



Sustainable Finance Internship Training Program – Carbon Market Opportunities

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Agenda – Climate Change and Carbon Markets

- 01 | What's the problem?
- 02 | Why does it matter?
- 03 | Who needs to fix it?
- 04 | How will markets help?
- 05 | What can the Corporate Sector do?
- 06 | What is the Voluntary Carbon Market (VCM)?
- 07 | How can Hong Kong make a difference?

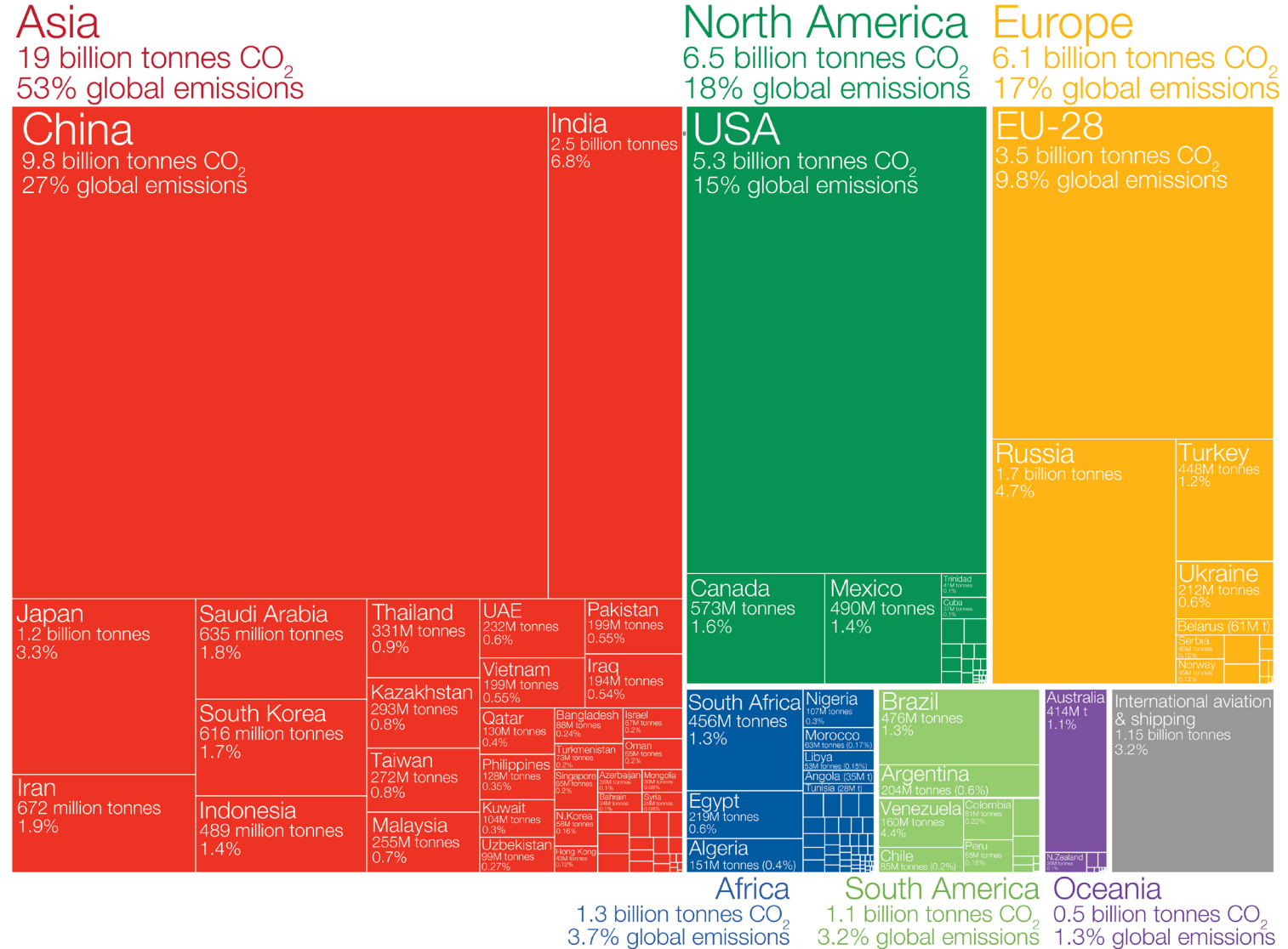


1. Climate Change – What's the problem?

Who emits the most CO₂?

Global carbon dioxide (CO₂) emissions were 36.2 billion tonnes in 2017.

Our World
in Data



Shown are national production-based emissions in 2017. Production-based emissions measure CO₂ produced domestically from fossil fuel combustion and cement, and do not adjust for emissions embedded in trade (i.e. consumption-based).

Figures for the 28 countries in the European Union have been grouped as the 'EU-28' since international targets and negotiations are typically set as a collaborative target between EU countries. Values may not sum to 100% due to rounding.

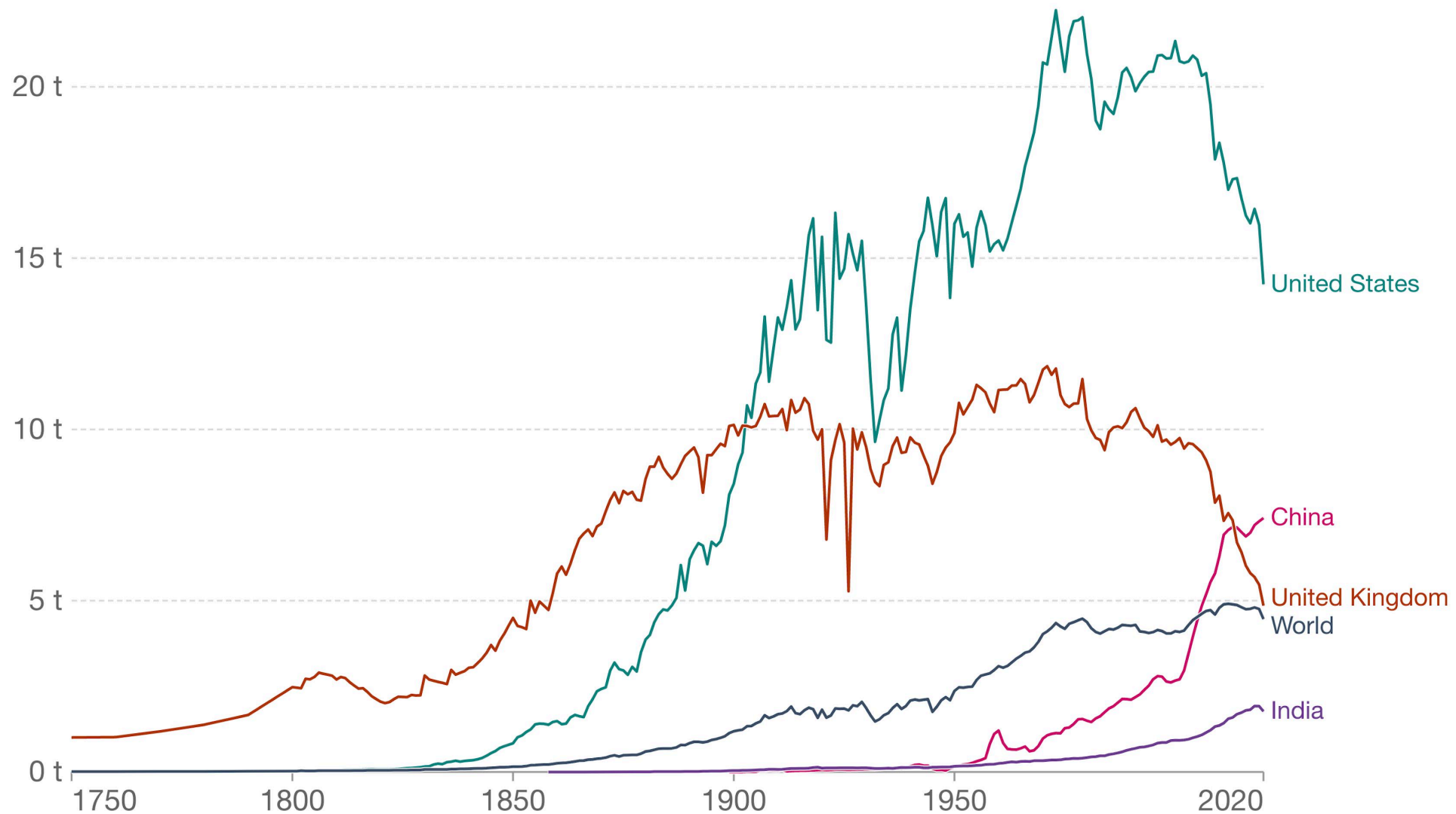
Data source: Global Carbon Project (GCP).

This is a visualization from OurWorldinData.org, where you find data and research on how the world is changing.

Licensed under CC-BY by the author Hannah Ritchie.

Per capita CO₂ emissions

Carbon dioxide (CO₂) emissions from the burning of fossil fuels for energy and cement production. Land use change is not included.



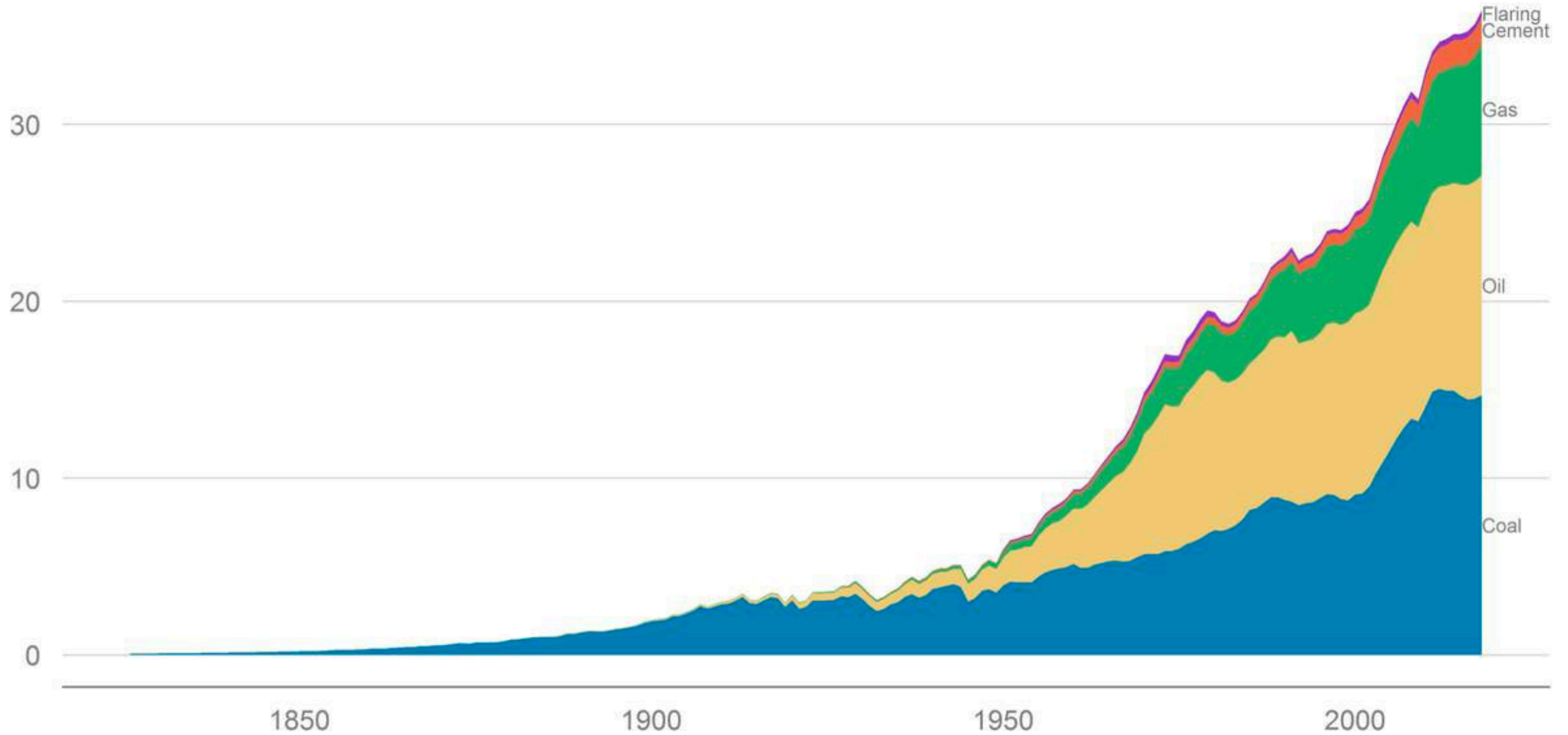
Source: Our World in Data based on the Global Carbon Project

OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/ • CC BY

Note: CO₂ emissions are measured on a production basis, meaning they do not adjust for emissions embedded in traded goods.

Carbon emissions by fuel type

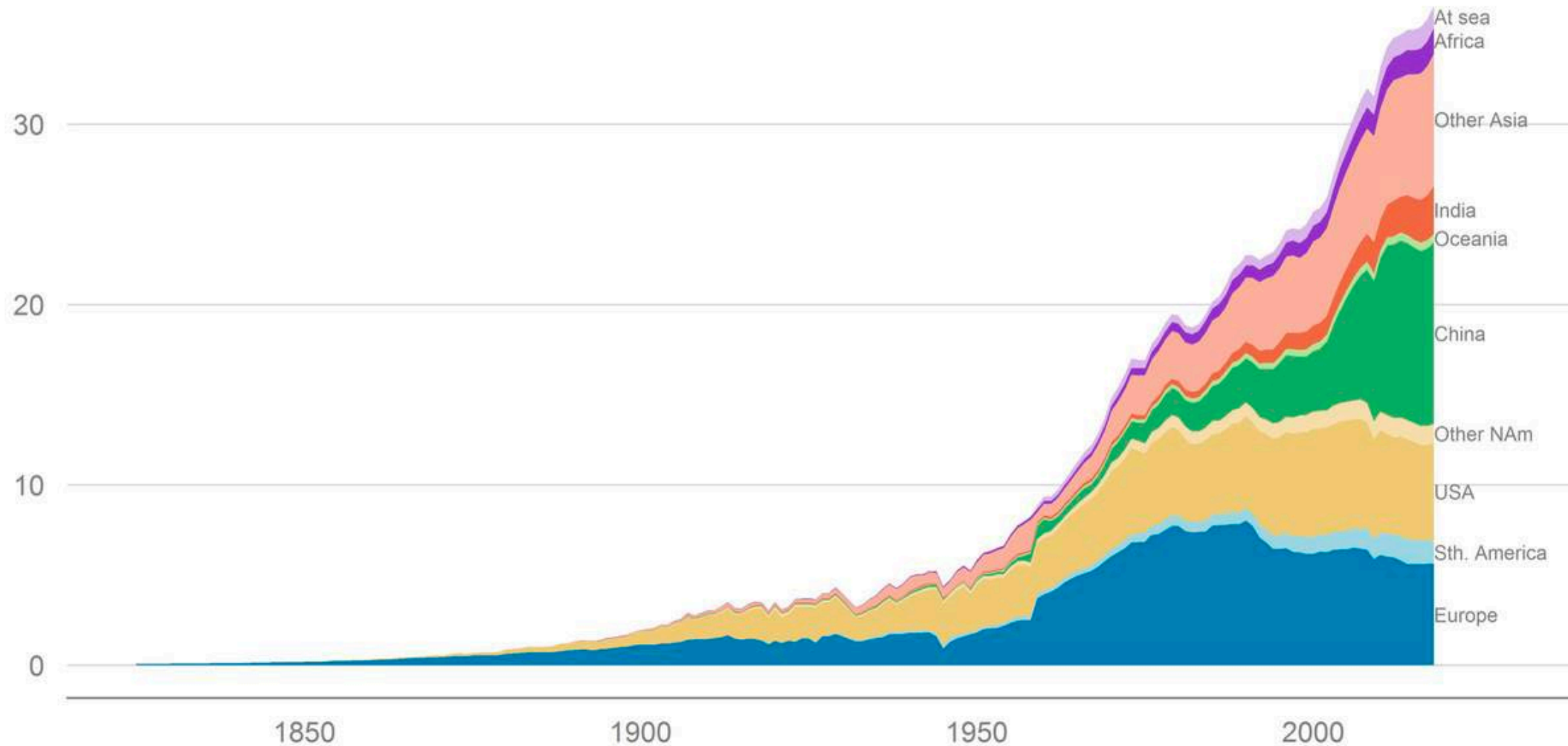
In billions of tonnes of CO₂, 1825-2018



Source: Carbon Dioxide Information Analysis Center (CDIAC), Global Carbon Project (GCP)

