<b>41,5</b>	<b>37,4</b>	<b>46,5</b>	<b>50,4</b>	<b>61,3</b>	<b>67,5</b>	<b>21%</b>	<b>64%</b>	<b>45%</b>
<i>Transport</i>		41,1	20,0	25,2	50,0	41,7	46,3	22%	109%	84%
- Freight rail transport	CCM 6.2	0,1						-100%		
- Operation of personal mobility devices, cycle logistics	CCM 6.4.	0,1		0,1				-100%		-100%
- Transport by motorbikes, passenger cars and light commercial vehicles	CCM 6.5.	8,8	2,3	6,8	12,3	3,6	10,4	40%	57%	53%
- Freight transport services by road	CCM 6.6.	18,3	5,5	12,5	15,9	5,8	10,2	-13%	5%	-18%
- Sea and coastal freight water transport, vessels for port operations and auxiliary activities	CCM 6.10.	8,5		0,2	4,6		0,1	-46%		-50%
- Infrastructure enabling low-carbon road transport and public transport	CCM 6.15.	5,3	12,2	5,6	4,5	14,7	5,5	-15%	20%	-2%
- Passenger and freight air transport	CCM 6.19.				12,2	17,0	19,8			
- Air transport ground handling operations	CCM 6.20.				0,5	0,6	0,3			
<i>Construction and real estate activities</i>		0,4	17,3	20,5	0,4	19,5	20,4	0%	13%	0%
- Construction of new buildings	CCM 7.1	0,4	0,1	0,1	0,4		0,1	0%	-100%	0%
- Renovation of existing buildings	CCM 7.2					0,3				
- Installation, maintenance and repair of energy efficiency equipment	CCM 7.3		0,1						-100%	
- Acquisition and ownership of buildings	CCM 7.7		17,1	20,4		19,2	20,3		12%	0%
<i>Information and communication</i>			0,1	0,8		0,1	0,8		0%	0%
- Data processing, hosting and related activities	CCM 8.1		0,1	0,8		0,1	0,8		0%	0%
<b>B. Taxonomy-non-eligible activities</b>		<b>46,5</b>	<b>37,4</b>	<b>42,1</b>	<b>35,0</b>	<b>8,8</b>	<b>17,8</b>	<b>-25%</b>	<b>-76%</b>	<b>-58%</b>
<b>Total (A + B)</b>		<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>

# Example: EU Taxonomy for Passenger and Freight Aircraft Operations (CCM 6.19.)



Substantial contribution	Do no significant harm (DNSH)				
 Climate change mitigation	 Climate change adaption	 Water protection	 Circular Economy	 Pollution Prevention	 Protection ecosystems
(a) the aircraft with zero direct (tailpipe) CO2 emissions	Appendix A (Climate Risk and Vulnerability Assessment)	N/A	Waste management during lifetime	Noise emissions	N/A
(b) until 31 Dec 2029, acquired before MMM-YY & complying with 3.21. Manufacturing of aircraft, points (b) or (c)			Waste management in the end-of-life	NOx emissions	
(c) until 31 Dec 2029, acquired after MMM-YY & complying with 3.21. Manufacturing of aircraft, points (b) or (c) & complying with “scrapping rule”			Appendix C (Use of Restricted Chemicals)		
(d) from 1 Jan 2030, (b) or (c) above and operated with a minimum share of SAF					
(e) aircraft ops with 5 % SAF in 2022, plus 2% increase annually					





ICAO

ENVIRONMENT

**ACT**  **SAF**



# Presentation by Sustainable Finance Institute Asia



# Where is Southeast Asia?



The Association of Southeast Asian Nations (ASEAN) is a regional grouping of the ten Southeast Asian States to promote economic, political and security cooperation among its members.

**Population:** 671.6 million in 2022 (projected to be 770m by 2040).

**5<sup>th</sup> largest economy currently** - projected to be 4<sup>th</sup> largest by 2030, outgrowing that of Japan with estimated GDP USD4.5 trillion.

**GDP per capita/annum:**  
2022 - USD5,395  
(Highest USD82,795, lowest USD1,130).

Source :

- 1) World Data - [www.worlddata.info/trade-agreements/asean.php](https://www.worlddata.info/trade-agreements/asean.php)
- 2) Asean Stats - [https://www.aseanstats.org/wp-content/uploads/2024/01/00.-ASEAN-Statistical-Brief-on-GDP\\_19Jan2024.pdf](https://www.aseanstats.org/wp-content/uploads/2024/01/00.-ASEAN-Statistical-Brief-on-GDP_19Jan2024.pdf)
- 3) Asean Stats - <https://www.aseanstats.org/wp-content/uploads/2023/10/ASH-2023-v1.pdf>



ASEAN Taxonomy for  
Sustainable Finance



Disclosures



ASEAN Transition Finance  
Guidance

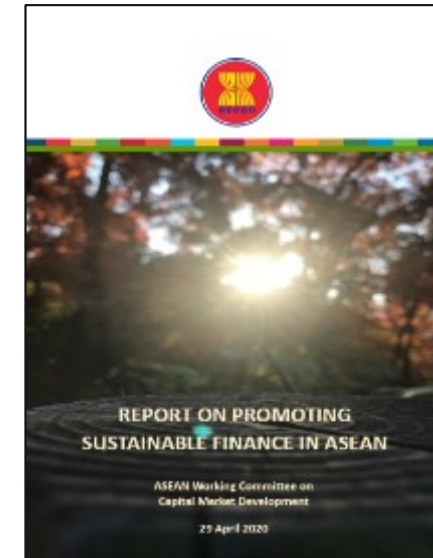
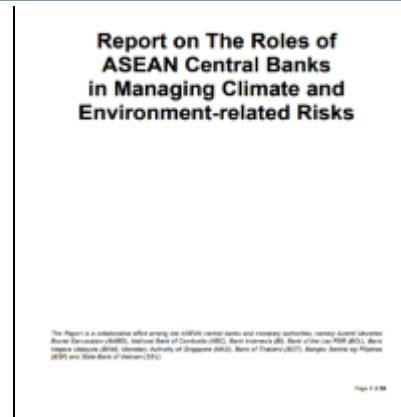


Strengthening Demand and  
Supply for Sustainable Finance

The ASEAN Taxonomy is an initiative under the auspices of the **ASEAN Finance Ministers and Central Bank Governors to promote sustainable activities and investments**, in order to drive the region's sustainability agenda.

