CFNT
Climate Finance Network Thailand

BKK CAW

Mobilizing Climate Finance for a Climate Resilient Bangkok

Living the Impacts, Leading the Change.

#BKKCAW2025

CFNT
Climate Finance Network Thailand

BKK CAW

Climate Finance Tracker Presentation

Thanida Lawseriwanich

Head of Research,
Climate Finance
Network Thailand

CFNT
Climate Finance Network Thailand

Thailand Climate Finance Landscape

Bangkok Climate Action Week
30 September 2025

Thailand Climate Finance Landscape 2025

- **Part 1: Setting the Scene**
  From climate change to climate crisis

- **Part 2: Climate Finance and Methodology**
  Key definitions, methodologies,
  What we include and exclude

- **Part 3: Key Results and Limitations**
  Key insights from the Tracker and limitations
  Let's explore our data!

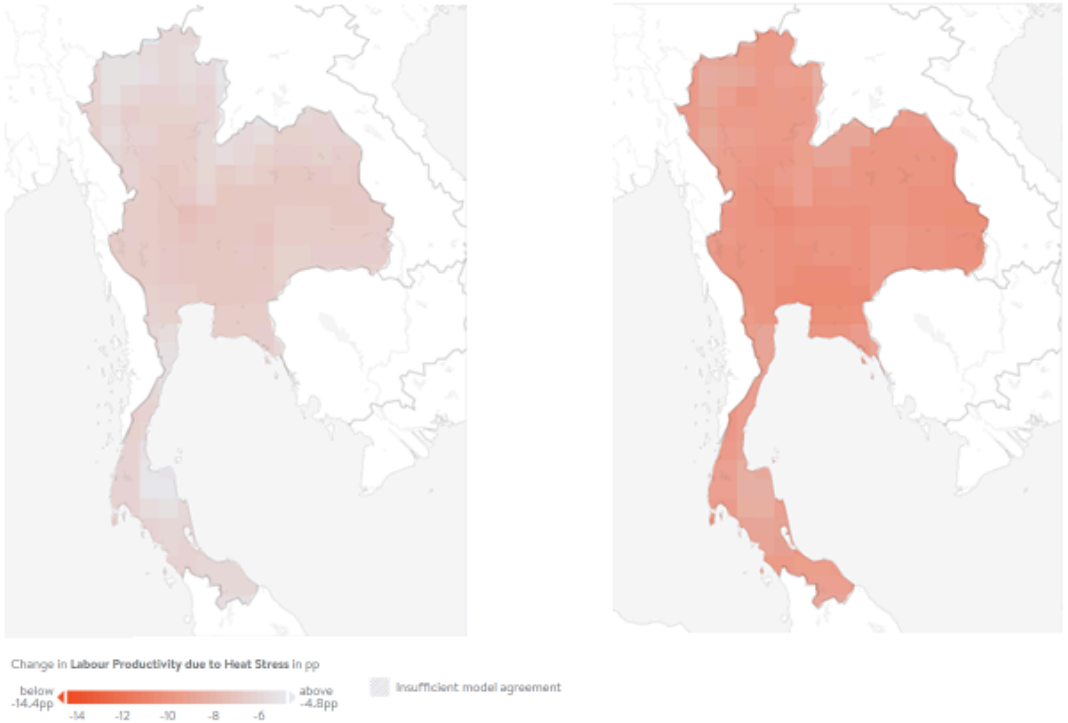
CFNT
Climate Finance Network Thailand

Thailand faced and will face significant costs from climate-related disasters.

Labor Productivity due to Heat Stress in Thailand in 2050

RCP 2.6 scenario

RCP 8.5 scenario



USD 30,312 million or 6.6% of GDP

*Thailand's **expected average annual loss** under 2-degree climate change scenario*

USD 5,088 million or 1.2% of GDP

*Thailand's **cost of adapting** to related to climate hazards such as floods, tropical cyclones and droughts*

(Based on RCP 8.5 scenario calculated by UNESCAP, 2024)