Annual carbon emissions, by region

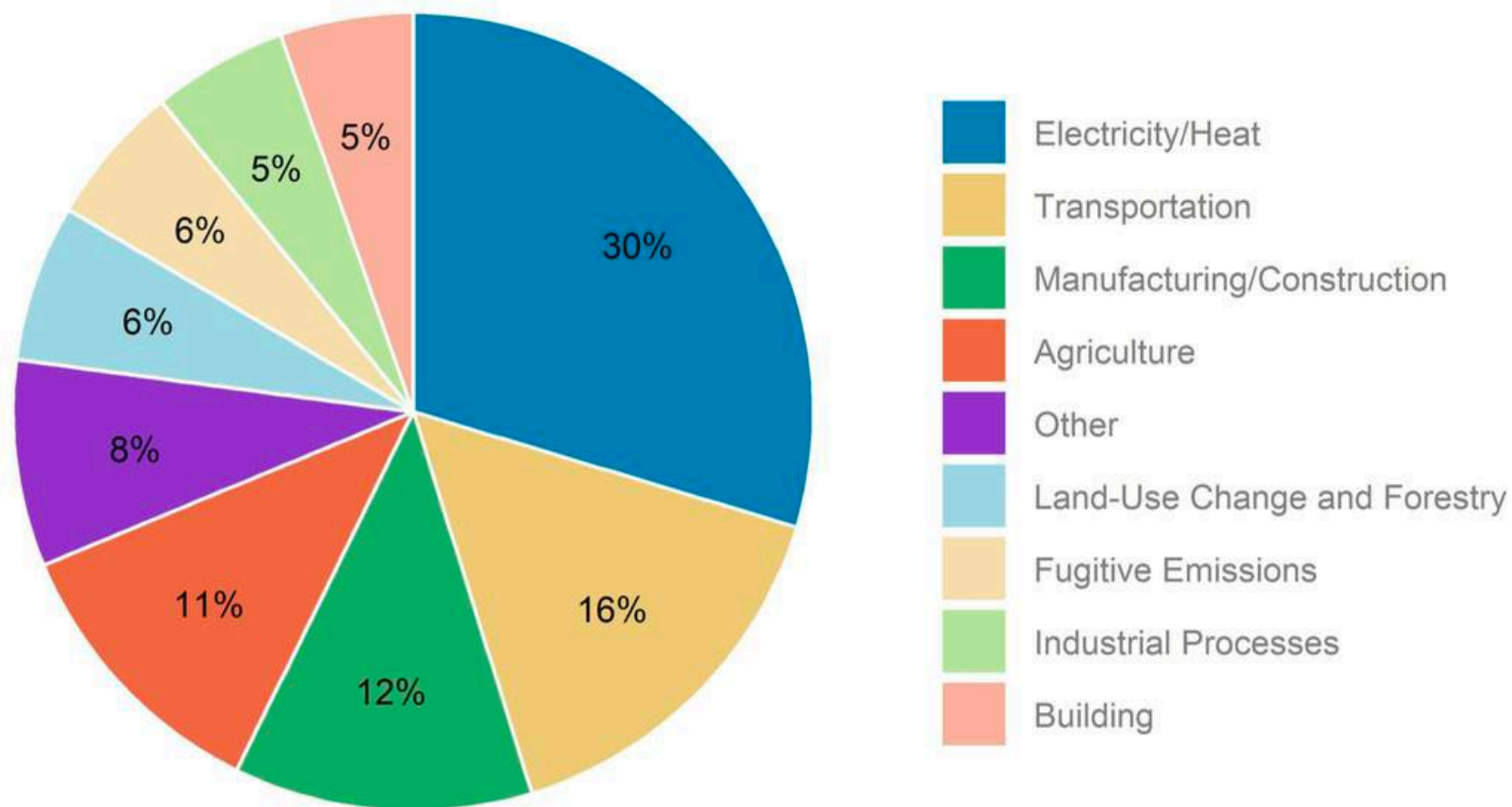
In billions of tonnes of CO₂ , 1825-2018



Source: Carbon Dioxide Information Analysis Center (CDIAC), Global Carbon Project (GCP)

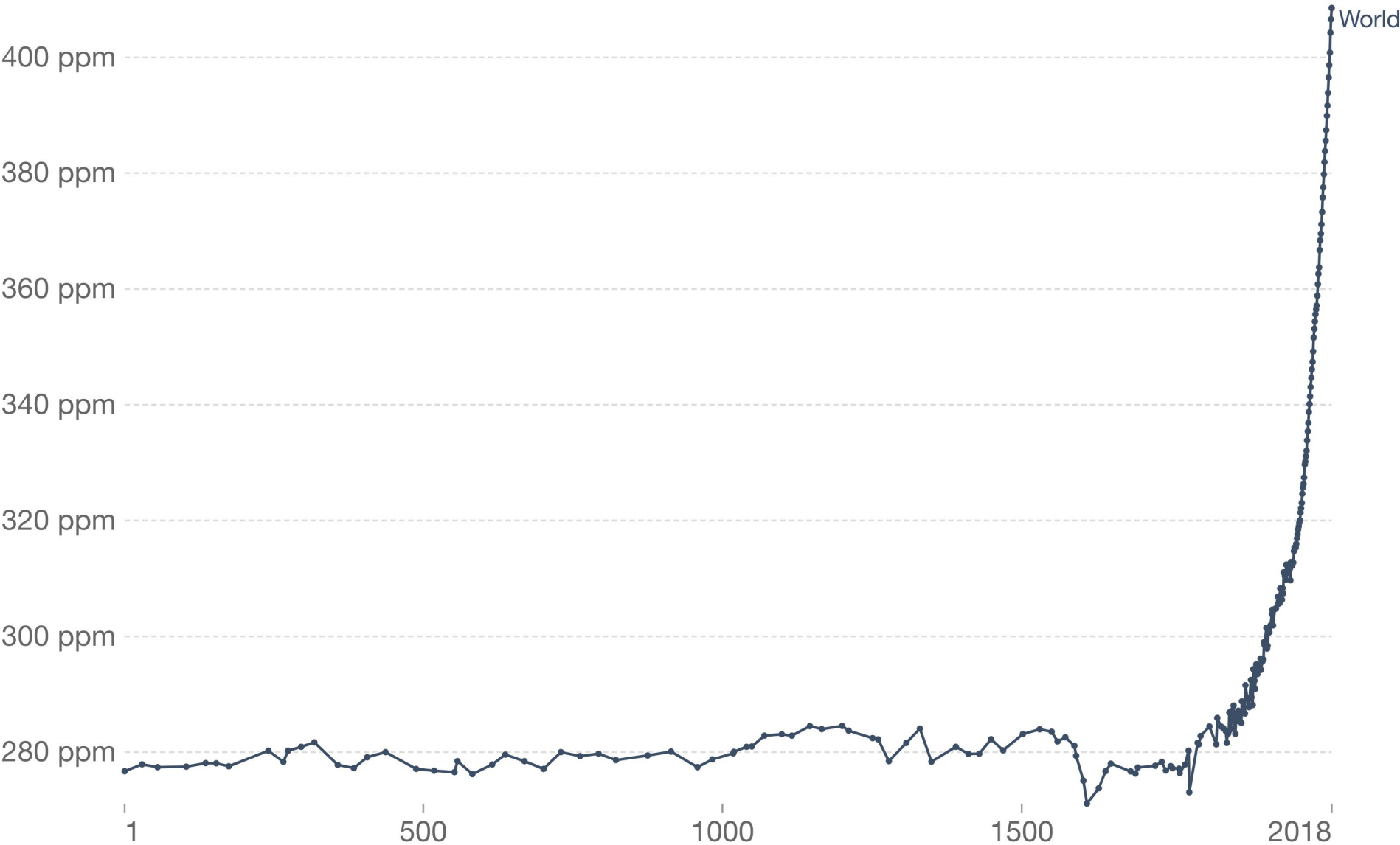
Greenhouse gas emissions by sector

In billions of tonnes of CO₂-equivalent



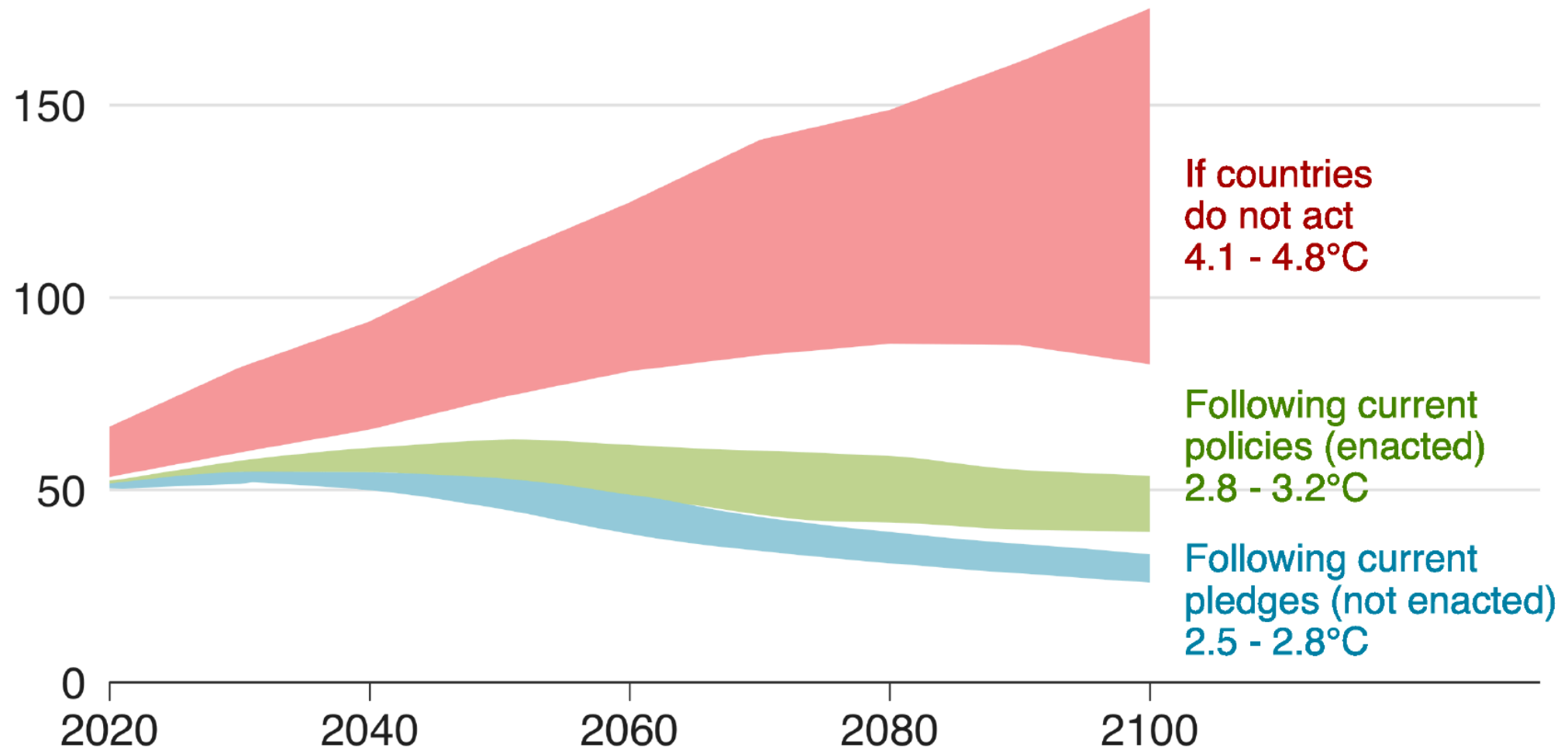
Global CO₂ atmospheric concentration

Global mean annual concentration of carbon dioxide (CO₂) measured in parts per million (ppm).



How much worse will the problem get?

Emissions* and expected warming by 2100



*Emissions are in Gigatonnes of CO2 equivalent

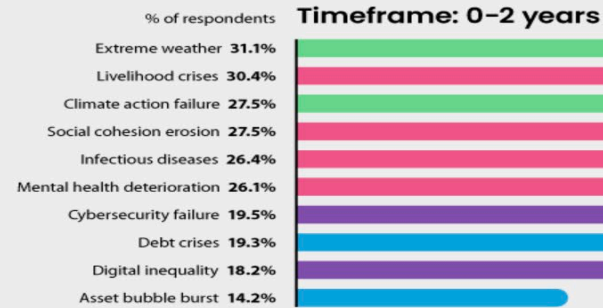
Source: Climate Action Tracker

A Timeline of Global Risks 2022

When Will These Major Global Threats Become a Serious Problem Worldwide?

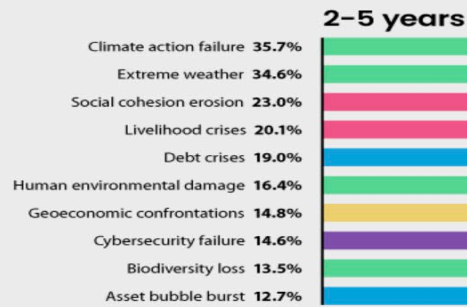
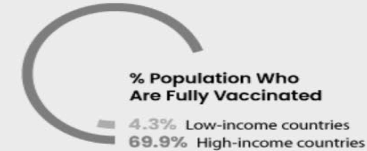
Each year, the World Economic Forum releases its Global Risks Report, which highlights the top risks that pose a threat to the world in the next decade.

Environmental Societal Technological Economic Geopolitical

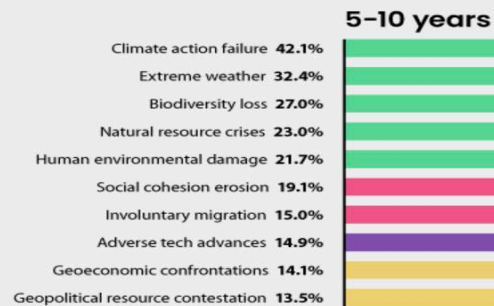


1 Out of 37 risks, respondents were asked to identify which risks they believe will become a critical threat to the world, and when.

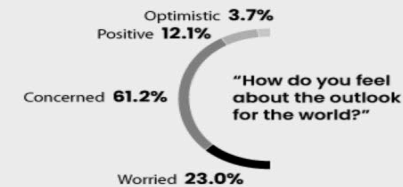
Vaccine access is still highly uneven around the world, leaving developing countries more vulnerable to new waves of COVID-19 infection.



Competition between the U.S. and China is rising. The U.S. is threatened by China's strong military presence and is tightening alliances with other world powers (the UK and Australia) as a result.



Even the new commitments made at the 2021 COP26 aren't enough to achieve the 1.5°C warming goal established in the 2016 Paris Climate Agreement—meaning, we're at great risk of climate damage.





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

EXTREME WEATHER

100% increase in flood risk. vs **170%** increase in flood risk.

SPECIES

6% of insects, **8%** of plants and **4%** of vertebrates will be affected.

18% of insects, **16%** of plants and **8%** of vertebrates will be affected.

WATER AVAILABILITY

350 million urban residents exposed to severe drought by 2100.

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**.

Ice-free summers in the Arctic at least once **every 10 years**.

PEOPLE

9% of the world's population (700 million people) will be exposed to extreme heat waves at least once every 20 years.

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

46 million people impacted by sea-level rise of 48cm by 2100.

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

OCEANS

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

CORAL BLEACHING

70% of world's coral reefs are lost by 2100.

Virtually **all coral reefs are lost** by 2100.

COSTS

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

FOOD

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

The consequences – rising sea levels

Sea levels are inexorably rising as ice on land melts and hotter oceans expand. Sea levels are slow to respond to global heating, so even if the temperature rise is restricted to 2C, [one in five people in the world will eventually see their cities submerged](#), from New York to London to Shanghai.