The need for a **common taxonomy for ASEAN** was identified in:

- The ASEAN Capital Markets Forum (ACMF)'s Roadmap for ASEAN Sustainable Capital Markets.
- The ASEAN Senior Level Committee on Financial Integration (SLC)'s Report on The Roles of ASEAN Central Banks in Managing Climate and Environment-related Risks.
- The ASEAN Working Committee on Capital Market Development (WC-CMD)'s Report on Promoting Sustainable Finance in ASEAN.



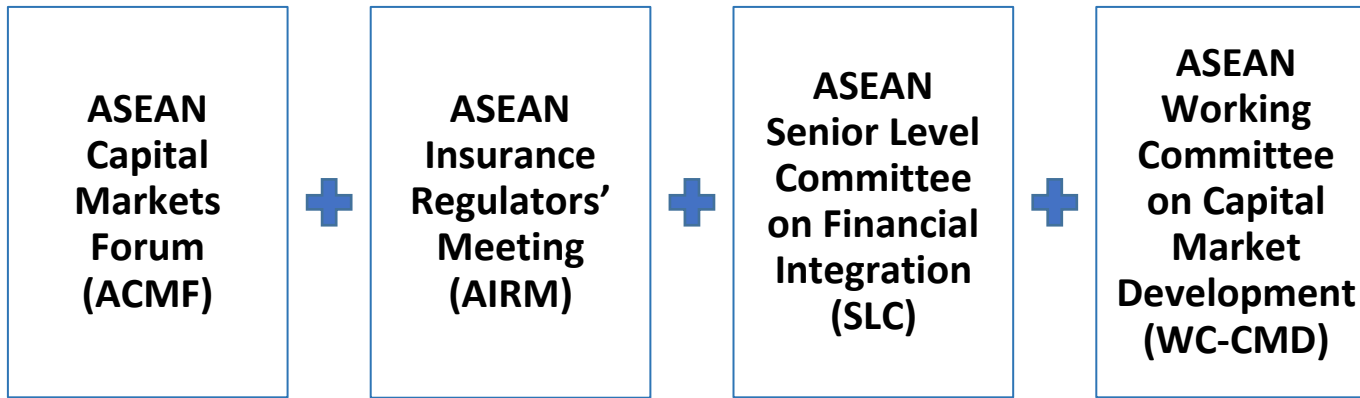
A **regional taxonomy** is needed as a **common language** to drive sustainable finance whereas national taxonomies consider **national priorities and ambitions**.

Therefore, the ASEAN Taxonomy **facilitates equivalence** between national taxonomies as it is intended to be the **overarching guide** for ASEAN Member States.

## Why is the ASEAN Taxonomy important?

- To **minimise fragmentation**.
- **Consolidates** sustainable finance **efforts**.
- Provides **consistency, clarity, credibility** and **secures global acceptance** for businesses and investors.
- Facilitates **better allocation of capital** and **transition**.
- To **develop** a sustainable ASEAN asset class.

# Formation of the ASEAN Taxonomy Board (ATB)



**ASEAN Taxonomy Board**

**Chair:** Brunei Darussalam Central Bank

**Members:**

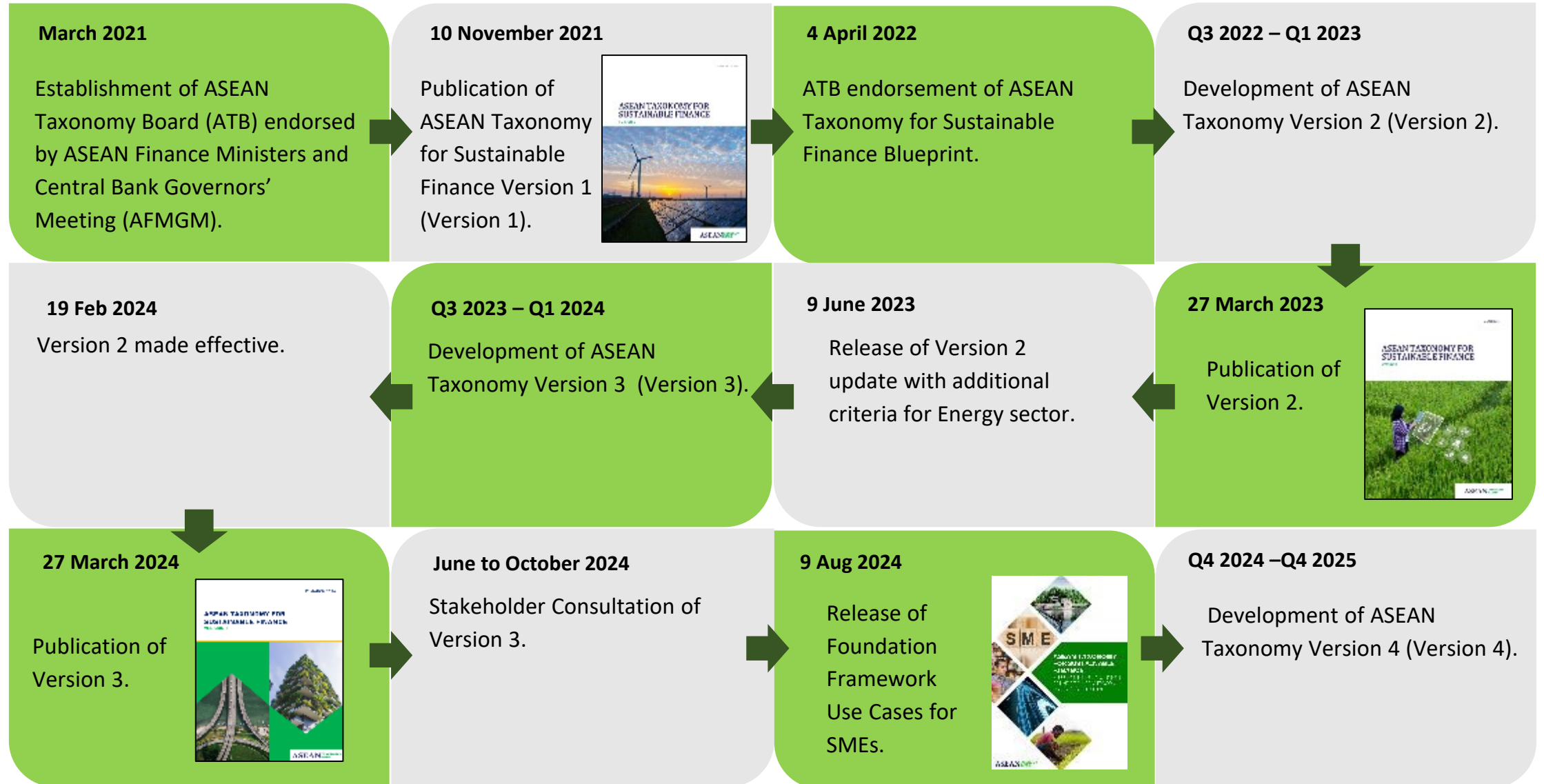
-  Brunei Darussalam Central Bank
-  Non-Bank Financial Services Authority, Cambodia
-  Insurance Regulator of Cambodia
-  Otoritas Jasa Keuangan Indonesia
-  Bank of the Lao PDR
-  Bank Negara Malaysia
-  Securities Commission, Malaysia
-  Ministry of Planning and Finance, Myanmar
-  Securities and Exchange Commission, Philippines
-  Bangko Sentral ng Pilipinas
-  Monetary Authority of Singapore
-  Bank of Thailand
-  The Securities and Exchange Commission, Thailand
-  State Securities Commission of Viet Nam