THB 17,912 - 83,826 million /year

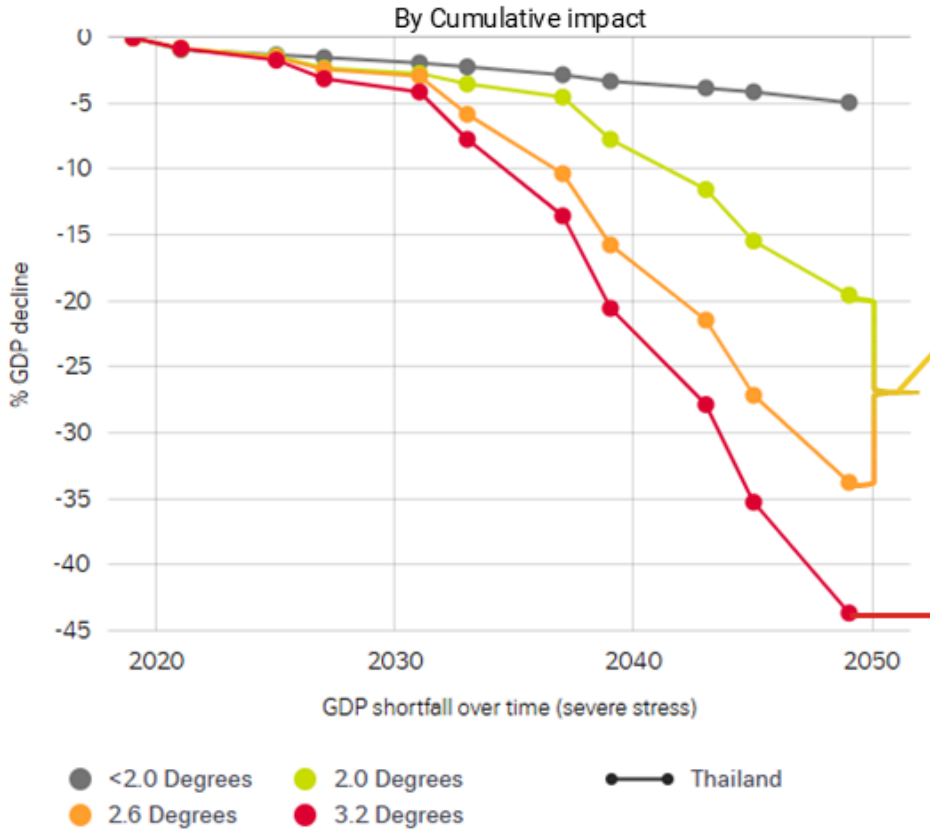
***Cumulative damages** of climate change on Thailand's **agriculture** between 2021-2045*

(Attavanich, 2017)

Source: PIER (2024). Landscape of Adaptation Finance in Thailand. , UNESCAP (2025). Risk and Resilience Portal., Climate Analytics (2025). Climate Impact Explorer.

GDP could decline by as much as 33% – 44% from climate crisis.

% GDP loss by 2048 for key climate scenarios



33.2 %

43.6 %

According to Swiss Re's 2021 projections, Thailand could lose **33.2% of GDP by 2048** under a 2–2.6◦C scenario.

GDP loss could increase to 43.6% under a 3.2◦C severe scenario by 2048.