Sea level rise

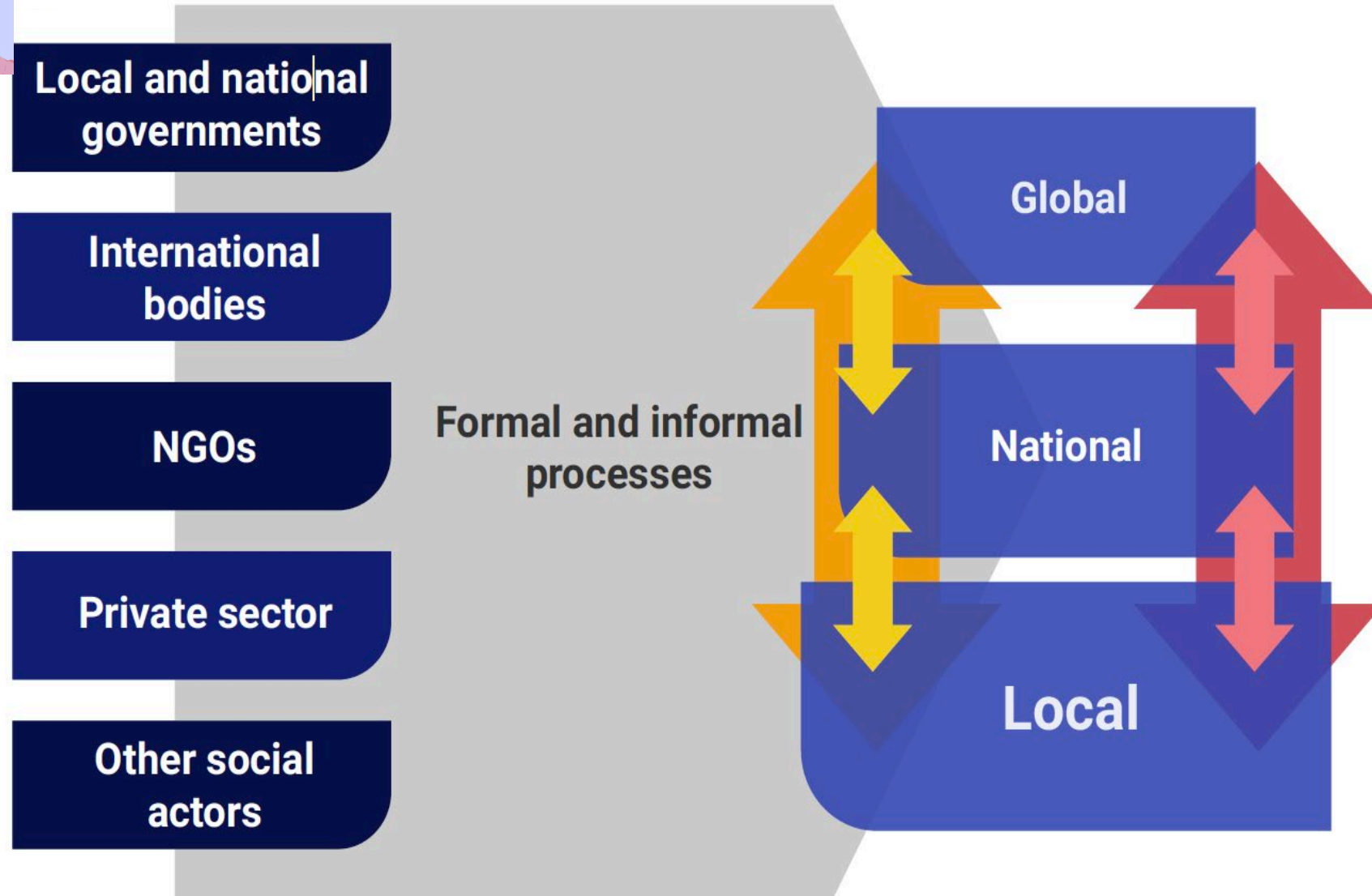


Guardian graphic | Source: NASA Goddard Space Flight Center

3. Climate Change – Who needs to fix it?

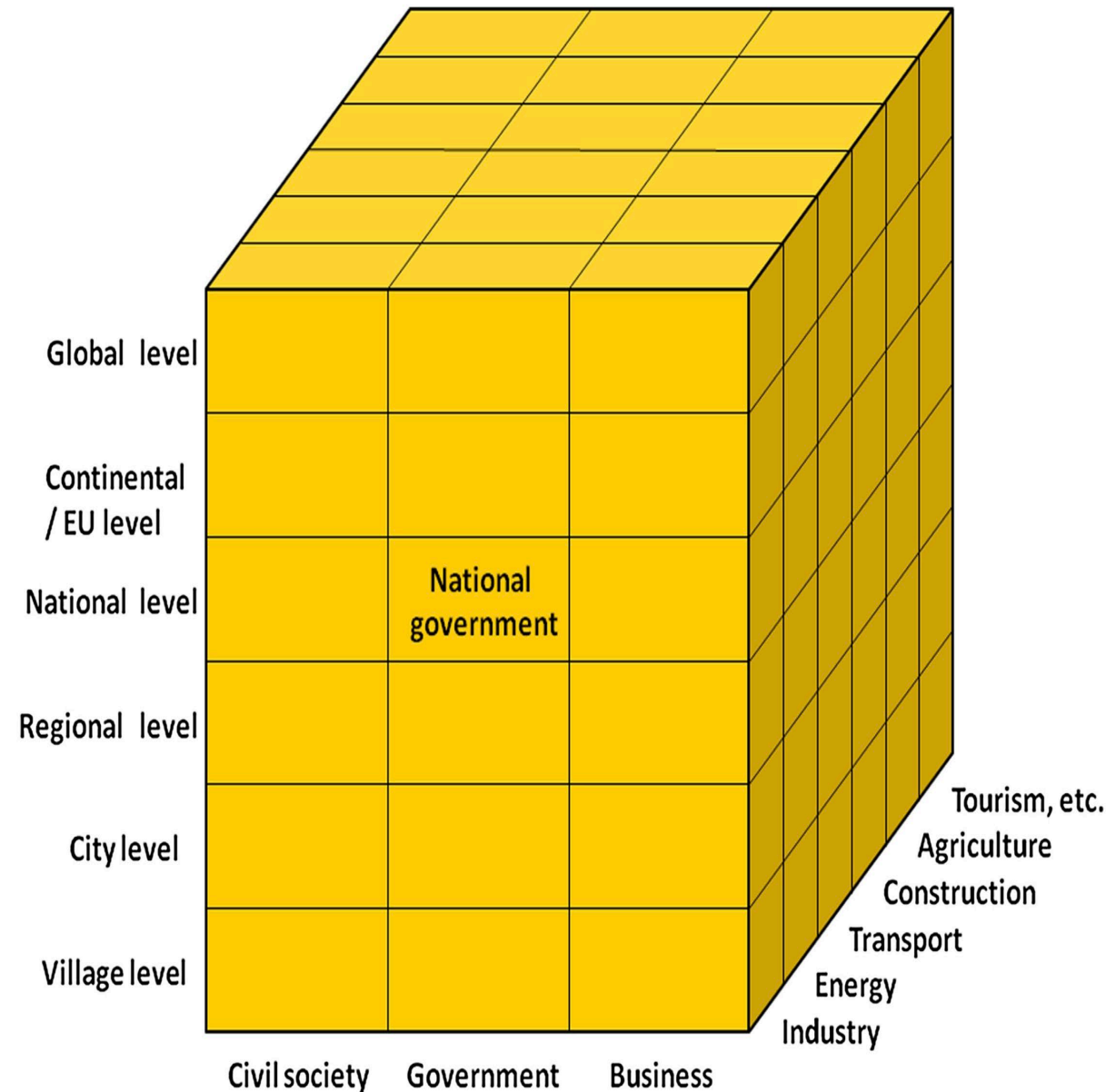


Multilevel climate governance¹



UN Framework Convention on Climate Change:

- ensures coherence between local, national and international plans and policies.
- promotes collaboration, innovation and learning among actors and authorities at various levels.
- integrates the knowledge, ideas and perspectives of the different levels and sections of society.
- establishes objectives, mechanisms, policies and solutions jointly, ensuring that they maintain a certain level of harmony.
- establishes tools or structures for information exchange, decisionmaking, follow-up, monitoring and reporting.
- enables better collaboration between actors at different levels through the agreement of clear roles, relationships and responsibilities.



Who is Who in Climate Governance:

Public Sector: This includes public institutions, ministries and other entities that represent the national government or other State powers. These actors are [responsible for the development of public policies](#), regulations and decision-making at the national or subnational level.

Local Governments: This is the level of public administration closest to citizens. Their role is to make locally implementable decisions that fit within climate action, including within the objectives of international agreements such as the Paris Agreement.

Civil Society: This includes various types of organizations that represent the people, who have the right to participate in climate decision-making processes. These organizations contribute to decision-making processes with comments, opinions and proposals based on their local, ancestral, traditional, technical and scientific knowledge and experience. They can influence decision-making processes by contextualizing discussions within citizens' experiences, interests, rights and opinions. Civil society also drives local-level action that helps improve the conditions for community adaptation.


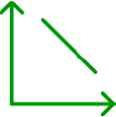
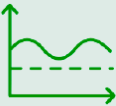
Private Sector: This is one of the sectors that generates the most greenhouse gas (GHG) emissions, meaning that the action it takes to reduce these emissions is an important component of climate action. Action that should be prioritized includes changing production patterns, modifying energy matrices, and developing more sustainable production cycles (or distribution and marketing systems). [Because of its responsibility for emissions and its potential to create mitigation and adaptation technologies, the private sector is an essential actor in climate action.](#)

Academia: This sector provides knowledge and research that enables informed decisions to be made based on scientific knowledge. It also makes essential resources and spaces to strengthen education by creating new opportunities, increasing capacities and promoting understanding of the changes needed, making the process more effective and efficient.

4. Climate Change – How will markets help?

Types of Carbon Pricing Systems

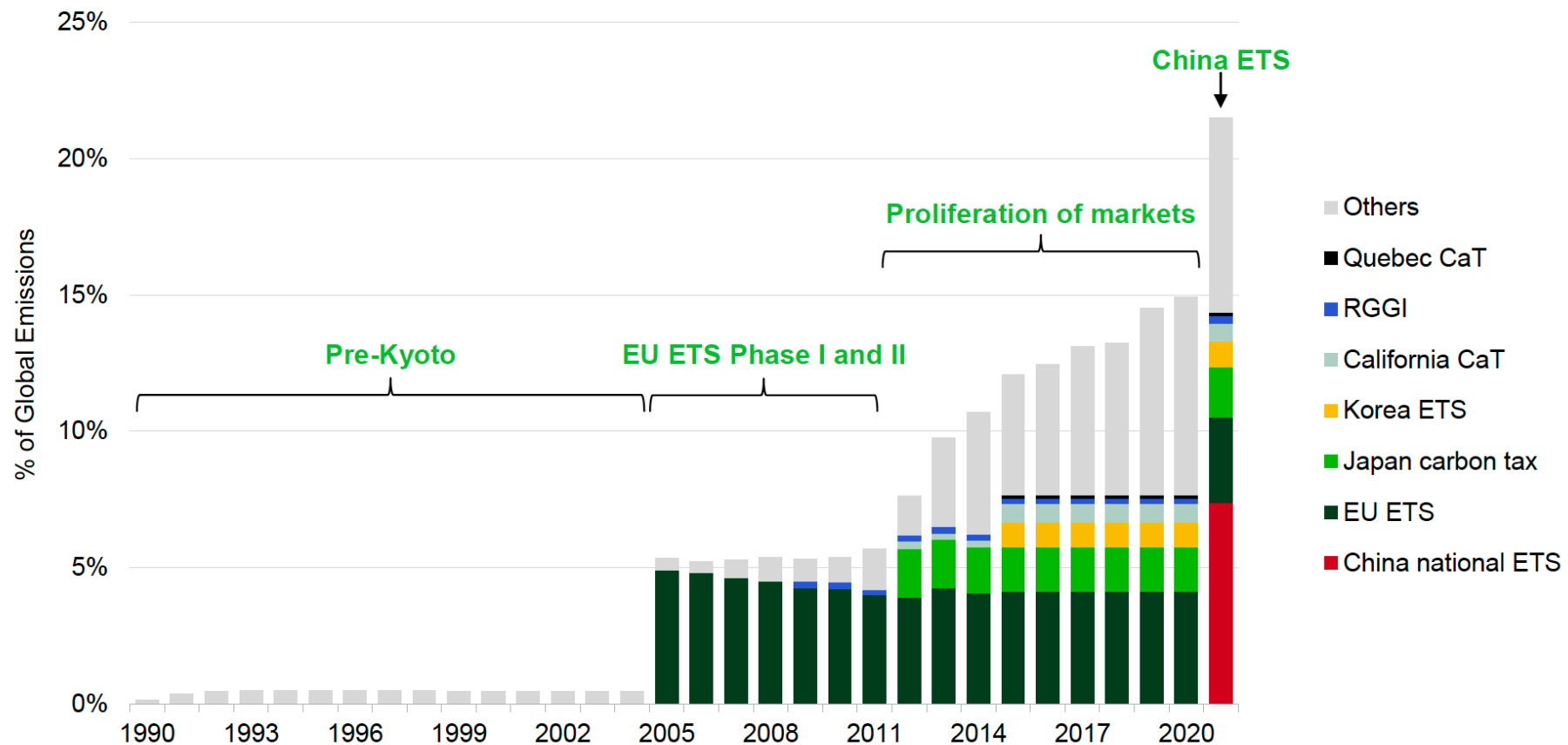
There are three main systems currently utilized to price carbon emissions: carbon taxes, cap-and-trade, and baseline-and-credit

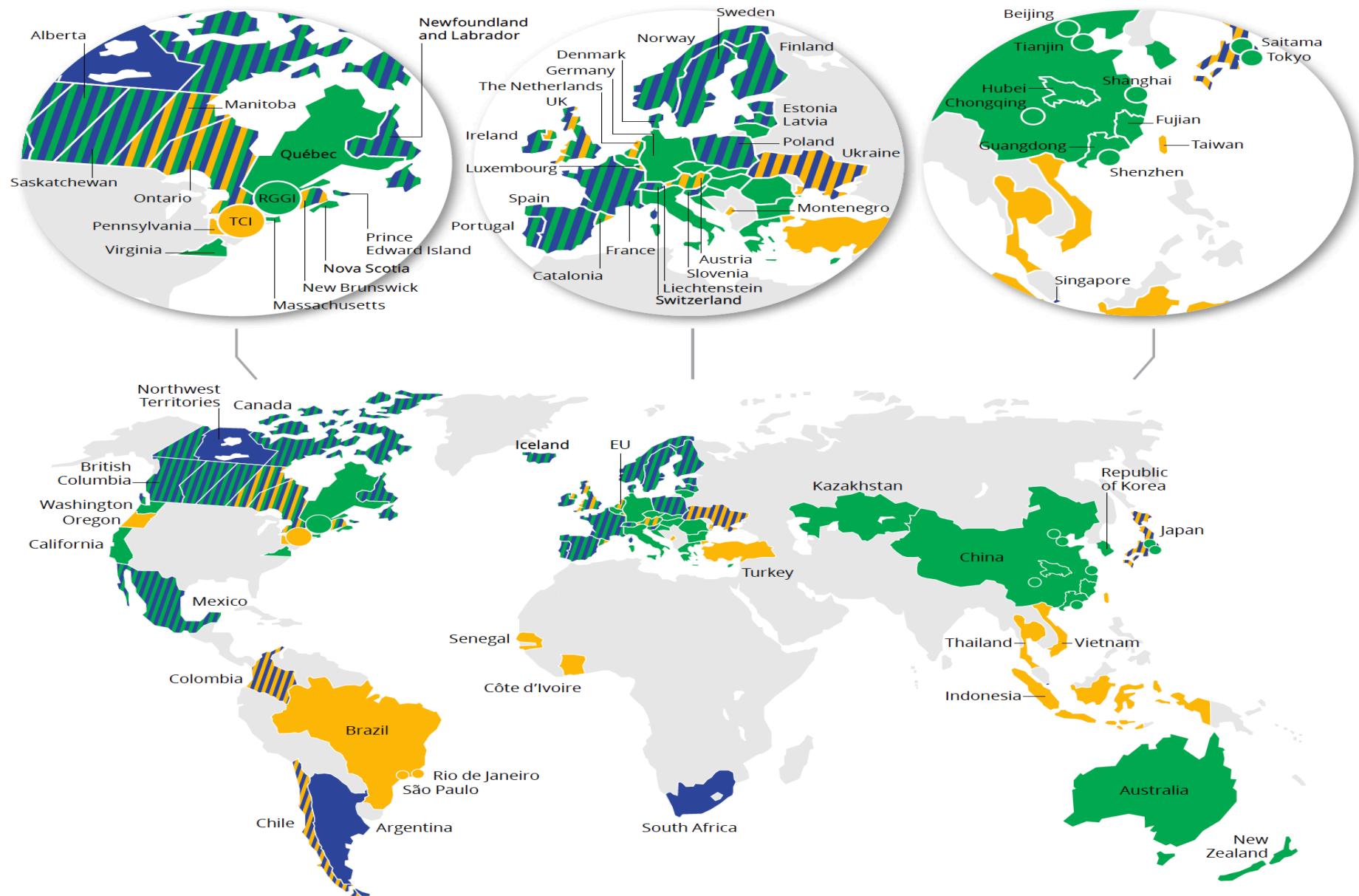
Tax-based Mechanism	 Carbon Taxes	<ul style="list-style-type: none">▪ System whereby entities covered under the program pay a fixed price per unit of emissions▪ Compliance entities are incentivized to reduce emission in order to reduce exposure to the tax▪ While providing certainty around price, setting a tax rate that achieves a desired emissions reduction target can be complex and difficult
Market-based Mechanism	 Cap-and-Trade	<ul style="list-style-type: none">▪ Most common form of market-based policy, as implemented in Europe and California▪ Under a Cap-and-Trade system, an upper limit or 'cap' on emissions is set, with 'permits' or 'allowances' created up to the cap▪ Depending on specific policy, allowances can be distributed to compliance entities as a free allocation▪ If participants don't have enough allowances for compliance, they can cut emissions through:<ul style="list-style-type: none">• Operational abatement – reduction in production or fuel switching (e.g. coal-to-gas)• Permanent abatement – deployment of low-carbon technologies• Purchase of allowances – depending on the scheme, emitters may purchase allowances through government auctions, or from other participants with surplus allowances▪ System ensures that specific emission reduction targets are met while providing participants flexibility in meeting their obligation, however, can often be more complex to administer than a carbon tax
	 Baseline-and-Credit	<ul style="list-style-type: none">▪ Represents an alternative type of emission-trading scheme, as implemented in China and Australia▪ Under a Baseline-and-Credit scheme, there is no upper limit on emissions with participants evaluated versus an absolute or emissions intensity baseline▪ Participants earn credits for emissions below their baseline and must acquire credits if they exceed their target▪ Can often be favored by developing nations due to flexibility it provides of not requiring absolute emissions reductions