Established by: 4 sectoral bodies under the ASEAN Finance Cooperation Process:

- represents the banking, capital market and insurance sectors.
- facilitates the development of the ASEAN Taxonomy.
- The ATB was established under the auspices of the ASEAN Finance Ministers and Central Bank Governors' Meeting (AFMGM).



# ASEAN Taxonomy Key Milestones 2021- 2024



# **Overview of ASEAN Taxonomy**



# Principles for Developing and Implementing the ASEAN Taxonomy



**1**

## **Principle 1**

The ASEAN Taxonomy will be the overarching guide for all ASEAN Member States, providing a common language and complementing their respective sustainability initiatives.

**2**

## **Principle 2**

The ASEAN Taxonomy will take into consideration widely used taxonomies and other relevant taxonomies, as appropriate, and shall be contextualised to facilitate an orderly transition towards a sustainable ASEAN.

**3**

## **Principle 3**

The ASEAN Taxonomy shall be inclusive and beneficial to all ASEAN Member States.

**4**

## **Principle 4**

The ASEAN Taxonomy shall provide a credible framework, including definitions, and where appropriate, be science-based.

**5**

## **Principle 5**

The ASEAN Taxonomy will be aligned with the sustainability initiatives taken by the capital market, banking and insurance sectors, or at least not be in conflict.