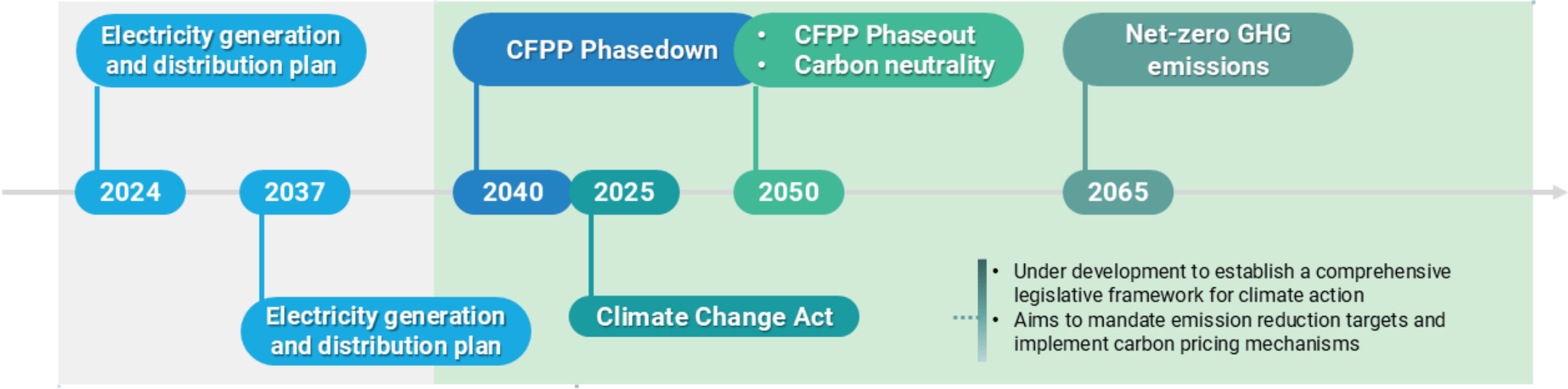
Source: Swiss Re Institute (2021). The economics of climate change.

CFNT
Climate Finance Network Thailand

Thailand places top priority on climate mitigation.

LT-LEDS (Long-Term Low Emission Development Strategy)

- **National roadmap under the Paris Agreement, aligned with Thailand's NDC**
- Targets: Carbon neutrality by 2050 and net-zero GHG emissions by 2065
- Coal-fired power plant (CFPP) objectives: Phasedown by 2040 and phaseout by 2050



Draft PDP2024

- Electricity generation and distribution plan for 2024–2037
- Sets renewable energy mix targets with no new coal power plants
- Does not provide a clear strategy for phasing out existing CFPPs

Source: Ministry of Energy (2024). Draft PDP 2024.. Creagy (2024). Boosting Energy to Tackle Climate Change: The New National Energy Plan and Climate Change Laws., ONEP (2022). Thailand's Long-Term Low Greenhouse Gas Emission Development Strategy (Revised Version)

Thailand plans NDC 3.0 to achieve Net Zero emissions by 2050.

By 2035
Target Reduction
(Exclude LULUCF)

109.2 $MtCO_2e$ (28.8%)
from 2019

Thailand aims to reduce its emissions to 270.0 $MtCO_2e$ by 2035, a decrease of 109.2 $MtCO_2e$ from 2019 levels. This target reflects Thailand's best efforts to align with the 1.5°C pathway. By 2035, net emissions are projected to reach 152 $MtCO_2e$, representing a net reduction of 135.2 $MtCO_2e$, or 47%, compared to 2019, in line with the global 1.5°C goal.

	Energy	Transport	IPPU	Agriculture	Waste
Domestic Implementation **76.4 $MtCO_2e$ (70%)** *Unconditional Target*	**48.1** $MtCO_2e$ (63.0%)	**16.6** $MtCO_2e$ (21.7%)	**1.5** $MtCO_2e$ (2.0%)	**5.1** $MtCO_2e$ (6.7%)	**5.1** $MtCO_2e$ (6.7%)
International Support **32.8 $MtCO_2e$ (30%)** Conditional Target	**20.0** $MtCO_2e$ (61.0%)	**6.0** $MtCO_2e$ (18.3%)	**2.7** $MtCO_2e$ (8.2%)	**2.5** $MtCO_2e$ (7.6%)	**1.6** $MtCO_2e$ (4.9%)

Source: DCCE (2024). Presentation of NDC 3.0 Public Consultation.

Despite huge costs, Thailand lacks quantified targets on climate adaptation.

OVERALL GOALS

THAILAND'S
NATIONAL ADAPTATION PLAN (NAP)

Short-term goal (2023 – 2027)

- Raise awareness
- Develop policy tools
- Build data systems to support decision-making.

Medium-term goal (2028 – 2032)

- Strengthen policy and mainstreaming
- Enhance implementation capacity
- Improve data and knowledge for tracking progress and decision-making.

Long-term and continuous goal (2033 – 2037)

- Ensure climate resilience
- Sustain awareness and data capacities
- Regularly monitor progress to update policies and plans.

SECTOR SPECIFIC GOALS

Water

Strengthen water security and reduce losses from water-related disasters.