Global Emissions Covered by Carbon Pricing Regimes

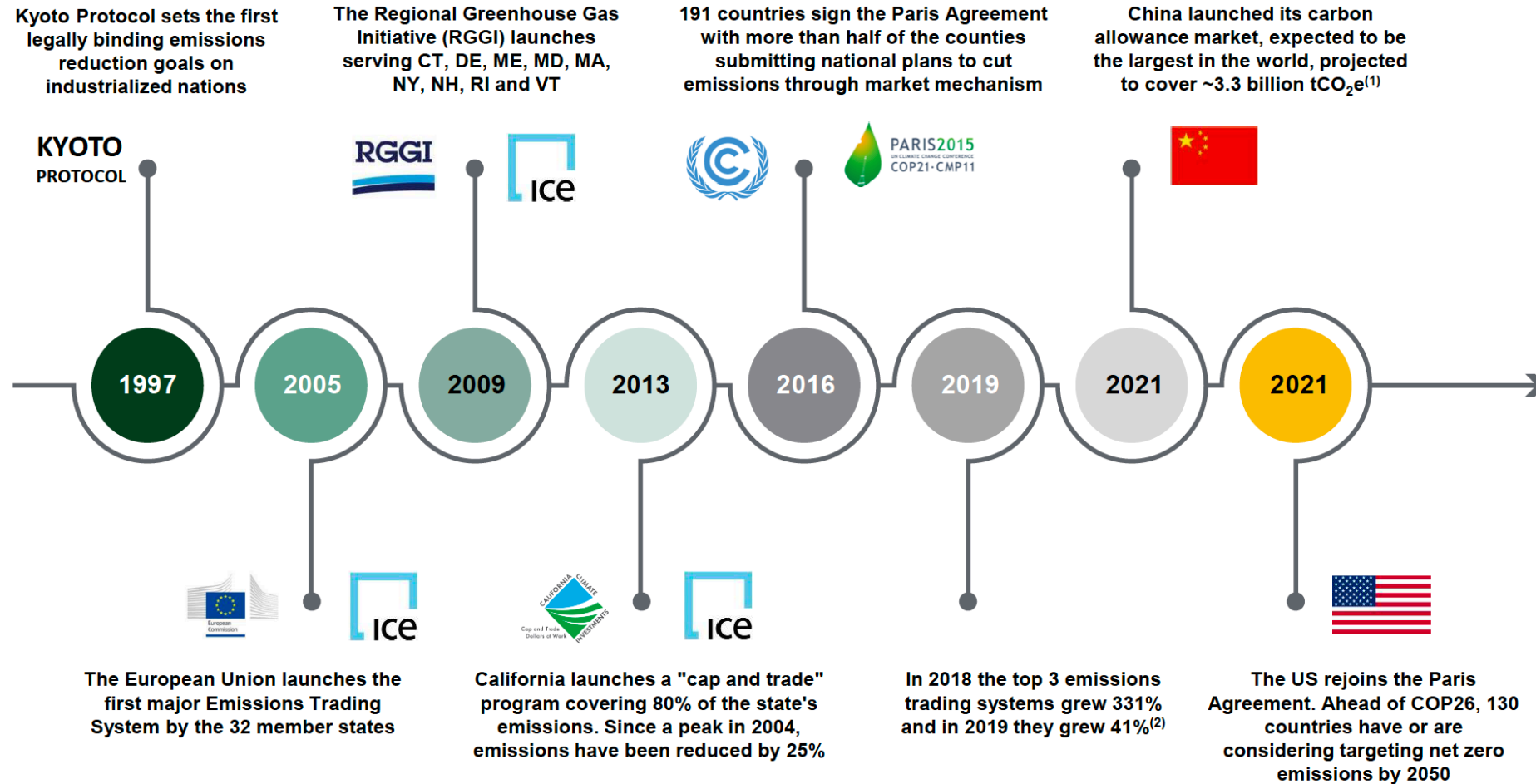
Approximately 22% of global GHG emissions are covered by carbon pricing instruments

Global Emissions Covered by Carbon Pricing Regimes





Evolution of Compliance Market Landscape



1) Environmental Defense Fund, "China's National ETS Open for Business", Jan 5, 2021; World Bank State of Carbon Markets, June 2 019
 2) Data from IHS Markit as of 6/30/2020; retrieved 12/31/2020

Two Types of Carbon Markets | Compliance versus Voluntary

Carbon Allowances – Compliance (or Regulated) Markets

Markets for carbon credits created by the need to comply with a regulatory act

- Often structured as "cap-and-trade" programs
- The 'cap' on GHG emissions declines annually to achieve the climate policy targets of its jurisdiction or members
- Allowances are freely allocated or auctioned to companies which can then 'trade' allowances to comply with the cap on their emissions
- Companies also have the option to pay a fine, which is typically much higher than the cost of purchasing allowances
- Companies with low emissions can sell their extra allowances to larger emitters

Carbon Offsets – Voluntary Markets

Corporations, governments, and individuals volunteer to offset their emissions by purchasing carbon credits

- Generated by projects that avoid, reduce or remove GHG emissions beyond a "business-as-usual" scenario
- Variety of projects can generate offsets, including reforestation and improved forest management, wetland restoration, renewable energy and direct carbon capture
- Traded by individuals and companies on the voluntary markets (though some carbon offsets can also be used in select compliance markets)
- Majority of projects follow rules established by independent third-party organizations

Major Carbon Compliance Markets



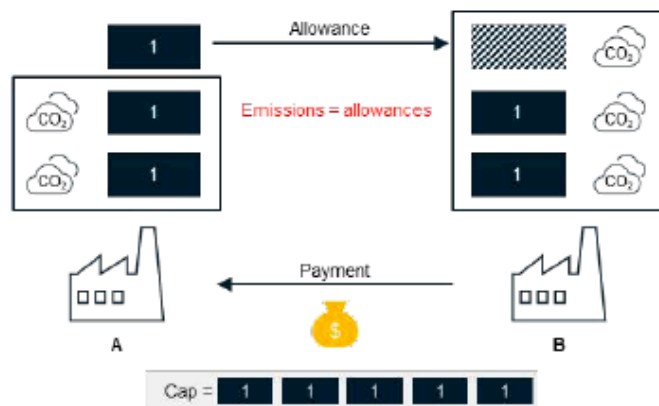
Major Voluntary Carbon Credit Registries



Source: Accelerating the Transition to a Low Carbon Future from Carbon Streaming Corporation

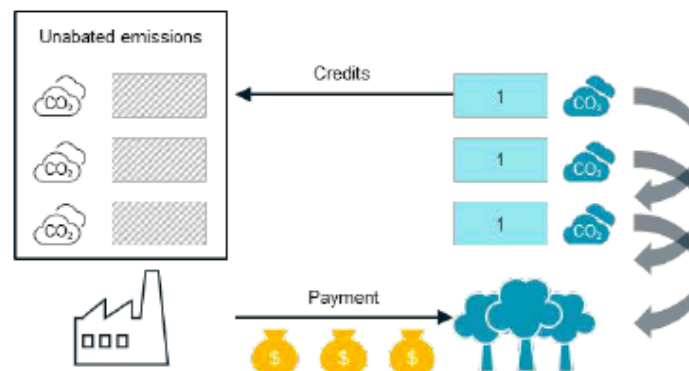
COMPLIANCE AND VOLUNTARY CARBON MARKETS

Compliance carbon markets



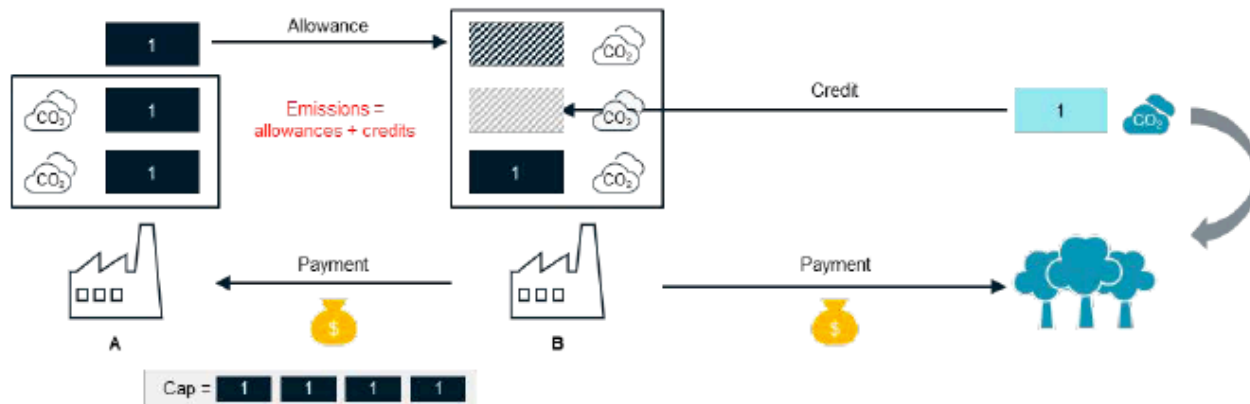
- Participation compulsory
- Emissions must stay within cap
- Covered firms trade allowances that are used to meet regulatory obligations

Voluntary carbon markets



- Participation is voluntary
- Companies adopt decarbonization targets
- Carbon credits can be used to partially meet these targets

Compliance carbon markets with carbon crediting

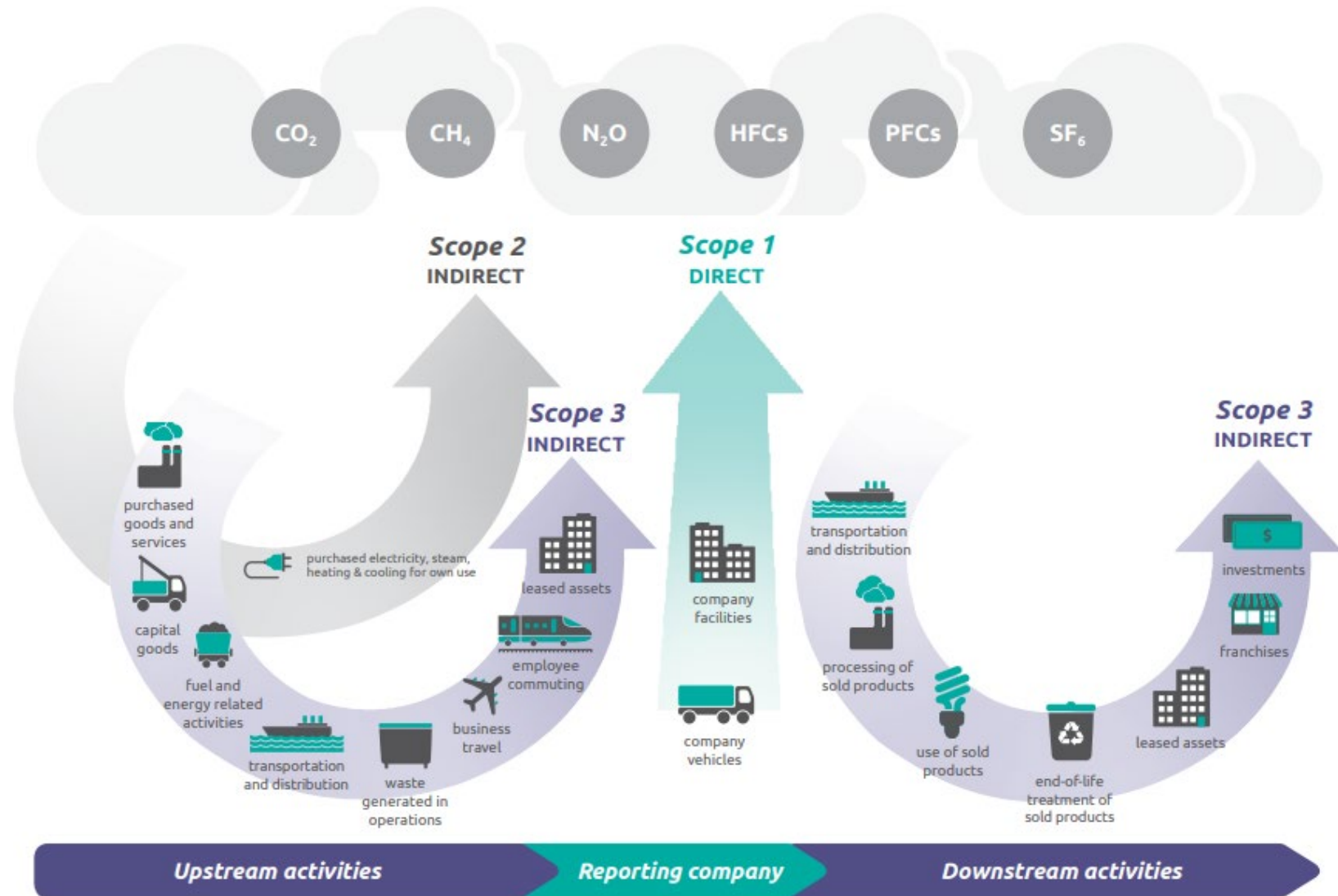


- Some compliance markets allow voluntary market carbon credits to be used in their system. This means that some voluntary carbon credits can be used for either:
- Carbon neutral/net-zero claims for voluntary purposes; or
- Compliance with an ETS, carbon tax or other system
- However, compliance markets typically place more restrictions on their use than in the voluntary market

5. Climate Change – What can the Corporate Sector do?

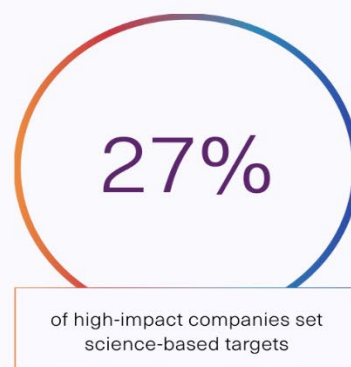
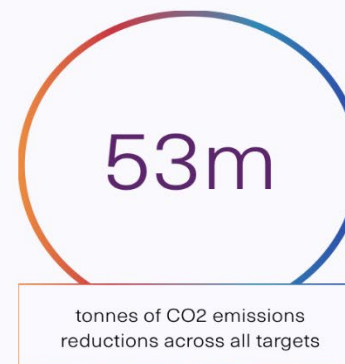
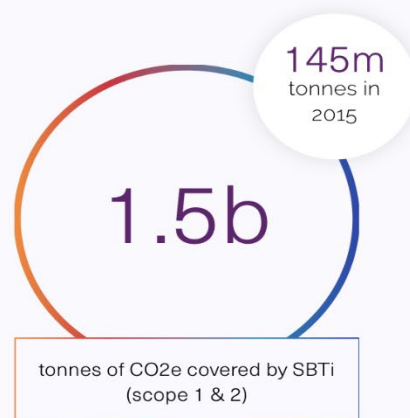
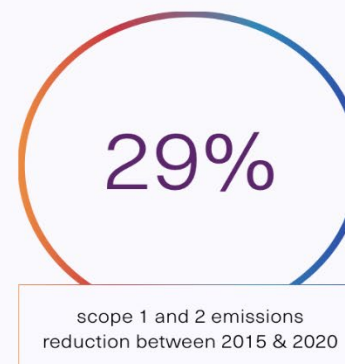
Companies should:
Measure, Reduce and
Offset their Scope 1, 2,
and 3 emissions

Figure [5.2] Overview of GHG Protocol scopes and emissions across the value chain



Make a pledge, register it, and track progress with the Science Based Targets Initiative

Our 2021 progress at a glance



6. Climate Change – What is the Voluntary Carbon Market (VCM)?

What is the Voluntary Carbon Market (VCM)?

- a. What are Carbon Credits and how do they work?
- b. How does the VCM work?
- c. Exchanges, ratings agencies, VVBs and standards
- d. Trading
- e. Where are the Projects?
- f. What are the Projects?
- g. Types/Methodologies

a. What are carbon credits and how do they work?

Measurable, verifiable emission reductions from certified climate action projects that:

1. reduce,
2. remove or
3. avoid

greenhouse gas (GHG) emissions.

Projects must adhere to a rigorous set of criteria to pass verification by third-party agencies and a review by a panel of experts at a leading carbon offset standard like Verra or Gold Standard.

Projects bring other positive benefits: empowered communities, protected ecosystems, restored forests or reduced reliance on fossil fuels.

After an organisation retires a carbon credit, it can't be reused.

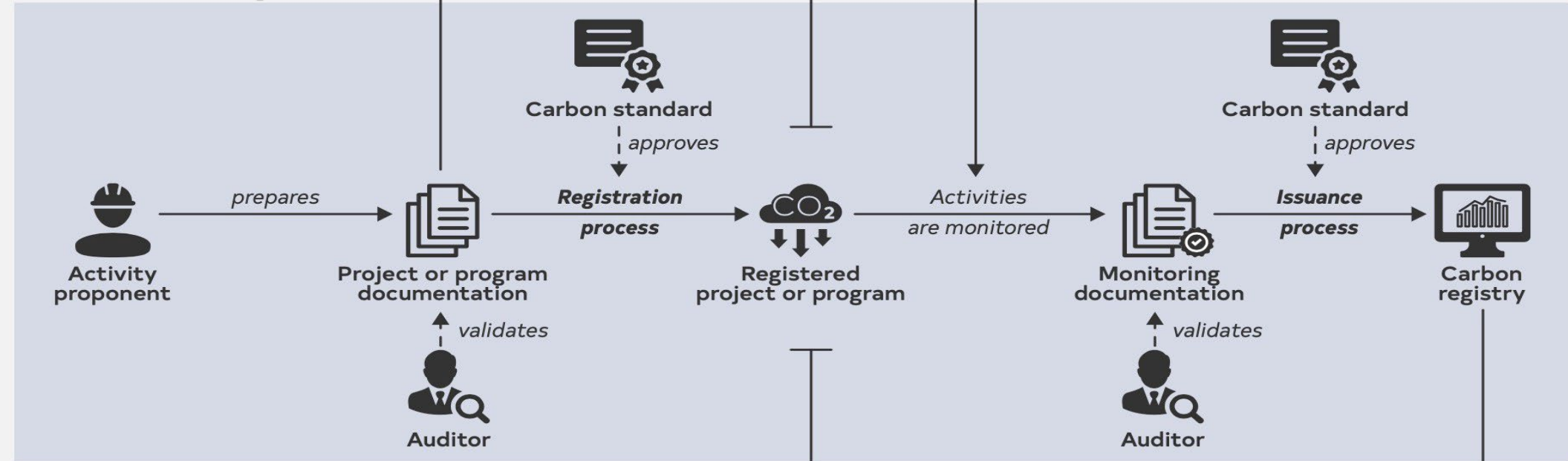
b. How does the VCM works?