## Design Overview

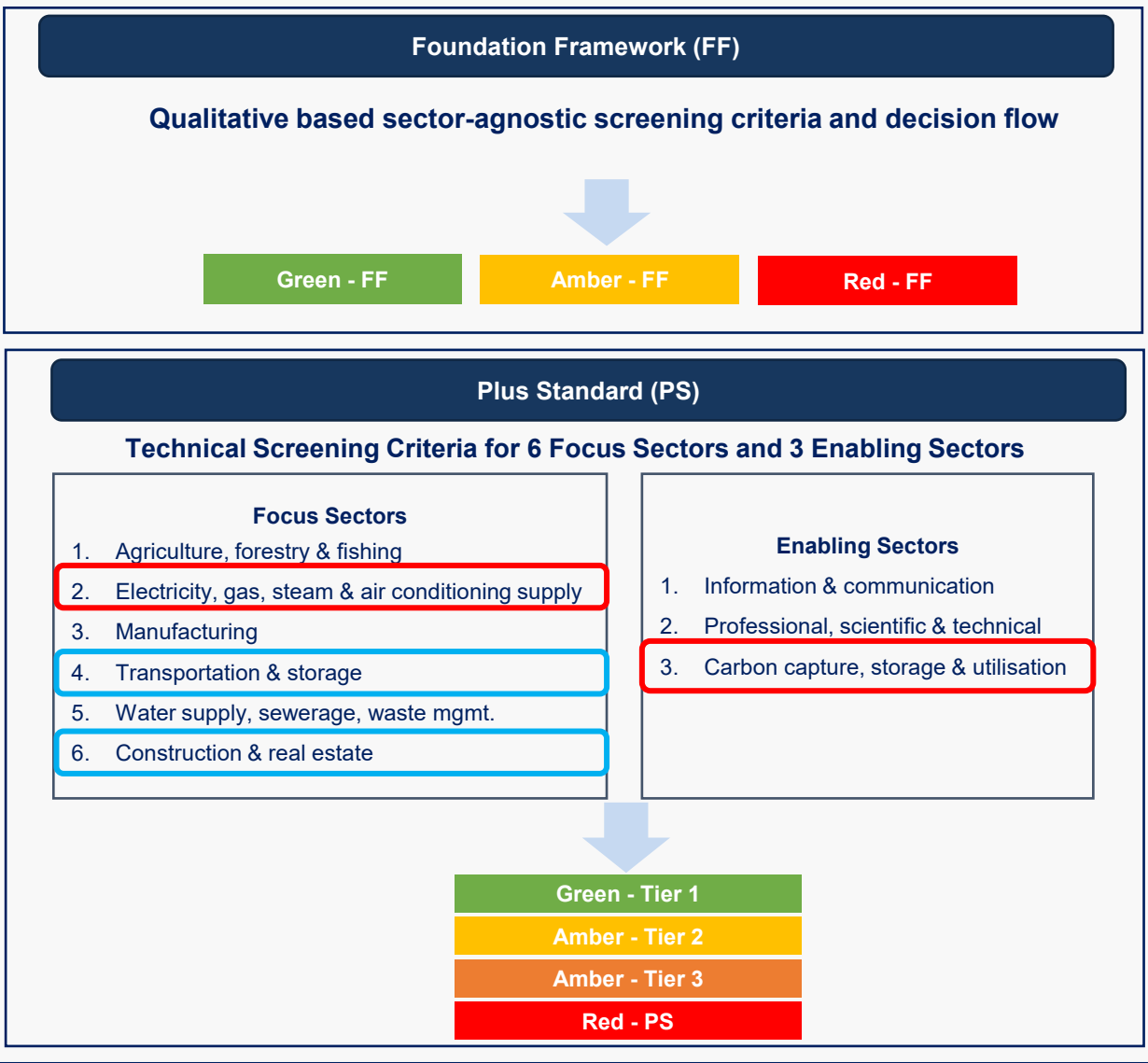
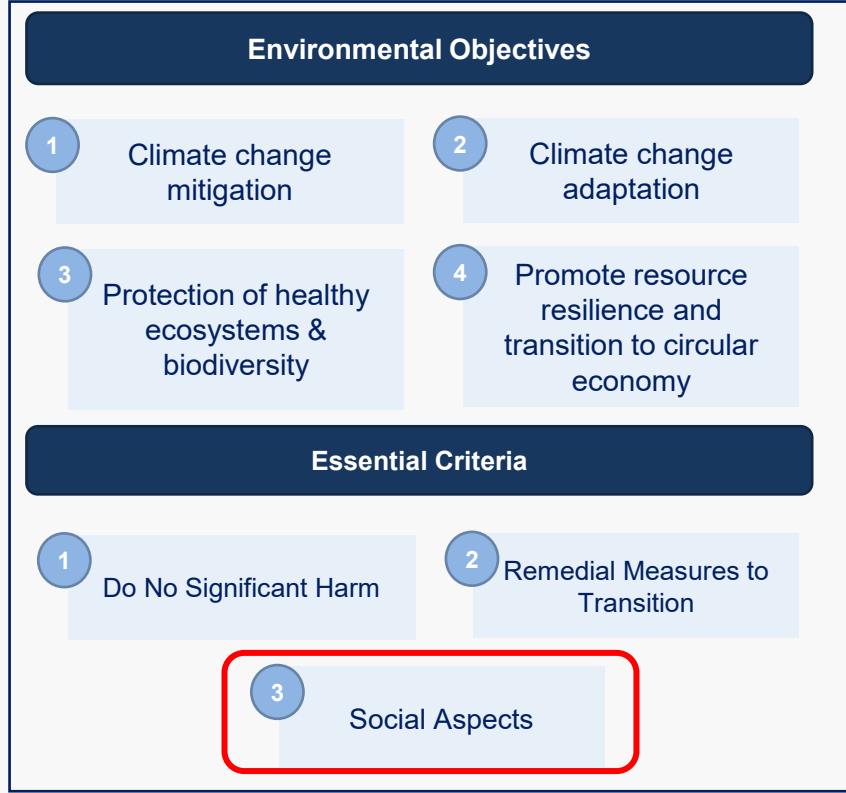
- **Multi-tiered** approach.
- **Builds on common principles** as a foundation.
- **Underpinned** by **EOs** and **EC**.
- **Traffic-light** system of classification to identify the **degree to which an activity is sustainable** through its contribution to an EO.
- **Subsequent tiers** of the **Plus Standard** contain more layered definitions and criteria to cater to the **different state of readiness** within ASEAN.

## Foundation Framework

- A **principles-based** assessment frame that is applicable to all AMS and provides users with guiding questions, decision trees and use cases.
- Qualitative based sector-agnostic screening criteria and decision flow.

## Plus Standard

- **TSC-based frame** that includes metrics and thresholds for **six focus sectors** and **three enabling sectors**.
- Additional guidance and scope for AMS to classify eligible green and transition activities and investments, benchmarked against Paris Agreement aligned goals.



Technical Screening Criteria (TSC) were added in Version 3

In Version 2, Social Aspects added as an EC and TSC for Energy and CCUS released

The ASEAN Taxonomy uses a Traffic Light System to identify the degree to which an activity is sustainable through its contribution to an EO. The classification levels are:

Green	<ul style="list-style-type: none"><li>• Activity is making a substantial contribution to the EO and cause no harm to the other EOs.</li></ul>
Amber	<ul style="list-style-type: none"><li>• In the FF, activity contributes to the EO but causes some harm to the other EOs which it plans to remediate.</li><li>• In the PS, activity is a ‘transitional’ activity, while not meeting “Green” TSC, represents a progressive movement on the path to a more sustainable ASEAN with due consideration to the practicalities of implementing sustainable activities.</li><li>• The concept of remediation is an Essential Criteria assessment – <i>Remedial Measures to Transition</i>.</li></ul>
Red	<ul style="list-style-type: none"><li>• Activity is not aligned to any of the EOs or causing significant harm to any of the EOs.</li></ul>

# Plus Standard: Industrial Classification & Sector Coverage

**1** To identify focus sectors for climate change mitigation (EO1), must **first select an industry classification system.**

**2** ISIC used due to **compatibility** with:  
 i. AMS National Standard Industrial Classification (NSIC) codes; and  
 ii. Industrial classification codes in other major taxonomies.