Agriculture

Safeguard agricultural productivity and food security from climate risks.

Tourism

Build tourism resilience for sustainable growth and climate risk management.

Health

Ensure an efficient and resilient health system to manage climate risks and impacts.

Natural resources

Promote sustainable resource and biodiversity management for climate resilience.

Human settlement

Strengthen local readiness (individuals, communities, and urban area) and adaptive capacity to climate risks.

Source: UNFCCC (2024). Thailand National Adaptation Plan 2024.

Climate Vulnerability in Urban Areas

Key driven

1. Temperature rising

Urbanization and shrinking green spaces made the eastern region 2.56C hotter in the past decade.

- Bangkok's temperature has risen by 5.26°C over 25 years,
- Chiang Mai temperature often exceeds 36°C

2. Land subsidence

Bangkok has experienced **severe land subsidence** due to the **excessive extraction of groundwater** for industrial, agricultural, and domestic use.

The city's foundation is built on soft clay, which compresses easily when the water pressure in underground aquifers drops.

3. Sea level rising

Most of urban area are located nearby the river or connected to the ocean. For example, Bangkok is **a low-lying city with an average elevation of 1.5 metres.** Projected sea level rise of 1–2 metres could inundate much of the city by the end of the century.

4. Rainfall increasing

Heavier and more frequent rain **overwhelms existing drainage systems**, especially in densely built areas with **limited green space.**

During rush hours, heavy rain **causes up to 2,000 hours of travel delays daily, based on traffic at just 16 major Bangkok intersections.**

Climate risk

Heat Stress

Extreme heat in Bangkok already causes hundreds of deaths annually and could claim over 2,300. Productivity losses from heat exceed those of traffic and air pollution.

Flood

Flooding poses a **critical challenge** in Bangkok, where the BMA has identified 737 hotspots, a situation intensified by increasingly frequent rainstorms.

Erosion

Rising sea levels and intensifying storms have **eroded 26% of Thailand's 3,151-kilometre coastline**, including **2,735 rai in Bangkok's Bang Khun Thian district**.

Source: TDRI (2025). Adapting cities to climate change., N. Phien-wej et al (2005). Land subsidence in Bangkok, Thailand., Earth.org (2020). Sea Level Rise Projection Map –Bangkok.

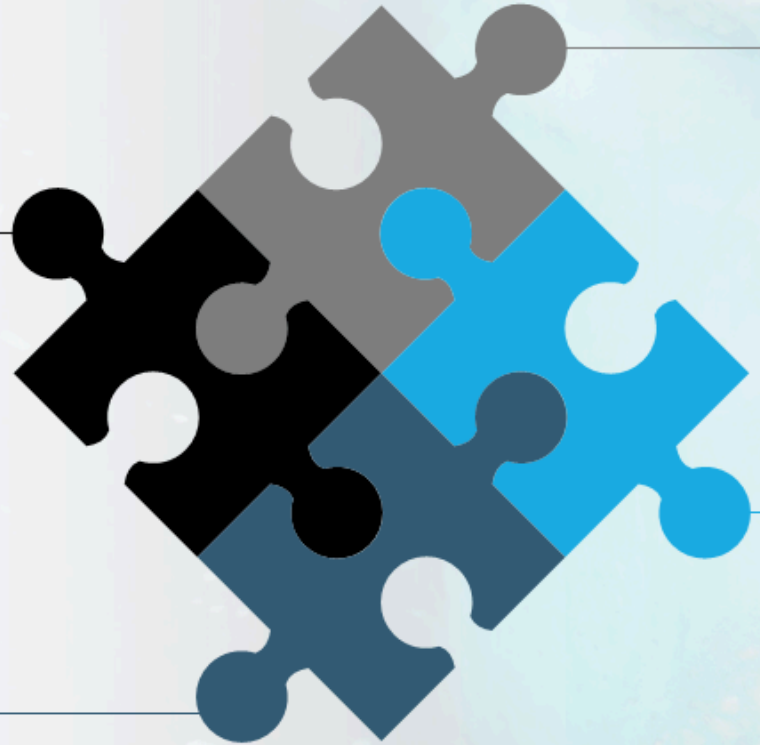
What's important to achieve both climate mitigation and adaptation?