Figure 8.2 | VCM Project or Program Cycle

Project or program development



Carbon development

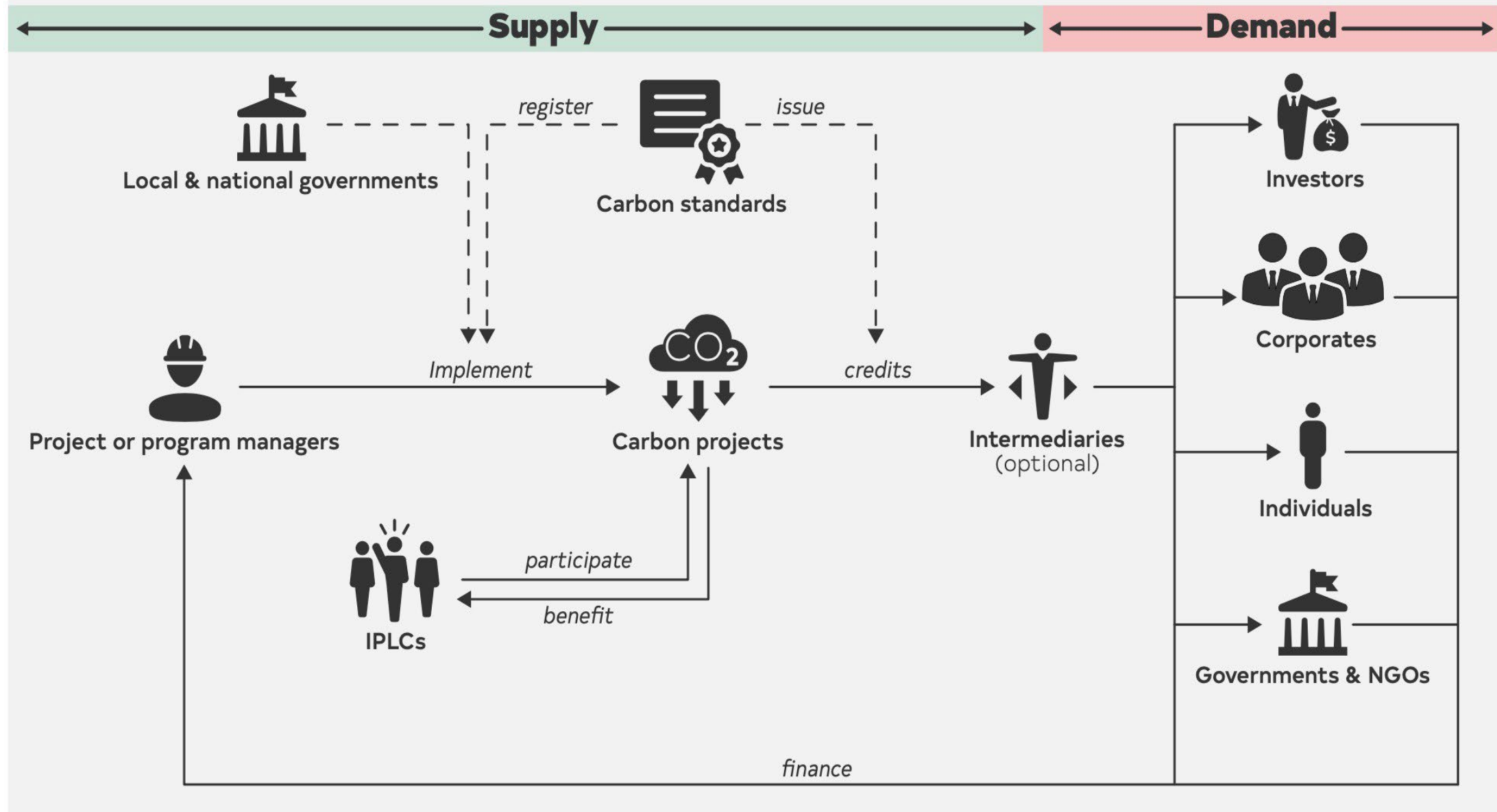


Carbon monetization



b. How does the VCM works?

Figure 5.1 | The market for carbon credits

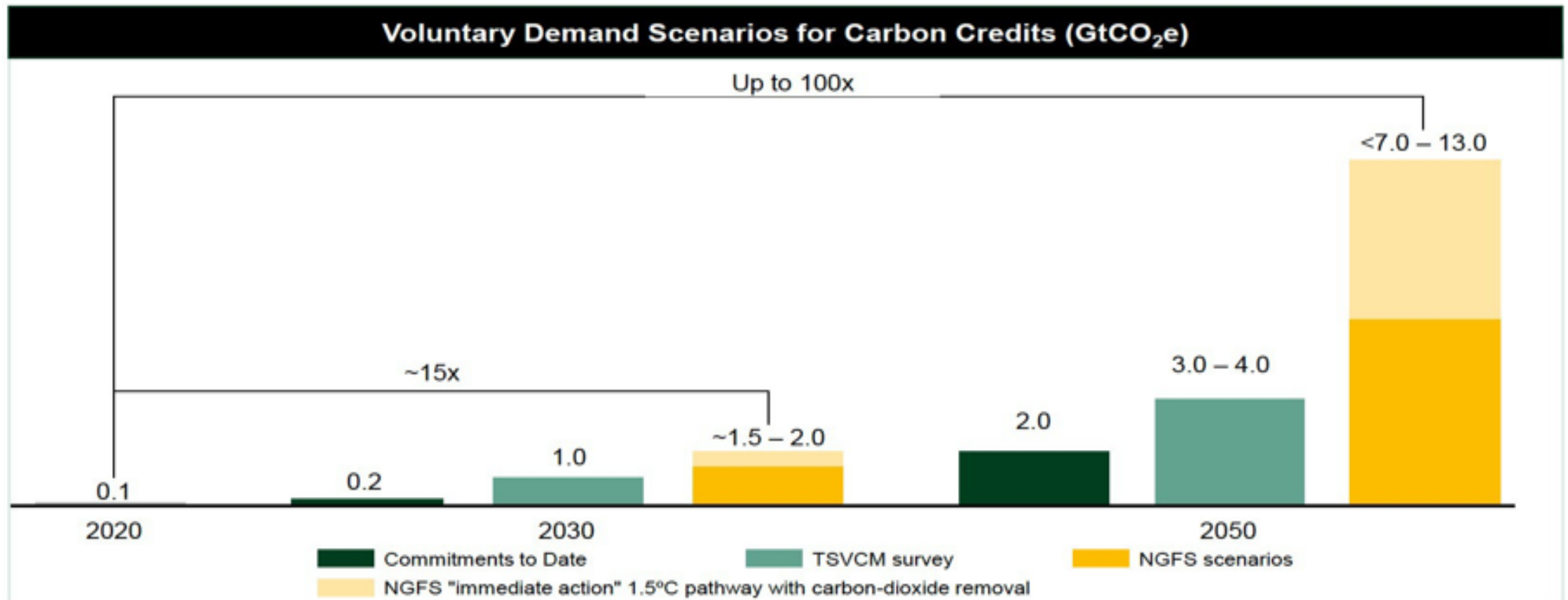


b. How does the VCM works?

Voluntary Carbon Credit Market Demand Set to Increase | \$50B Market by 2030

Based on demand projections⁽¹⁾, the carbon market could reach 2.0 GtCO₂e by 2030 and up to 13 GtCO₂e by 2050, from 95 MtCO₂e in 2020

Market size could be between \$5-30 billion at the low end and more than \$50 billion at the high end by 2030



(1) McKinsey & Company; Taskforce on Scaling Voluntary Carbon Markets (TSVCM); Network for Greening the Financial System (NGFS)

c. Exchanges, Rating Agencies, VVBs and Standards

Lifecycle of Creating a Voluntary Carbon Offset

Growth in the voluntary carbon market has been slowed given its complex and fragmented structure, and issues around project validation and verification