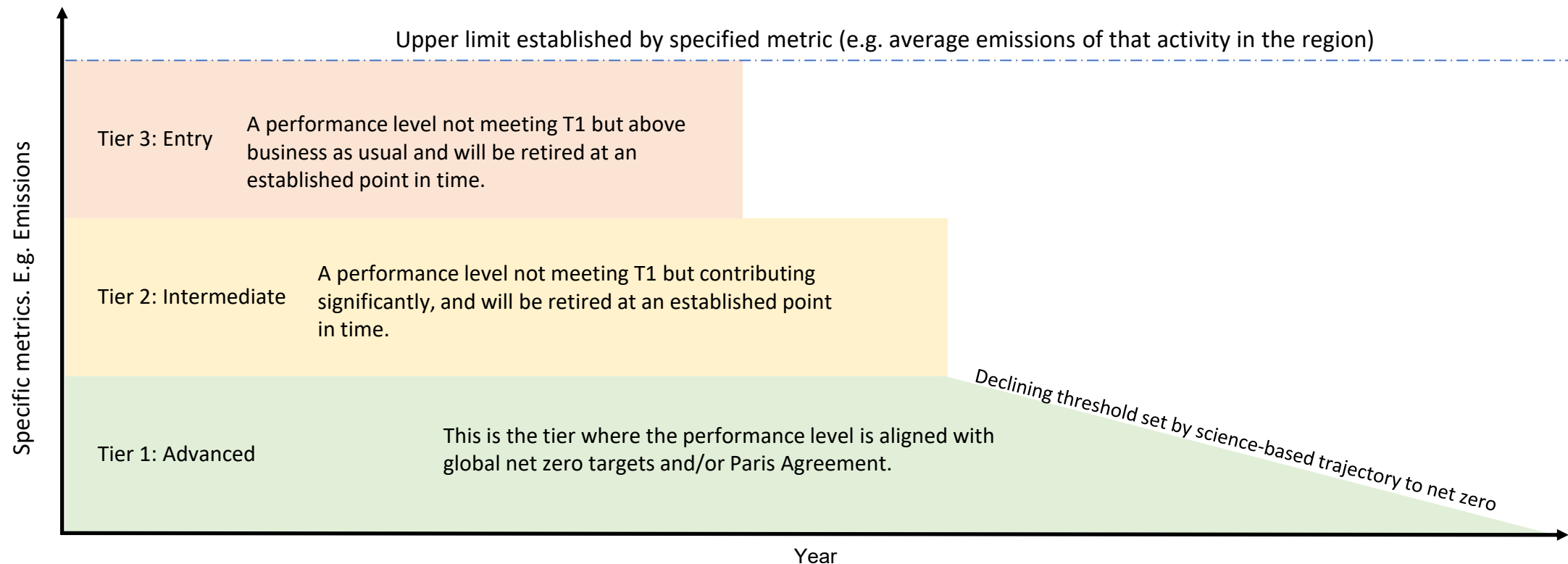
**3** Most material focus sectors identified according based on **environmental & economic importance** to ASEAN:  
 i. GHG emissions; and  
 ii. Gross value added (GVA).



Ranking	ISIC Sec.	Name
1	A	Agriculture, forestry, and fishing
2	C	Manufacturing
3	D	Electricity, gas, steam, and air conditioning supply
4	H	Transportation and storage
5	F, L	Construction & Real estate activities
6	E	Water supply; sewerage, waste management and remediation activities

3 enabling sectors:	
•	Improves performance of other sectors and activities.
•	Do not themselves risk harm to environmental objectives.
•	Important for decarbonisation of economy.
•	Might not otherwise be included if only emissions intensity and GVA are considered.
1	Information and Communication Technology (ICT)
2	Professional, scientific, and technical activities (ISIC Section M)
3	Carbon Capture, Utilisation and Storage

- “Stacked approach” in developing activity-level thresholds.
- There are multiple thresholds per activity at a single point in time, to cater for different starting points of entities across ASEAN undertaking a particular activity.
- Allows for higher emissions for a limited period, while incentivising progression to lower emissions by retiring the less ambitious tiers over time.
- Example of a 3 tier framework using a “stacked approach”:



# **Transportation and Storage**



## Transportation & Storage (T&S)

- The Green tier of the ASEAN Taxonomy generally makes reference to widely used international taxonomies such as the EU Taxonomy and where relevant, will be tailored according to ASEAN's unique circumstances, where;
  1. For land-based Activities: the best available proxy data for GHG emissions, such as the EURO Standard; and lowest carbon emitting technology currently, technically, and economically feasible for widespread use in ASEAN.
  2. For water-based Activities: modelling against the IMO 2023 GHG Emissions Strategy, consider growth scenarios with the highest level of confidence to maintain a trajectory along the 1.5 °C pathway.
  3. For air-based Activities: the lowest carbon emitting technology currently, technically, and economically feasible, for widespread use in ASEAN, both through review of publicly available technology comparisons and through consultation with regional stakeholders.
  4. TSC for EOs 2-4 have also been considered.

### Land Activities

9 activities, including:

- Urban and suburban transport
- Road passenger transport
- Freight rail transport
- Operation of personal mobility devices and cycle logistics
- Development of infrastructure relevant to these activities

### Water Activities

7 activities, including:

- Sea and coastal freight transport
- Sea and coastal passenger water transport
- Inland freight and passenger water transport
- Retrofitting of water transport vessels
- Development of infrastructure relevant to these activities

### Air Activities

1 activity:

- Airport infrastructure, including low-carbon assets and facilities.
- **Does not** cover air transport vehicles



# TSC for 51[001] Airport infrastructure, including low-carbon assets and facilities

## 51[001] Airport infrastructure, including low-carbon assets and facilities

The criteria proposed for Green and Amber TSC are indicative of the fact that sustainable aviation fuel (SAF) is not a zero-tailpipe CO<sub>2</sub> emissions fuel; hence, should be recognised as a transitional measure. SAF blends above 50% and up to 99% are not commonly envisaged in practice and as a result, development of SAF blends above 50% are mainly focused on 100% supply; implying that airport fuel infrastructure should be capable of handling a pure supply of SAF.

Renewable diesel does not require changes to infrastructure as it is not a blended fuel. However, biodiesel blends in practice are typically in the range of 5-20%. Blends above this range (i.e., 20-100%) are not envisaged because they may require significant infrastructure changes as well as changes to ground assets or facilities using the relevant infrastructure.

Tiers	EO1: Climate Change Mitigation TSC
Tier 1 (Green)	<ol style="list-style-type: none"> <li>The activity complies with one or more of the following criteria:                             <ol style="list-style-type: none"> <li>the infrastructure is dedicated to the operation of aircraft with zero tailpipe CO<sub>2</sub> emissions: electricity charging and hydrogen refuelling; OR</li> <li>the infrastructure is dedicated to the provision of fixed or mobile electrical ground power, handling vehicles and devices, and preconditioned air to stationary aircrafts; OR</li> <li>the infrastructure is dedicated to the zero direct tailpipe (CO<sub>2</sub>) emissions performance of the airport's own operations, including ground handling vehicles and devices: electric charging points, electricity grid connection upgrades, hydrogen refuelling stations; OR</li> <li>the infrastructure and installations are dedicated to transshipping freight with rail and water transport: terminal infrastructure and superstructures for loading, unloading and transshipment of goods; AND</li> </ol> </li> <li>The infrastructure is not dedicated to the transport or storage of fossil fuels.</li> </ol>
Tier 2 (Amber T2)	<ol style="list-style-type: none"> <li>The activity complies with one or more of the following criteria:                             <ol style="list-style-type: none"> <li>the infrastructure is capable to handle aircraft fuels with low lifecycle CO<sub>2</sub> emissions: 100% SAF;<sup>33</sup> OR</li> <li>the infrastructure is dedicated to the operation of ground assets or facilities with low lifecycle CO<sub>2</sub> emissions: 100% renewable diesel; AND</li> </ol> </li> <li>The infrastructure is not dedicated to the transport or storage of fossil fuels.</li> </ol>
Tier 3 (Amber T3)	<ol style="list-style-type: none"> <li>The activity complies with one or more of the following criteria:                             <ol style="list-style-type: none"> <li>the infrastructure is capable to handle aircraft fuels and the operation of aircraft with low lifecycle CO<sub>2</sub> emissions: SAF; OR</li> <li>the infrastructure is dedicated to the operation of ground assets or facilities that are between 5% up to and including 100% biodiesel blends; AND</li> </ol> </li> <li>The infrastructure is not dedicated to the transport or storage of fossil fuels.</li> </ol>

Tiers	EO2: Climate Change Adaptation TSC
Tier 1 (Green)	<ol style="list-style-type: none"> <li>Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that activity, which can be</li> </ol>

	<p>demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND</p> <ol style="list-style-type: none"> <li>It must be shown that the Activity is necessary for the provision of transport security to consumers with consideration to future possible climate-related disruptions. In the context of this activity, the following examples may be regarded as aligned:                             <ol style="list-style-type: none"> <li>Operation of equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR</li> <li>Operation of monitoring and control equipment or other related IT systems to operate or maintain equipment in the event of projected flooding, storm conditions or higher temperatures; OR</li> <li>Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of equipment in scenarios of projected flooding, storm conditions or higher temperatures.</li> </ol> </li> </ol>
Tier 2 (Amber T2)	TSC are presently not available for the Activity Tiers defined.
Tier 3 (Amber T3)	TSC are presently not available for the Activity Tiers defined.

Tiers	EO3: Protection of Healthy Ecosystems and Biodiversity TSC
Tier 1 (Green)	TSC are presently not available for the Activity Tiers defined.
Tier 2 (Amber T2)	TSC are presently not available for the Activity Tiers defined.
Tier 3 (Amber T3)	TSC are presently not available for the Activity Tiers defined.

Tiers	EO4: Resource Resilience and the Transition to a Circular Economy TSC
Tier 1 (Green)	TSC are presently not available for the Activity Tiers defined.
Tier 2 (Amber T2)	TSC are presently not available for the Activity Tiers defined.
Tier 3 (Amber T3)	TSC are presently not available for the Activity Tiers defined.

Significant Harm	Category for Assessment	Relevance	If Relevant, Reference for Assessment
EO1	Climate Change Mitigation	Relevant	Annex 2, Section 2
EO2	Climate Change Adaptation	Relevant	Annex 2, Section 3
EO3	Protection of Healthy Ecosystems and Biodiversity	Relevant	Annex 2, Section 4
EO3	Impact on Water Resources	Relevant	Annex 2, Section 4.3
EO3	Impacts Related to Noise	Relevant	Annex 2, Section 4.4
EO3	Impact on Air	Relevant	Annex 2, Section 4.5
EO3	Impact on Soil	Relevant	Annex 2, Section 4.6
EO3	Impact on Biodiversity	Relevant	Annex 2, Section 4.7
EO4	Resource Resilience and the Transition to Circular Economy	Relevant	Annex 2, Section 5

<sup>33</sup> In reference to infrastructure having the capability to handle 100% SAF supply.

# **Interoperability and Application of the ASEAN Taxonomy**

## Users

Governments

Regulators

Banking Institutions

Asset Managers

Real Economy Participants

Rating Agencies

Second Party Opinion  
Providers

Industry Associations

## Uses

Bond issuance

Transition finance

Identifying sustainable  
investees

Sustainability reporting

Developing sustainable  
lending products or  
identifying eligible  
borrowers

Definition of ESG  
benchmarks / indices and  
identification of  
constituents

Assisting real economy  
participants in identifying  
sustainable investments

Supporting risk  
management by providing  
credible benchmarks

*\*Note: Further information on the users and uses of the ASEAN Taxonomy can be found in Section 6.2 of the ASEAN Taxonomy.*



## BANGKOK EXPRESSWAY AND METRO PLC. SUSTAINABLE FINANCING FRAMEWORK

### SECOND PARTY OPINION



Document title: Second Party Opinion on Bangkok Expressway and Metro PLC Sustainable Financing Framework

Prepared by: DNV (Thailand) Co., Ltd.