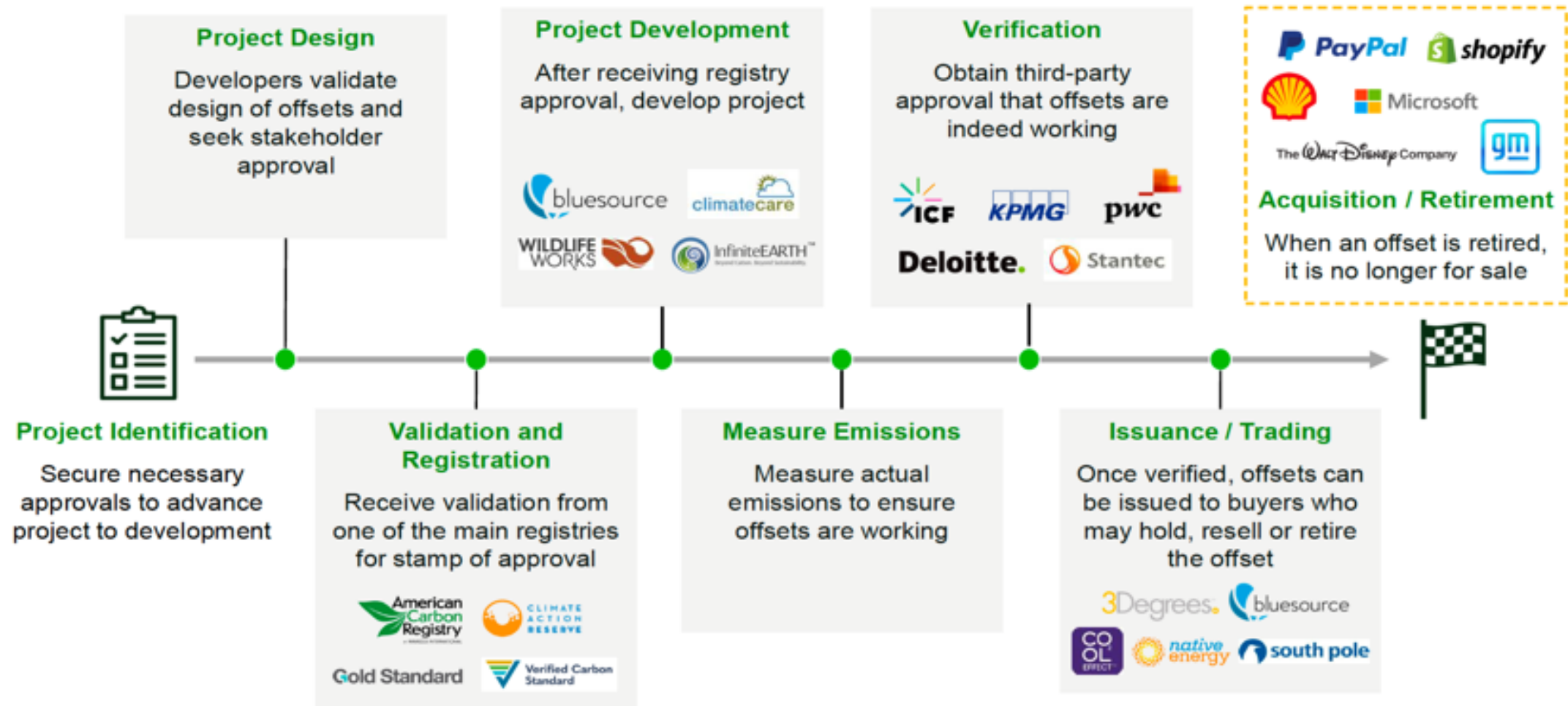



















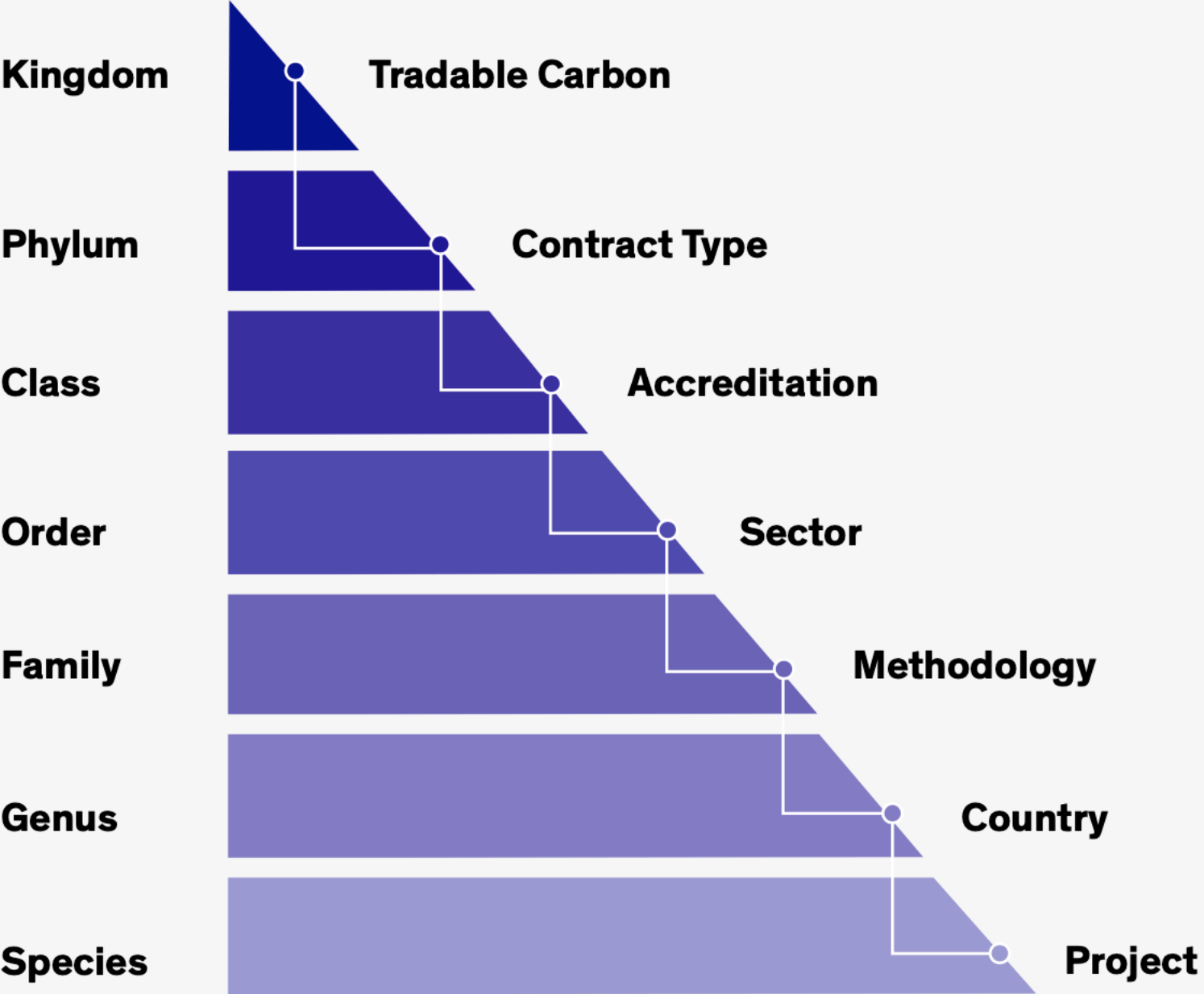


Figure 15: Players in the voluntary carbon market

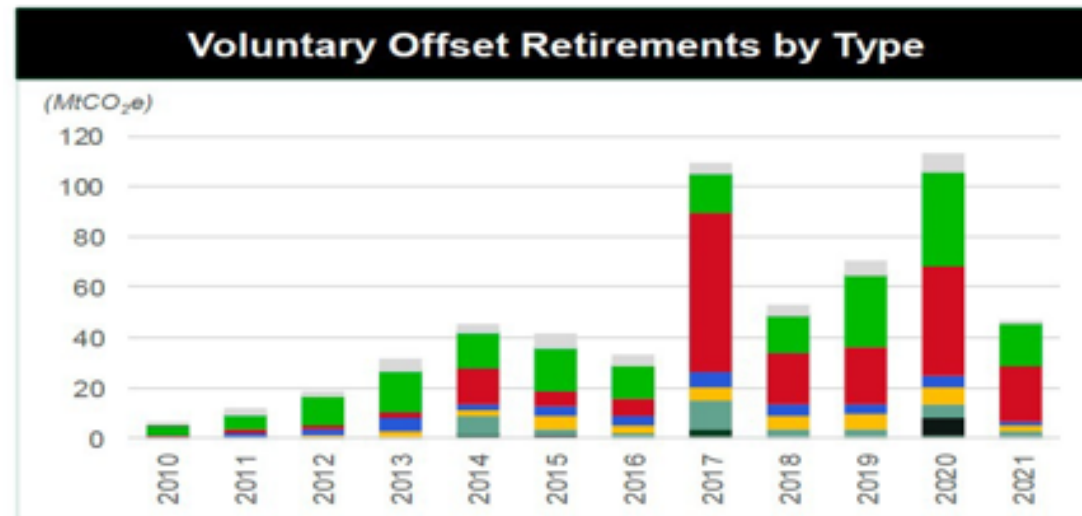
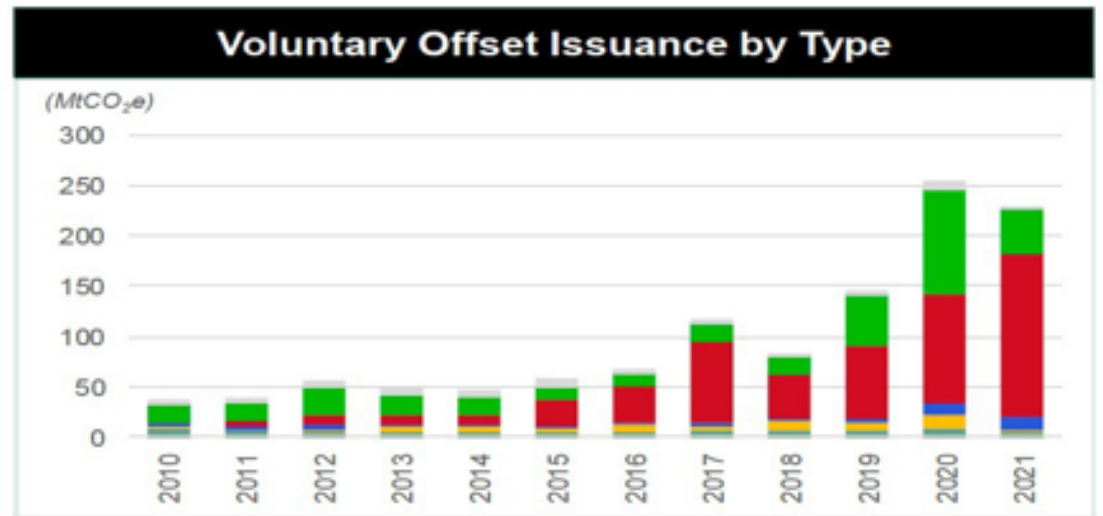
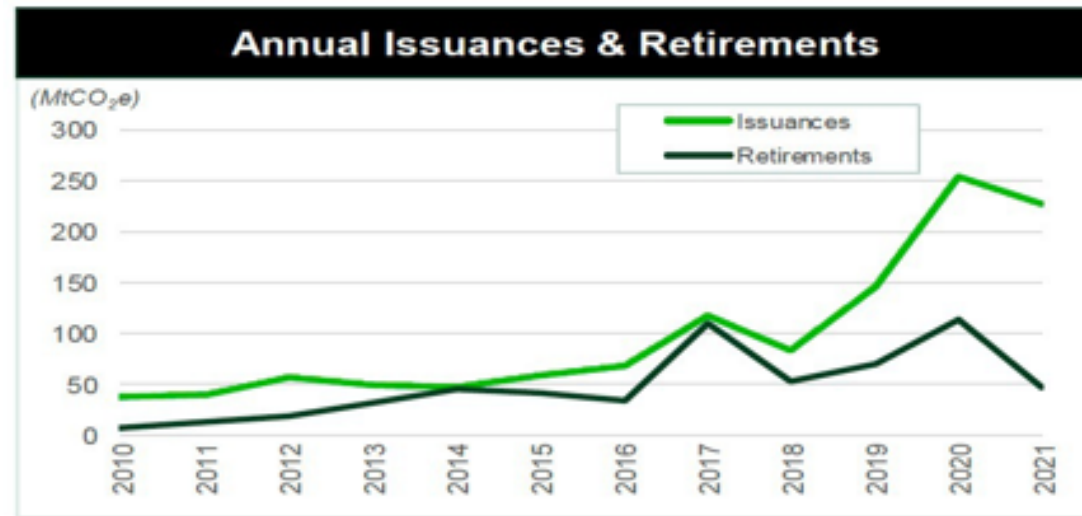
Player Type	Description	Company	Website
Project Developers	As its name indicates, they are the ones setting and developing the projects that will issue carbon credits. It is the entity that operates and owns the physical project installation where the emission reduction project takes place. This is the upstream side of the market. Examples include: Bluesource, Clean Air Action Corp, Climate Care, EcoAct.	   	https://www.bluesource.com/ https://www.cleanairaction.com/ https://www.climatecare.org/ https://eco-act.com/
Retail Traders	These players act as intermediaries between end buyers and developers. They purchase large amounts of credits directly from the supplier and then resell them with a mark-up. They can bundle credits into different size portfolios ranging from hundreds to thousands of offsets. Examples include: Atmosfair, Carbonfund, Terrapass, Natural Capital Partners.	   	https://www.atmosfair.de/en/ https://carbonfund.org/ https://terrapass.com/ https://www.naturalcapitalpartners.com/
Exchanges	Currently, most of the transactions are happening OTC; however, some exchanges are emerging. exchanges are similar to those in any other market. They are speeding up and simplifying the trade of carbon credits by standardizing products. They generally guarantee a set of characteristics such as underlying project, vintage or certification. Examples include: AirCarbon, CTX Global, IntercontinentalExchange (ICE), Xpansiv CBL.	   	https://www.aircarbon.co/ https://ctxglobal.com/ https://xpansiv.com/cbl/ https://www.theice.com
Brokers	Generally, they buy carbon credits from retailers but do not take ownership of the offset. Then, they market credits to end buyers, for a commission. Also, some brokers might act on behalf of end buyers helping them to purchase and retire carbon offsets. Examples include: BGC, Numerco, Readshaw Advisors, South Pole.	   	https://www.bgcpartners.com/ https://numerco.com/ https://redshawadvisors.com/ https://www.southpole.com/
Standards	Standards can be government agencies (compliance markets) or the NGOs (voluntary markets) that certify projects and their credits. They have a series of methodologies or requisites for each type of carbon project. The organizations behind the standards generate fees from managing the certifications and logistics of the credits. Examples: American Carbon, Climate Action Reserve, Gold Standard, Verified Carbon Standard.	   	https://americancarbonregistry.org/ https://www.climateactionreserve.org/ https://www.goldstandard.org/ https://verra.org/
End buyers	Includes companies, NGOs or individuals that purchase credits to offset all or part of their GHG emissions. This is the downstream side of the market.	Literally anyone wishing to offset emissions, from individuals to large corporates.	

BeZero's
Taxonomy of
Carbon



d. Trading

Carbon Offset Issuance & Retirement | Accelerating to Meet Market Demand



Source: Berkeley Carbon Trading Project – represents aggregate of contains all carbon offset projects listed globally by Climate Action Reserve (CAR), American Carbon Registry (ACR), Verra, and Gold Standard through May 2021

■ Waste Management
■ Forestry & Land Use
■ Chemical Processes

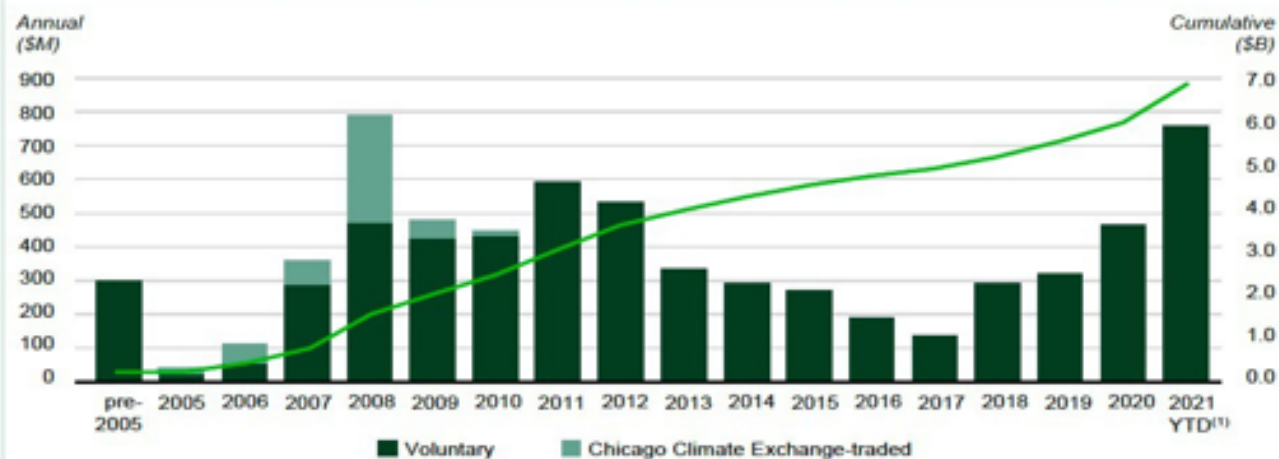
■ Transportation
■ Industrial Manufacturing
■ Carbon Capture & Storage

■ Renewable Energy
■ Household & Community
■ Agriculture

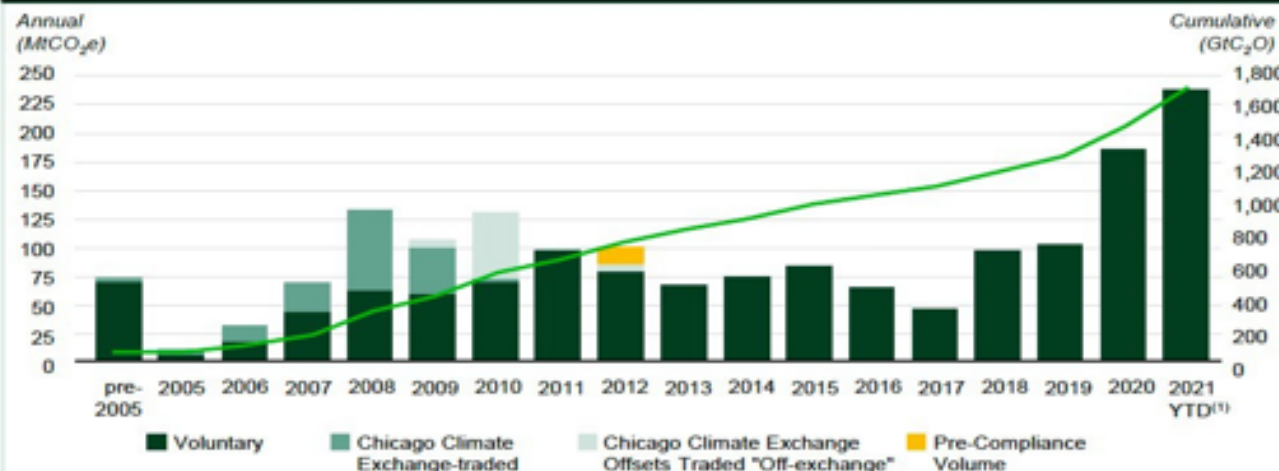
d. Trading

Carbon Offset Trading | Gaining Momentum

Traded Value of Voluntary Carbon Offsets (2005 – 2021 YTD)



Traded Volume of Voluntary Carbon Offsets (2005 – 2021 YTD)

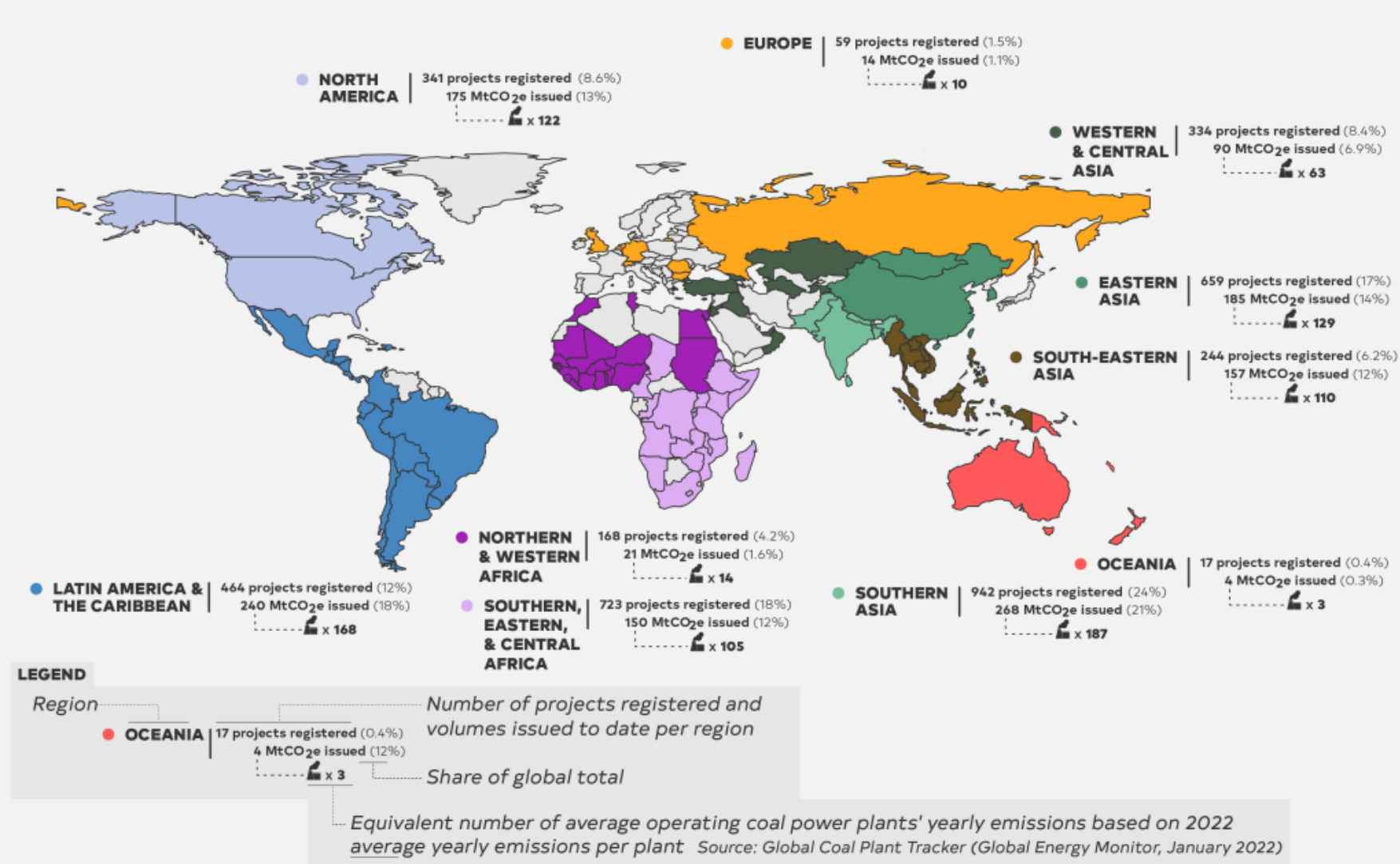


Key Market Trends

- 2021 is on track to top 2008 for the record in annual value traded; total market value at \$6.7B
- Traded market volumes achieved new highs back-to-back in 2020 and 2021 with strong market growth expected to continue
- Traded volumes of credits from projects located in Asia have doubled between 2019 and 2021 YTD⁽¹⁾
 - Approximately 80% of the volume of credits from Asia in 2020 were attributable to Energy Efficiency/Fuel Switching and Renewable Energy
- North America typically exhibits a more diverse set of project types and categories than other regions
 - Although roughly 50% of credits from North America in 2020 were from Forestry and Land Use, Waste Disposal, Chemical Processes/Industrial Manufacturing and Transportation also had notable volumes
- In recent years, the spot market for voluntary carbon offsets has become more liquid and future demand signals from corporate climate commitments (e.g., net zero and carbon neutral goals) have materialized
- Removal based carbon offsets (e.g., afforestation, reforestation, soil enhancement, and carbon capture and storage technologies) have been achieving a nearly 5x price premium over reduction or avoidance-based offsets

e. Where are the projects?

Figure 1.3 | VCM credits issuance and registered projects for 2002 - 2022 (VCS, GS, ACR, CAR)

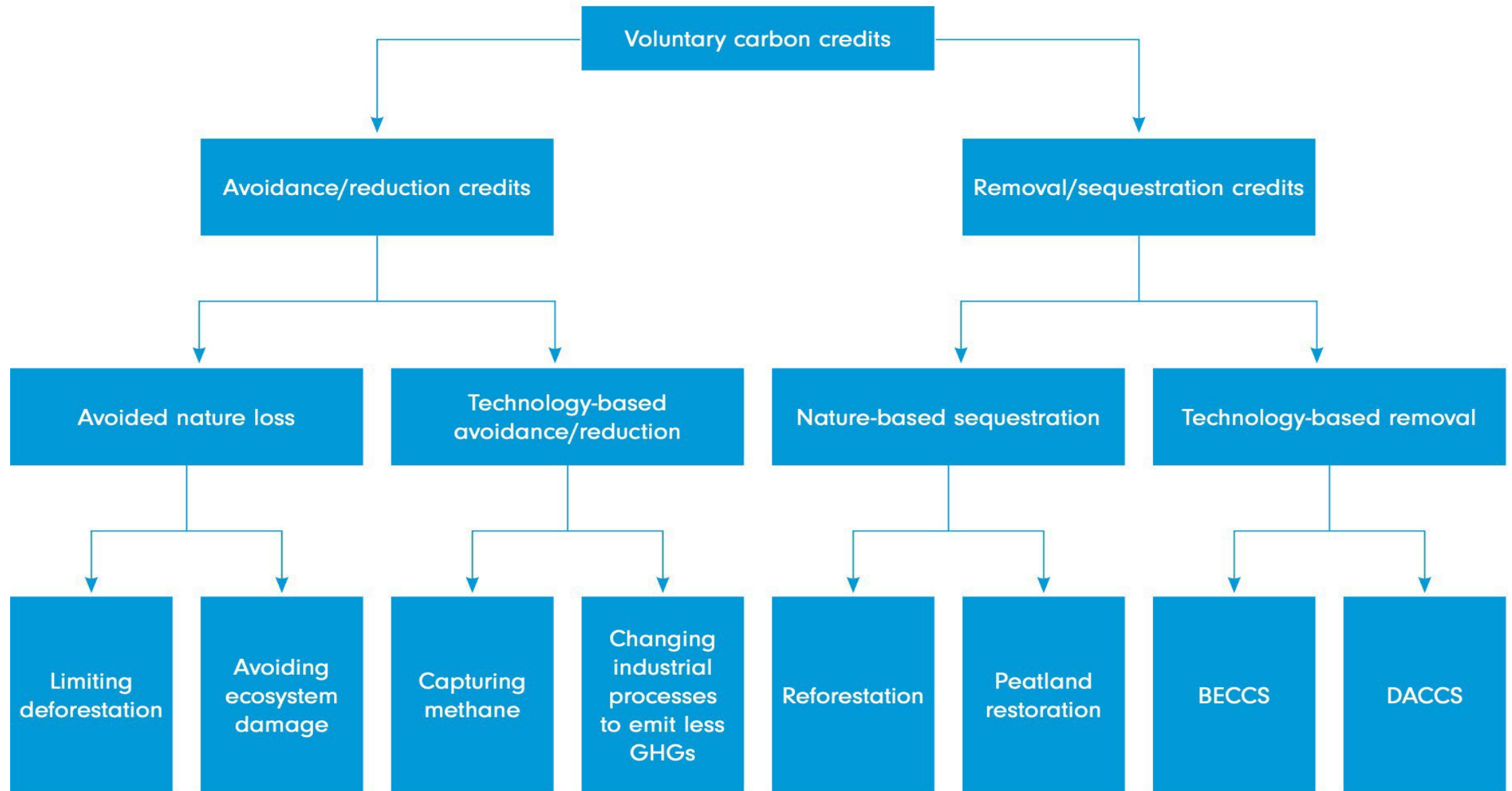


The regional divisions on this map were selected to showcase the share of the global total of registrations and issuances in different regions rather than always following conventional political divisions. Jurisdictions were included in their geographical rather than political region (for example, Aruba is included in Latin America and the Caribbean rather than as part of the Netherlands). Jurisdictions that have no issued credits and have no registered projects are grey on the map. Jurisdictions with registered projects that have not yet issued credits (i.e., Angola, Bahrain) were included. Eight Gold Standard projects categorized as international—0.2% of projects globally, representing 0.17 MtCO₂e or 0.01% of issued credits, and equivalent to less than one tenth of a coal plant—were excluded from the map but included in the global total for calculating percentages.

Source: Climate Focus analysis of data collected for the VCM Dashboard (July 2022).

f. What are the projects?

Structure of the Voluntary Carbon Market



f. What are the projects?

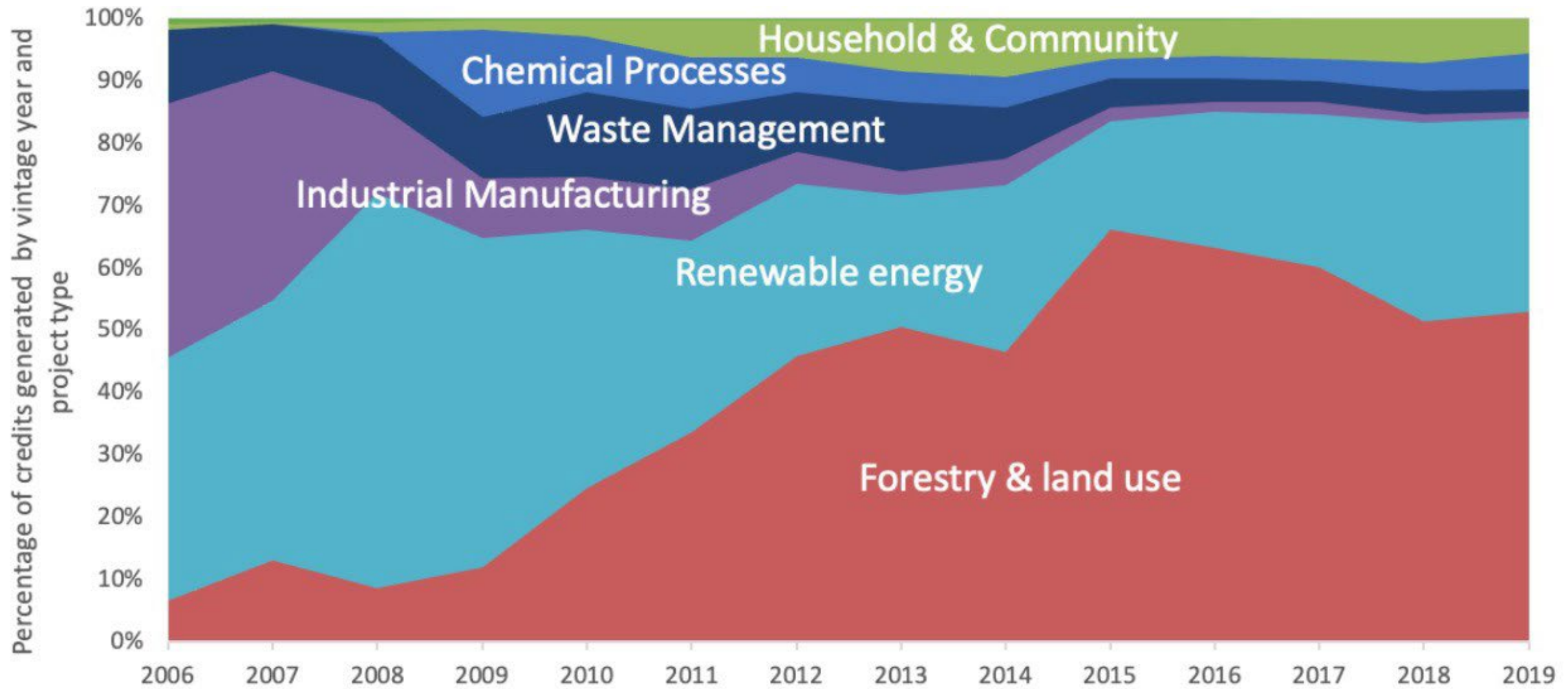
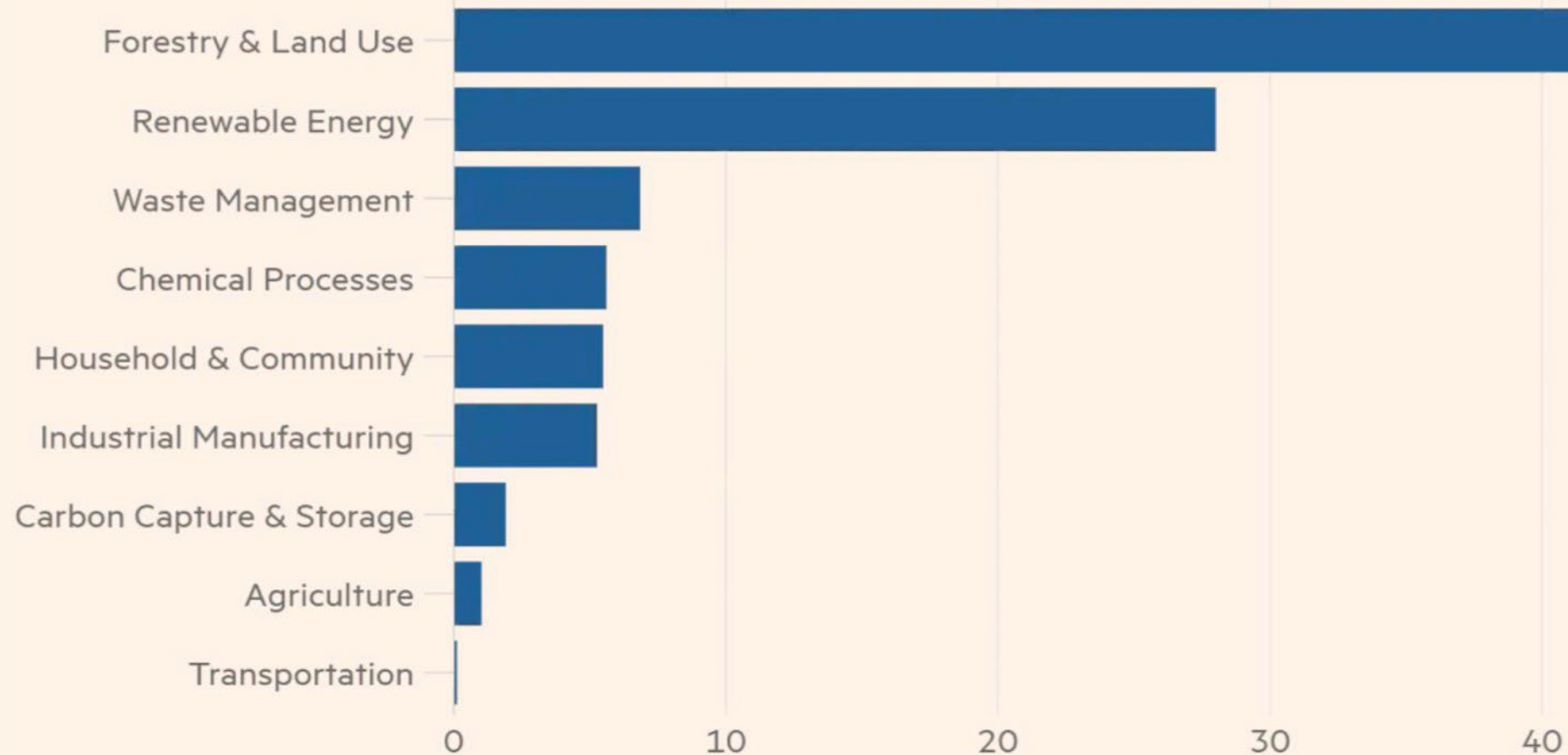


Figure 3a - Trends in project type over time, relative basis.

f. What are the projects?

Almost half of all offsets come from forestry and land use projects

Share of credits issued, by project type (%)



Source: Berkeley Carbon Trading Project

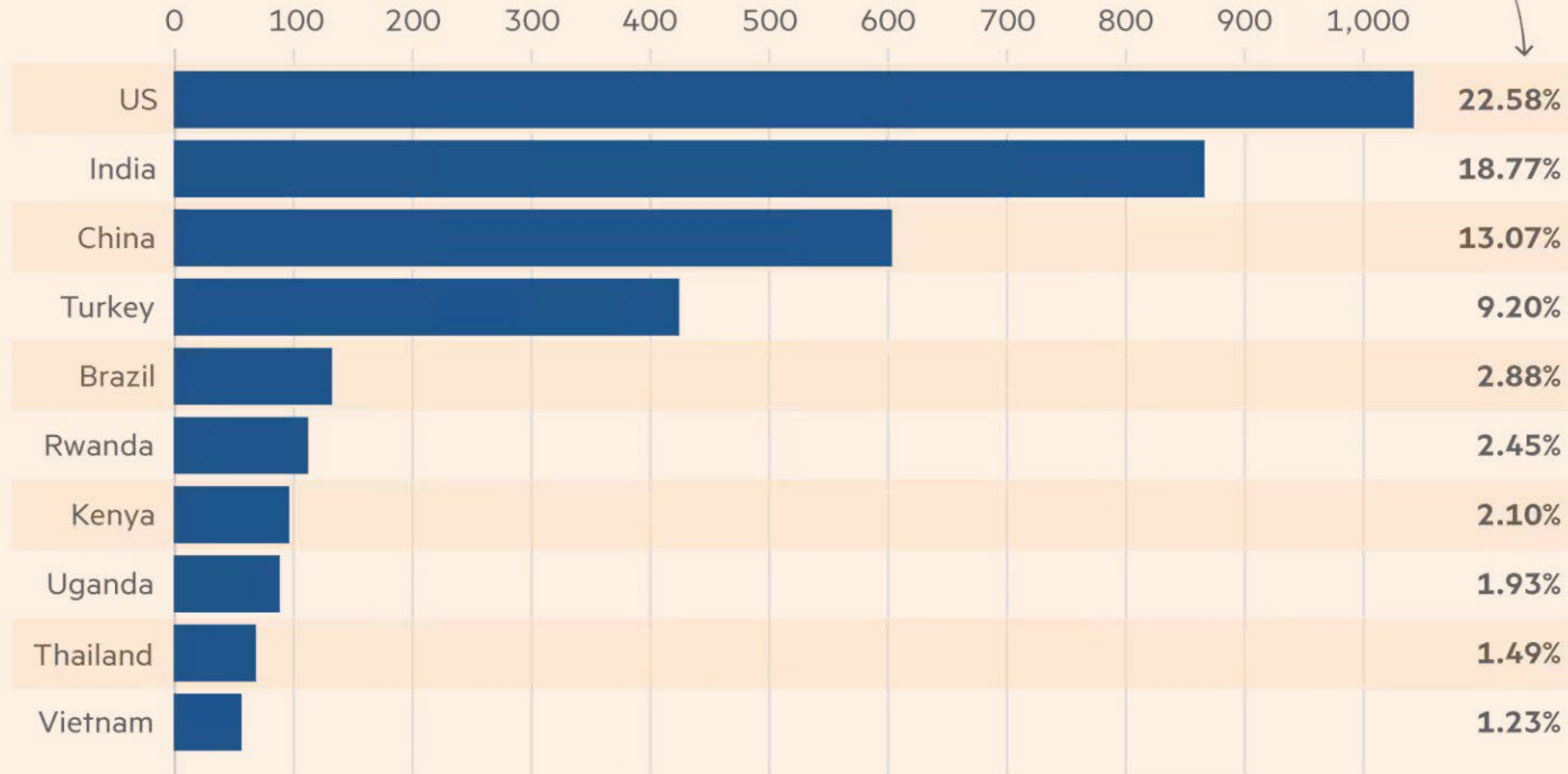
© FT

f. What are the projects?

Most popular locations for voluntary offset projects

Number of active projects

Share of global total



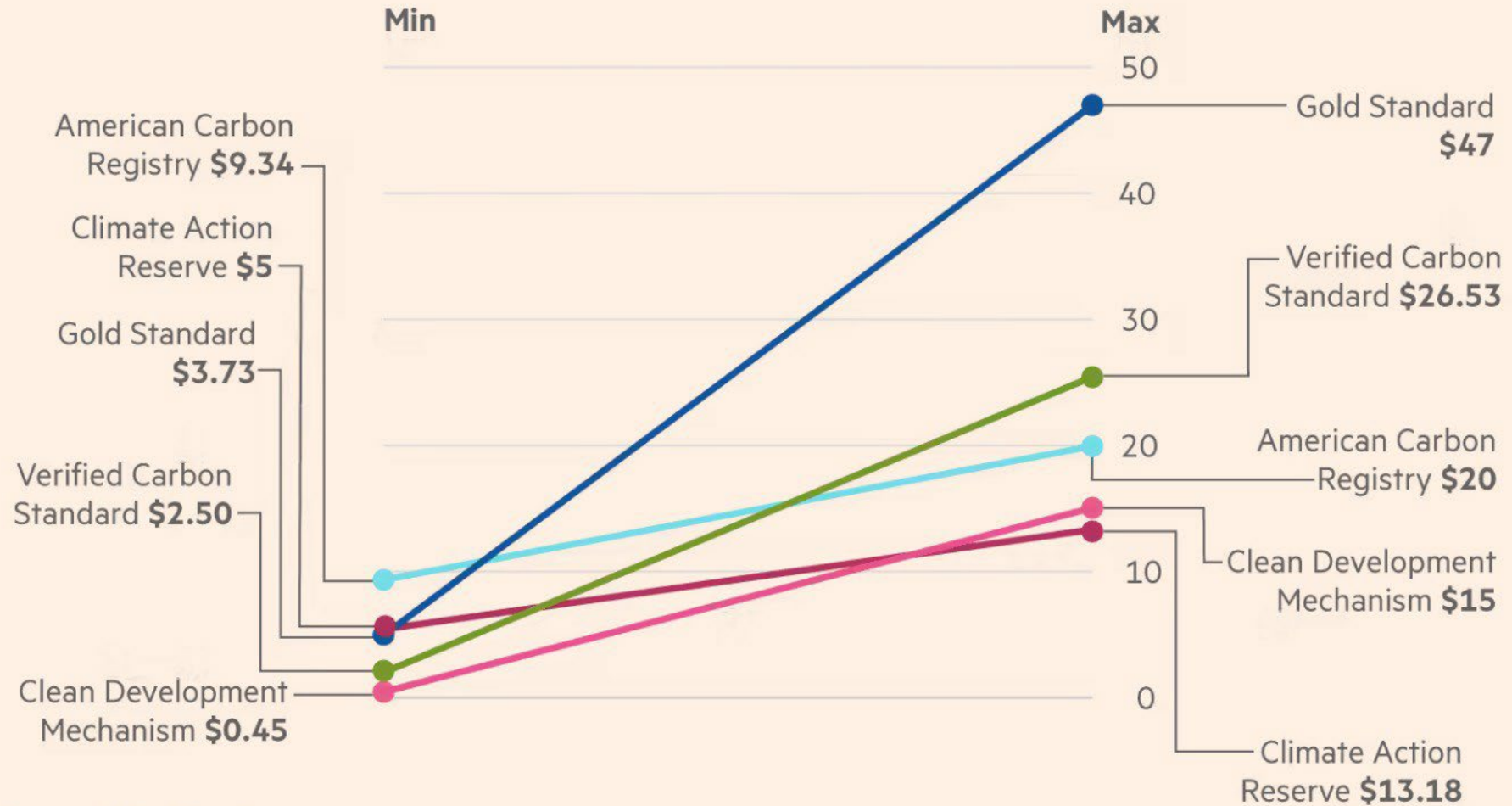
Source: Allied Crowds

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f. What are the projects?