Location: Bangkok, Thailand

Date: 10 September 2024

10/24/24, 10:40 AM

ADB Supports Thai State Utility Operator's First Sustainability Bond



ASIAN DEVELOPMENT BANK  
6 ADB Avenue, Mandaluyong City  
1550 Metro Manila, Philippines  
Tel +63 2 632 4444  
Fax +63 2 636 2444

www.adb.org

### NEWS RELEASE

13 August 2024

## ADB Supports Thai State Utility Operator's First Sustainability Bond

BANGKOK, THAILAND (13 August 2024) — The Asian Development Bank (ADB) is supporting Thailand state utility operator Provincial Electric Authority (PEA) in issuing its first sustainability bond. The bond will raise 1 billion baht (\$35 million) to support the development of renewable energy projects and improve energy access across the country.

The bond carries a 5-year maturity and will be issued on 21 August to Thai institutional investors, marking a significant step toward developing a robust and sustainable bond market in the country.

The proceeds will support PEA's sustainability agenda, which aims to develop projects that will promote renewable energy, such as microgrid development, and enhance climate resilience and climate adaptation initiatives, such as submarine cables to remote islands. PEA will also use the proceeds to improve energy accessibility, particularly to areas without access to electricity, and elevate the quality of life for beneficiaries.

"This transaction affirms ADB's commitment to supporting pioneering, ESG-driven capital market issuances by state-owned enterprises and private corporations that align with the ASEAN Taxonomy for Sustainable Finance, the region's framework for assessing sustainable activities," said ADB Country Director for Thailand Anouj Mehta. "PEA is demonstrating the key role utility operators play in supporting the country's decarbonization, given the significance of the energy sector in contributing to Thailand's greenhouse gas emissions. We hope to create more sustainable bond issuances, increase the mobilization of public and private capital, and support sustainable and transition financing in the region."

"PEA is committed to achieving carbon neutrality by 2037, which is 13 years earlier than the national target, and net zero by 2065, in line with the Government of Thailand's policy. PEA will issue sustainability bonds and promote both green and social finance," said PEA Governor Supachai Ek-Un. "In collaboration with ADB, PEA has developed a sustainable finance framework that adheres to international and regional standards, aimed at building investor confidence and aligning with the Sustainable Development Goals."

ADB provided technical assistance through the Green, Social, Sustainable and Other Labeled (GSS+) Bonds Initiative for Southeast Asia, a collaboration between the Asian Bond Markets Initiative (ABMI) and the ASEAN Catalytic Green Finance Facility (ACGF). ABMI is an initiative of the governments of ASEAN, the People's Republic of China, Japan, and the Republic of Korea to develop local currency bond markets. The ACGF is an initiative of the ASEAN Infrastructure Fund to accelerate green infrastructure investments in Southeast Asia.

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members—49 from the region.

Media Inquiries:

Connect with us on Twitter @ADB\_HQ



<https://theedgemaalaysia.com/news/733945>

Sept 2024 – Issuance of Sustainability Finance Instruments using ASEAN Taxonomy (Transportation & Storage Criteria, DNSH)

Aug 2024 – Issuance of Sustainability Bonds using ASEAN Taxonomy (Energy Criteria, DNSH)

Nov 2024 – Wasco Berhad successfully secured its first sustainability-linked loans using the ASEAN Taxonomy (Energy Criteria, DNSH)

# **Stakeholder & Market recognition of the ASEAN Taxonomy**

*Areas of focus include usability, interoperability, recognition, transition and capacity building*

1

## Interoperability and Equivalence

Given the proliferation of taxonomies and guidances, stakeholders need assurance of recognition and credibility.

## Transition Effort

Amber tiers of the ASEAN Taxonomy can assist in facilitating a just transition .

2

## Awareness and capacity building

Insufficient awareness and need for training and workshops.

3

4

## Technical Screening Criteria

Easy to follow and understandable, however feasibility is a difficult area for stakeholders to address.

## Implementation

Tools such as an implementation guide with checklists and FAQs will be helpful to assist users.

5

6

## Data

Availability and transparency continues to be a challenge.

## V3 Enhancements

Clarity and additional narrative on terms and definitions in the ASEAN Taxonomy TSC.

7

*The feedback above will be incorporated into the finalised Version 3, targeted for publication in the coming months*

# International Recognition of the ASEAN Taxonomy



The ASEAN Taxonomy Version 2's Coal Phase Out (CPO) TSC has been referenced in a public consultation by GFANZ.

The ASEAN Taxonomy Version 2 was listed as a major initiative to support CPO in Asia in the ATF SG's Annual Report in 2023.



The ASEAN Taxonomy was regarded as one of three most influential taxonomies in Natixis's report, The New Geography of Taxonomies (July 2023).

The ASEAN Taxonomy was named as one of three acceptable taxonomies by the Financial Services Regulatory Authority of the Abu Dhabi Global Market (July 2023).



The ASEAN Taxonomy has also been referenced in various international taxonomies and recommendation frameworks:



**Indonesia Taxonomy for Sustainable Finance**



**Hong Kong Taxonomy for Sustainable Finance**



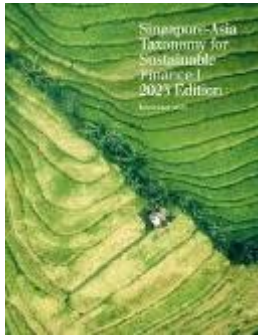
**Philippine Sustainable Finance Taxonomy Guidelines**



**Green Taxonomy for Aotearoa New Zealand**

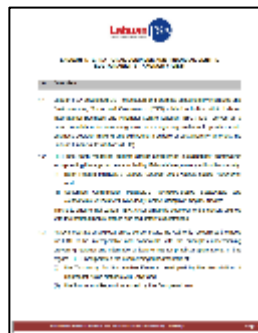


The ASEAN Taxonomy has also been referenced in the development of various other international taxonomies and frameworks such as :



The Singapore-Asia Taxonomy (previously the Singapore Taxonomy) was published in December 2023 and developed in parallel with the ASEAN Taxonomy, with a particular focus to be interoperable with the EU Taxonomy and the ASEAN Taxonomy.

The Thailand Taxonomy Phase 1 was published in June 2023 and developed in close alignment with the ASEAN Taxonomy. The draft Thailand Taxonomy Phase 2 was released on 28 Oct 2024 for public consultation.