Offset project prices vary significantly

Price ranges (\$) per tonne of CO₂ equivalent on selected registries

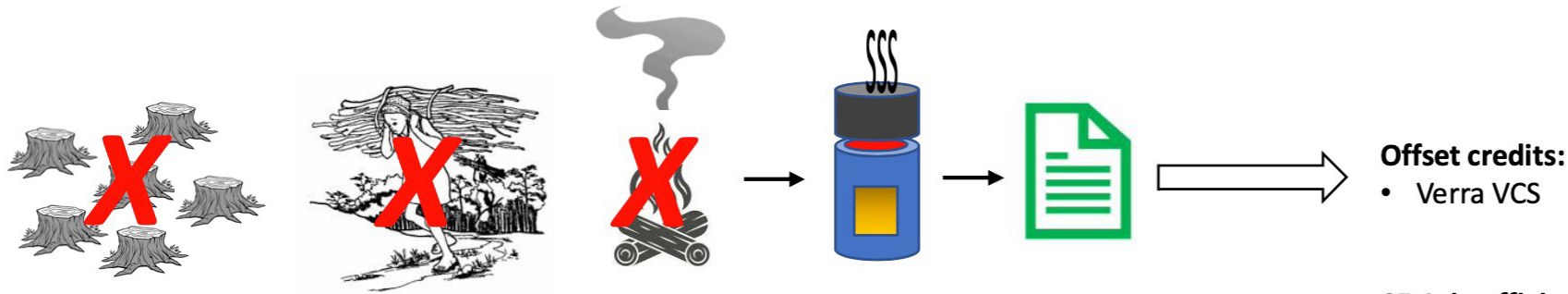


Source: Allied Crowds
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g. Types / Methodologies

Efficient Cookstoves Project:

- Open cooking fires in under-developed regions are inefficient, use large amounts of firewood, produce large amounts of CO₂ and health-threatening particulate smoke
- Firewood consumption results in deforestation and biodiversity loss, further CO₂ emissions, top-soil erosion, reduced in moisture retention, disrupted local rain-cycles
- Firewood gathering consumes large amounts of family time and energy
- Efficient cookstoves use significantly less firewood, reduce CO₂ emissions and have considerable additional environmental and human benefits (esp. for women and children)
- Efficient cookstoves are low-tech and can be made using available skills and materials, benefiting the regional economy



Origination:
Feasibility studies,
due diligence and
screening

Finance vs VERs:
Arrange manufacture
& distribution of
stoves via local NGOs

Project Management:
Arrange project
validation, registration,
verification, issuance

SE Asia efficient cookstove project (phase 1 of multiple phases)

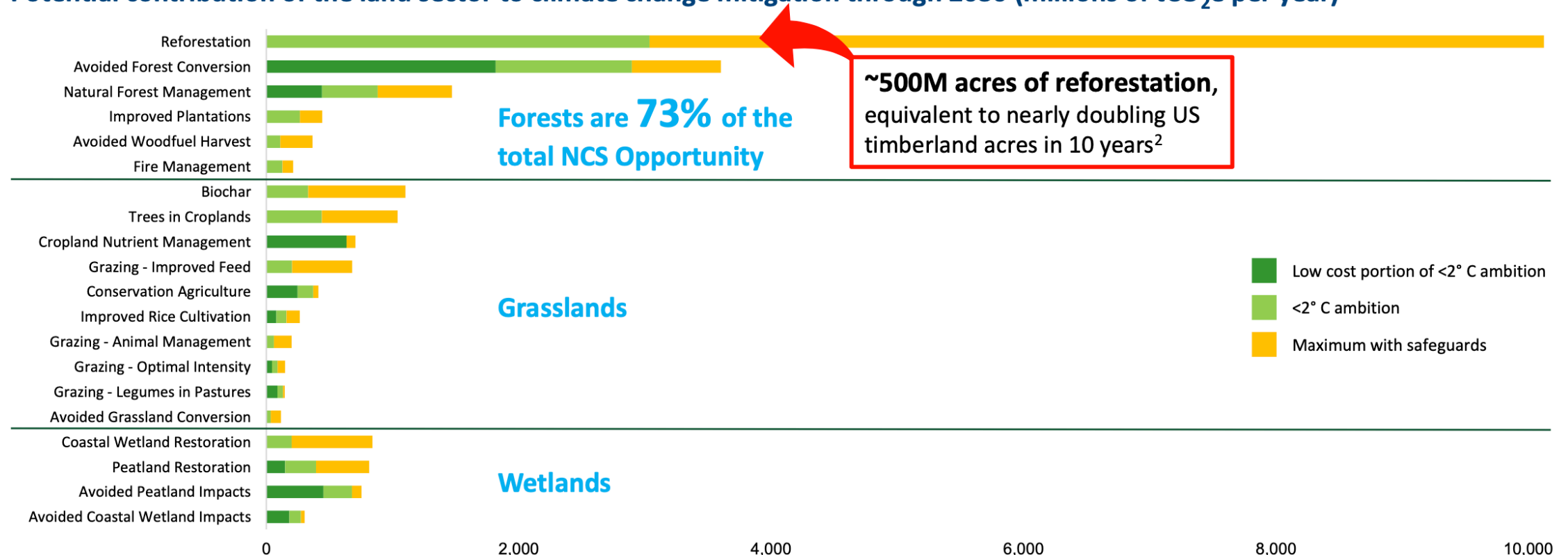
- 100,000 stoves at \$30 per stove (incl. distribution)
- CAPEX: \$3.0M upfront
- 1,000,000 tCO₂e of VCUs over 5 years
- Effective VCU purchase price: \$3/tCO₂e
- Issued VCU sale price: \$5/tCO₂e
- CAPEX repaid after 2 years
- Net Profit: \$2.0M over 5 years
- *Additional profits if anticipated increase in VCU price occurs*

Natural Climate Solutions (NCS)

Natural climate solutions are 30% of the solution, 10% of the conversation, and only 3% of the finance¹

- Better management of forests, grasslands, and wetlands can provide significant climate benefits through sequestration and avoided emissions¹
- Reforestation offers the single greatest opportunity to deliver climate mitigation at the landscape level¹

Potential contribution of the land sector to climate change mitigation through 2030 (millions of tCO₂e per year)²



Notes: (1) Nature4Climate (www.nature4climate.org), as of May 2020; (2) Griscom et al. 2017. Natural climate solutions. Proceedings of the National Academy of Sciences. 114(44): 11645–11650. (2) Oswalt, Sonja N.; Miles, Patrick D.; Pugh, Scott A.; Smith, W. Brad. 2018. Forest Resources of the United States, 2017: a technical document supporting the Forest Service 2020 RPA Assessment. Gen. Tech. Rep. WO-GTR-97. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. xxx p.

g. Types / Methodologies

Avoided Deforestation Project:

- 150,000 hectares (40km x 40km) of primary forest in Brazil is threatened by illegal logging, clearance and mining which could result in emissions of 1.5M tCO₂e/year
- Also threatened is the diverse primary ecosystem and the traditional lifestyle and livelihoods of the indigenous population
- Finance is required to provide surveillance, prevention and enforcement to stop deforestation
- The project also supports sustainable agriculture (cocoa, brazil nuts) and ecotourism to benefit the indigenous population
- Profits from the sale of offset credits are shared with the local communities to help improve education and healthcare facilities



Origination:
Feasibility studies,
due diligence and
screening

Finance vs VERs:
Project Development:
and Management:

Commercialization of
VERs and sustainable
agricultural products:

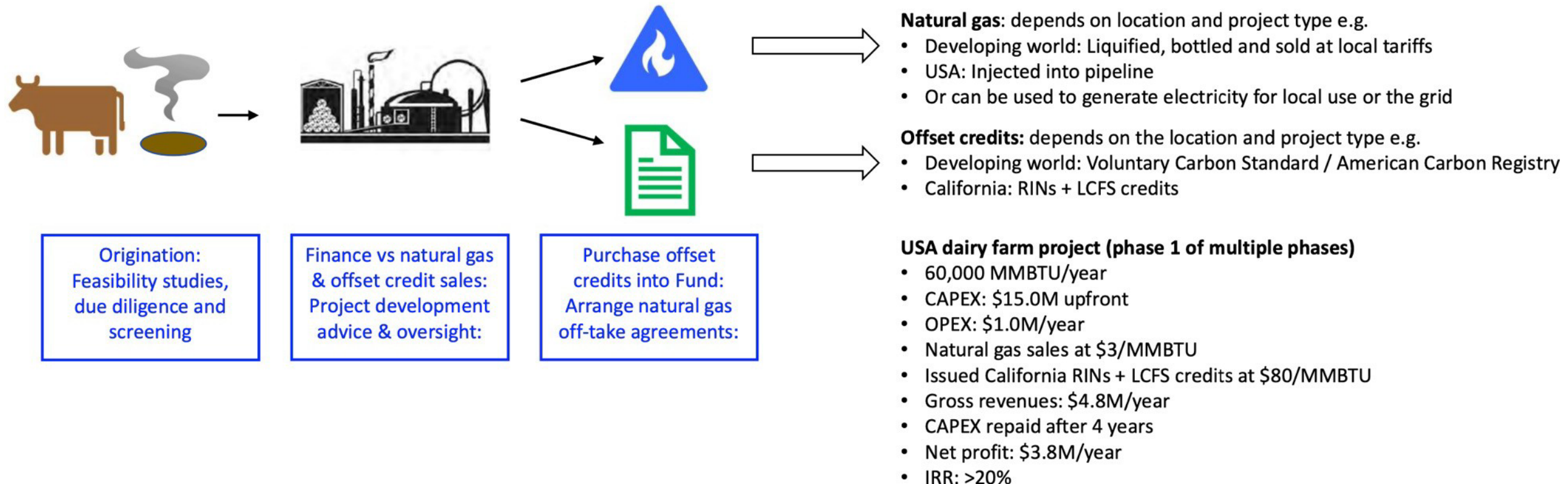
Brazilian avoided deforestation project

- CAPEX: \$1.0M upfront
- OPEX: \$0.5M/year
- Natural boundaries prevent displacement of deforestation
- 20% of VCUs retained to contribute to a buffer reserve
- 1.2M tCO₂e VCUs/year to be released for sale
- Issued VCU sale price \$5/tCO₂e
- CAPEX repaid after 1 year
- Net profit: \$2.7M/year after 50% profit share with local communities
- *Additional profits if anticipated increase in VCU prices occur*

g. Types / Methodologies

Biogas Project:

- Decomposing organic waste (e.g. from milk/meat production, landfill, wastewater treatment) emits methane (“biogas”)
- Methane has a 20-year global warming potential **56 times larger** than CO₂
- Methane emissions can be captured and converted to “renewable natural gas” (RNG)
- RNG can then be liquified and bottled or injected into gas pipelines to displace “fossil” natural gas



All numbers are illustrative and for discussion purposes only.

g. Types / Methodologies

Benefits of the 2 x 50MW Solar Photovoltaic Project – Maharashtra

- Reduction in fossil fuel use and emission of greenhouse gases by the grid due to increased supply and use of renewable energy
 - ~165,000tCO₂e average annual greenhouse gas reduction for 7 years
 - Total emission reduction due to the project is ~1,150,000tCO₂e
- Job creation for locals in skilled technical positions throughout the construction and installation process of the panels

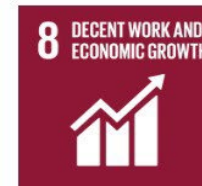


<https://circularecology.com/carbon-offset-projects/renewable-energy-india.html>

Alignment with UN Sustainable Development Goals

The renewable energy projects in India provide numerous social, economic, and environmental benefits and are aligned with the following [UN Sustainable Development Goals \(UN SDGs\)](#).

- UN SDG 3 – Good Health and Well-Being
- UN SDG 4 – Quality Education
- UN SDG 6 – Clean Water and Sanitation
- UN SDG 7 – Affordable and Clean Energy
- UN SDG 8 – Decent Work and Economic Growth
- UN SDG 13 – Climate Action
- UN SDG 15 – Life on Land



Renewable Energy Offsetting Projects – Gold Standard Credits

The renewable energy projects in India are all accredited by the [Gold Standard](#). This ensures that the carbon credits associated with each project are accounted for, tracked, monitored, and regulated.

g. Types / Methodologies

Benefits of the 100MW Wind Power Project – Andhra Pradesh

- Local stakeholder engagement and **community outreach**
- **Provision of clean drinking water infrastructure** to the community at the project site
 - Improved health and sanitation, and **decreased risk of water-borne illnesses**
- Community medical facilities are supported, improving the health of locals
 - Medicines have been distributed to locals where necessary
 - Education on menstrual health
- **Construction of toilet and washing facilities**, and the provision of furniture, for local schools
- **Local employment** during the construction stage of the project



Alignment with UN Sustainable Goals

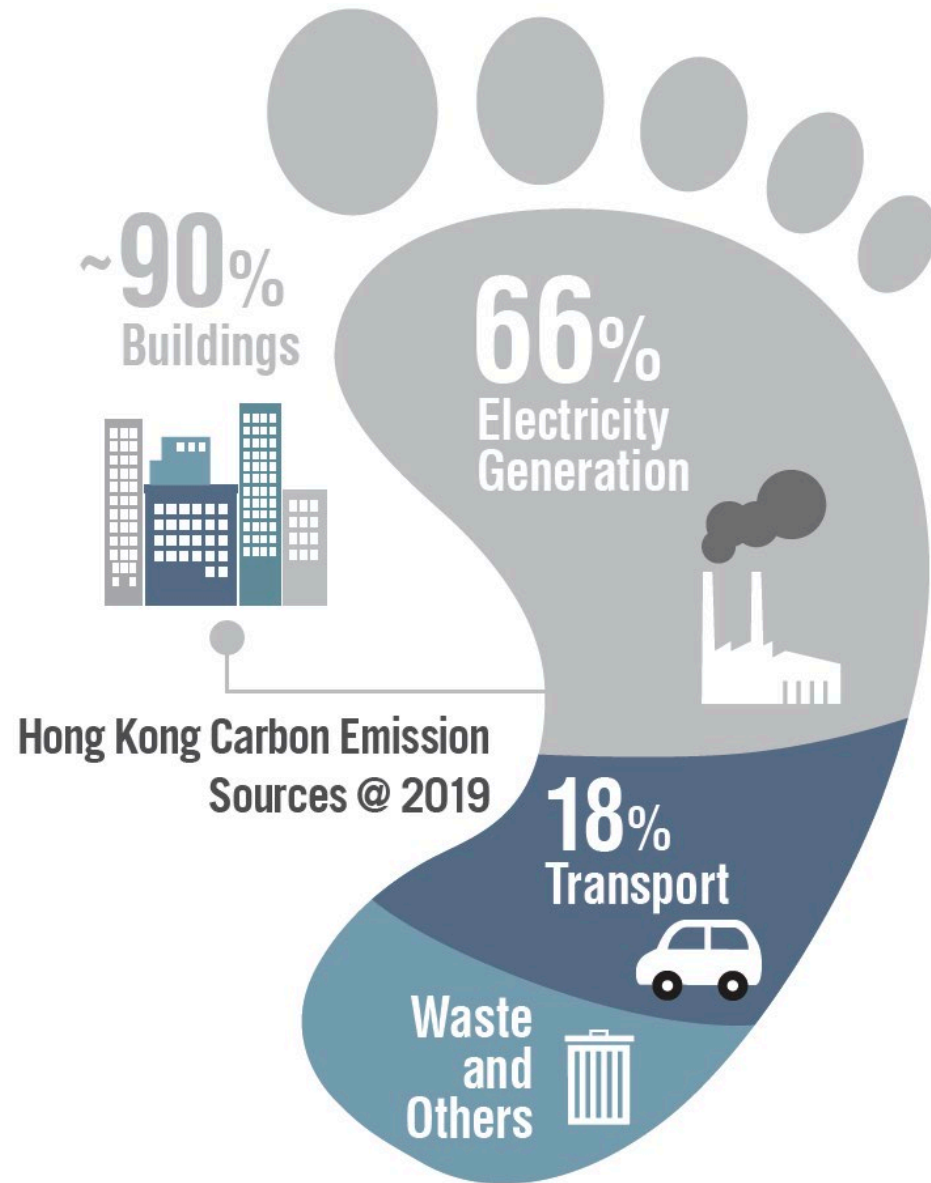
The renewable energy projects in India provide environmental benefits and are aligned with the **Development Goals (UN SDGs)**.

- UN SDG 3 – Good Health and Well-Being
- UN SDG 4 – Quality Education
- UN SDG 6 – Clean Water and Sanitation
- UN SDG 7 – Affordable and Clean Energy
- UN SDG 8 – Decent Work and Economic Growth
- UN SDG 13 – Climate Action
- UN SDG 15 – Life on Land



7.
Climate
Change –
How can
Hong Kong
make a
difference?





Carbon Emissions and Hong Kong

- The Government has set a carbon reduction target of 26% to 36% overall, and a reduction to 3.3-3.8 tonnes on a per capita basis by 2030 (using 2005 as the base).
- In 2021, Hong Kong's Climate Action Plan 2050 outlined four major decarbonisation strategies that would lead Hong Kong towards the goal of carbon neutrality before 2050. :
 - Net-zero electricity generation: *getting coal out of electricity generation.*
 - Energy saving and green buildings: *new ordinances, guidelines and labelling schemes*
 - Green transport: *conversion of buses to electric and incentives for private vehicles*
 - Waste reduction: *enhanced recycling efforts*

Strategies • Opportunities

Moving towards carbon neutrality can bring ample and diverse development opportunities, enhance Hong Kong's competitiveness and support sustainable development

Steering and Coordination

The Steering Committee on Climate Change and Carbon Neutrality under the chairmanship of the Chief Executive to formulate the overall strategy

Climate Budget

Allocate ~ **\$240 billion** to combat climate change in the next 15 to 20 years

Office of Climate Change and Carbon Neutrality

Set up a new office to strengthen coordination and promote decarbonisation

Advisory Committee

Establish a dedicated advisory committee to encourage public participation, including young people

Public Engagement

Government to work together with different sectors to promote low-carbon lifestyle

Green Finance

Accelerate the development of green and sustainable finance, develop Hong Kong into a green financial hub in the region

Green Economy

Facilitate the development of green industries, create investment and job opportunities

Technology and Innovation

Promote I&T development and re-industrialisation, facilitate the application of decarbonisation technologies and green R&D

Capacity Building

Climate change-related content to be incorporated into the curricula of tertiary institutions

Carbon-neutral Communities

Develop strategic growth areas into carbon-neutral communities

“As a leading international financial centre and innovation and technology hub, Hong Kong will capitalise on the opportunities to develop the city into a leading green financial centre and a new hub for smart and green technology.

The Green and Sustainable Finance Cross-Agency Steering Group, led by the Hong Kong Monetary Authority and the Securities and Futures Commission, was established last year to accelerate the growth of green and sustainable finance in Hong Kong. ”

C.E. Carrie Lam



Questions?

8. Climate Change – References

Reference link

- Slide 12 - https://wwf.panda.org/discover/our_focus/climate_and_energy_practice/ipcc152/
- Slide 17,18,2,21,29,30 – TD Securities PPT presentation October 2021 “Carbon Credit Markets 101” <https://www.tdsecurities.com/ca/en>
- Slide 22 – Vivid Economics Emission Trading in Practice: A handbook on Design and Implementation (Second edition) <https://www.vivideconomics.com/casestudy/emissions-trading-in-practice-a-handbook-on-design-and-implementation-second-edition/>
- Slide 27,28 - <https://vcmprimer.org/chapter-8-how-are-carbon-credits-generated/>
- Slide 37 – Ecosystem Marketplace, State of the Voluntary Carbon Markets report <https://www.ecosystemmarketplace.com/>
- Slide 41, 43-46 – Circular Ecology <https://circularecology.com/carbon-offset-projects.html>