The Labuan International Business and Financial Centre Sustainability Taxonomy (LiST) was published on 4 July 2024 and incorporated the overarching fundamentals of the ASEAN Taxonomy.



The ASEAN Taxonomy has also been referenced in the development of various other international taxonomies and frameworks such as :



The Asia Transition Finance Study Group (ATF SG) Annual Report 2024 mentions that the ASEAN Taxonomy provides clear guidance that accommodates different levels of readiness, as it is designed to be a practical tool to help SMEs understand the requirements and take the necessary steps towards sustainability.

SMBC Group's Transition Finance Playbook 2.0 is a part of SMBC Group's initiative to support its customers' transition and efforts to develop new technologies, and maximize its contributions in realizing a decarbonized society. The Playbook referenced the ASEAN Taxonomy for its examples of transition activities.



The national utility company in Malaysia, Tenaga Nasional Berhad, referenced the ASEAN Taxonomy and the ASEAN Transition Finance Guidance in the development of its Transition Finance Framework.

# Where to Download the ASEAN Taxonomy Version 3

DOCUMENT DATE 25 APRIL 2024

## ASEAN TAXONOMY FOR SUSTAINABLE FINANCE

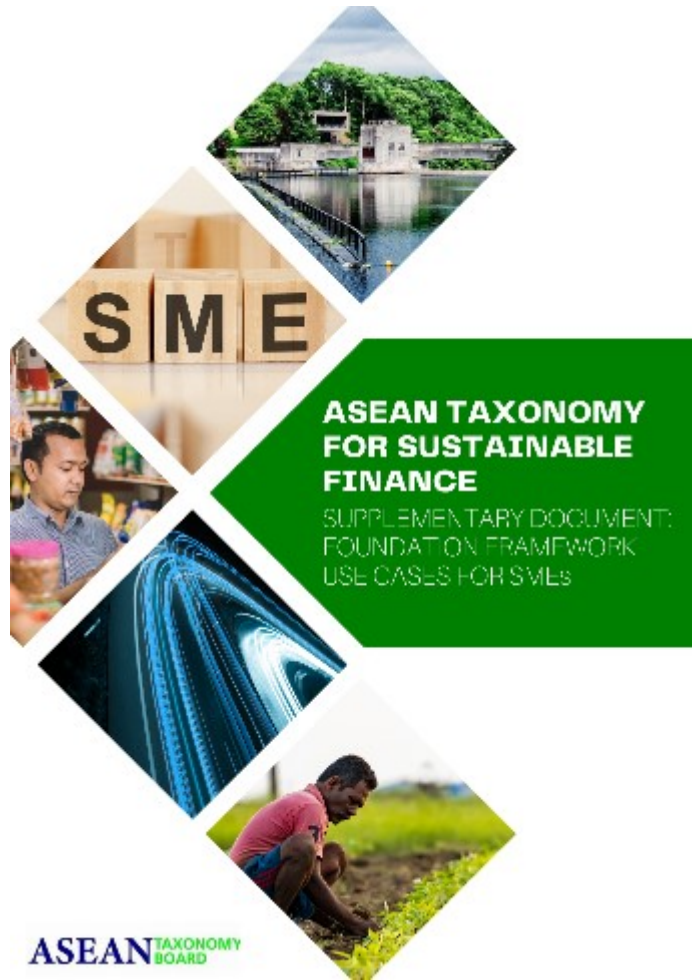
VERSION 3



Download at the following websites:

- Association of Southeast Asian Nations - <https://asean.org/book/asean-taxonomy-for-sustainable-finance-version-3/>
- ASEAN Finance Cooperation Web Portal - <https://afcwp.asean.org/wp-content/uploads/2024/06/ASEAN-Taxonomy-Version-3-Rev-as-of-04062024.pdf>
- ASEAN Capital Markets Forum - <https://www.theacmf.org/images/downloads/pdf/ASEAN-Taxonomy-Version-3.pdf>
- Sustainable Finance Institute Asia - [https://www.sfinstitute.asia/wp-content/uploads/2024/07/ASEAN\\_Taxonomy\\_Version\\_3.pdf](https://www.sfinstitute.asia/wp-content/uploads/2024/07/ASEAN_Taxonomy_Version_3.pdf)

# Where to Download the ASEAN Taxonomy Foundation Framework Use Cases



Download at the following websites:

- Association of Southeast Asian Nations - <https://asean.org/wp-content/uploads/2024/08/ASEAN-Taxonomy-FF-Use-Cases-final.pdf>
- ASEAN Finance Cooperation Web Portal - <https://afcwp.asean.org/wp-content/uploads/2024/08/ASEAN-Taxonomy-FF-Use-Cases-final.pdf>
- ASEAN Capital Markets Forum - [https://www.theacmf.org/images/downloads/pdf/ASEAN%20Taxonomy%20FF%20Use%20Cases%20\(final\).pdf](https://www.theacmf.org/images/downloads/pdf/ASEAN%20Taxonomy%20FF%20Use%20Cases%20(final).pdf)
- Sustainable Finance Institute Asia - [https://www.sfinstitute.asia/wp-content/uploads/2024/08/ATB\\_UseCases.pdf](https://www.sfinstitute.asia/wp-content/uploads/2024/08/ATB_UseCases.pdf)



ICAO

ENVIRONMENT

**ACT**  **SAF**



# Panel discussion







ICAO

ENVIRONMENT

**ACT**  **SAF**



# Questions & Answers





# Closing Remarks





ICAO

ENVIRONMENT

# ACT>>SAF



ICAO

North American  
Central American  
and Caribbean  
(NACC) Office  
Mexico City

South American  
(SAM) Office  
Lima

ICAO  
Headquarters  
Montréal

Western and  
Central African  
(WACAF) Office  
Dakar

European and  
North Atlantic  
(EUR/NAT) Office  
Paris

Middle East  
(MID) Office  
Cairo

Eastern and  
Southern African  
(ESAF) Office  
Nairobi

Asia and Pacific  
(APAC) Sub-office  
Beijing

Asia and Pacific  
(APAC) Office  
Bangkok



THANK YOU