Policy & Plan

Political will is necessary in shaping policy and plan to achieve climate goals and reduce impacts from climate change.

Public Engagement

Citizen and community involvement in policymaking and planning is crucial for a just transition and resilience.



Technological Advancement

Commercially viable technologies to enhance transition to low-carbon and resilience economy.

Funding & Financing

Significant catalyzer of climate mitigation and adaptation efforts to create tangible climate actions.

How much climate finance is needed?

How close are we to hitting our targets?

Are we on track?

Where is the funding coming from?

Is it being used effectively?

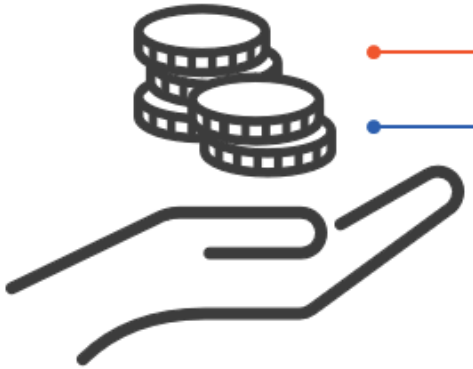
Any clear answers?

Not yet.

Source: OECD (2024). Clean Energy Finance and Investment Roadmap of Thailand., PIER (2024) Climate Adaptation Landscape in Thailand.

What is Climate Finance?

Climate finance is ***any*** funding — **public or private** — used to **support**



Mitigation Cutting GHG emission

Adaptation Reducing impact from climate change

IT CAN COME AS:

Government budgets

Federal and local government's allocated budgets

Bank loans

A sum of money borrowed from a bank

Green bonds

Debt instruments dedicated to financing environmentally sound and sustainable projects

Grants / concessional finance

Below market rate finance provided by development financial institutions and impact investors

Source: Climate Policy Initiative (2023). Global Landscape of Climate Finance 2023 Methodology., World Bank (2021). What do you need to know about concessional finance., ICMA (2025). Green Bond Principles.

Mitigation vs Adaptation – What's the Difference?

Climate Mitigation

Installing solar rooftop

Electrifying mass transit

"Preventing Climate Crisis"

EV charging stations

Building energy efficiency

Climate Adaptation

Urban cooling

Early warning systems for heatwaves

"Managing Emerging Risks"

Drought-resilient farming

Regenerative agriculture

Two Lenses, One Picture

The Climate Finance Tracker captures available public data on primary financing that support GHG emissions reductions (mitigation) and climate adaptation. The Tracker consolidates data from wide range of primary and secondary sources of financing.

Mitigation

1 Mitigation tracker follows Climate Policy Initiative's methodology on climate finance landscape

Adaptation

2 Adaption tracker uses Tailwind Taxonomy for definition and sector classification

Source: Climate Policy Initiative (2023). Global Landscape of Climate Finance 2023 Methodology, Tailwind (2024). Tailwind Taxonomy.

What we count, and what we exclude.

What we count:

- Only new primary finance, 2018 – May 2025 (for mitigation) and 2020 – 2024 (for adaptation)
- Clear climate objective (GHG cut or climate adaptation)
- Both public and private flows
- Conservative estimates — (try to) no overclaiming

What we exclude:

- Refinancing, R&D subsidies, secondary markets
- Plug-in hybrids
- Fossil fuels-related investment e.g. clean coal upgrades
- Broad ESG or SDG finance with no climate target

Whose data we captured – illustrative examples

Public

Government ministries	
State-Owned Enterprises (SOEs)	EGAT, RATCH GROUP, IRPC, ptt group, TOT, EXAT
State-owned banks (SOBs)	
Multilateral Development Finance Institution (Examples)	ADB, FAO, gef
National Development Finance Institution	EXIM THAILAND, ออมสิน, SME Development Bank
Multilateral Climate Funds (Examples)	GREEN CLIMATE FUND, CIF CLIMATE INVESTMENT FUNDS, ADAPTATION FUND
Domestic Public Funds	ThaiCI BY ENVIRONMENTAL FUND

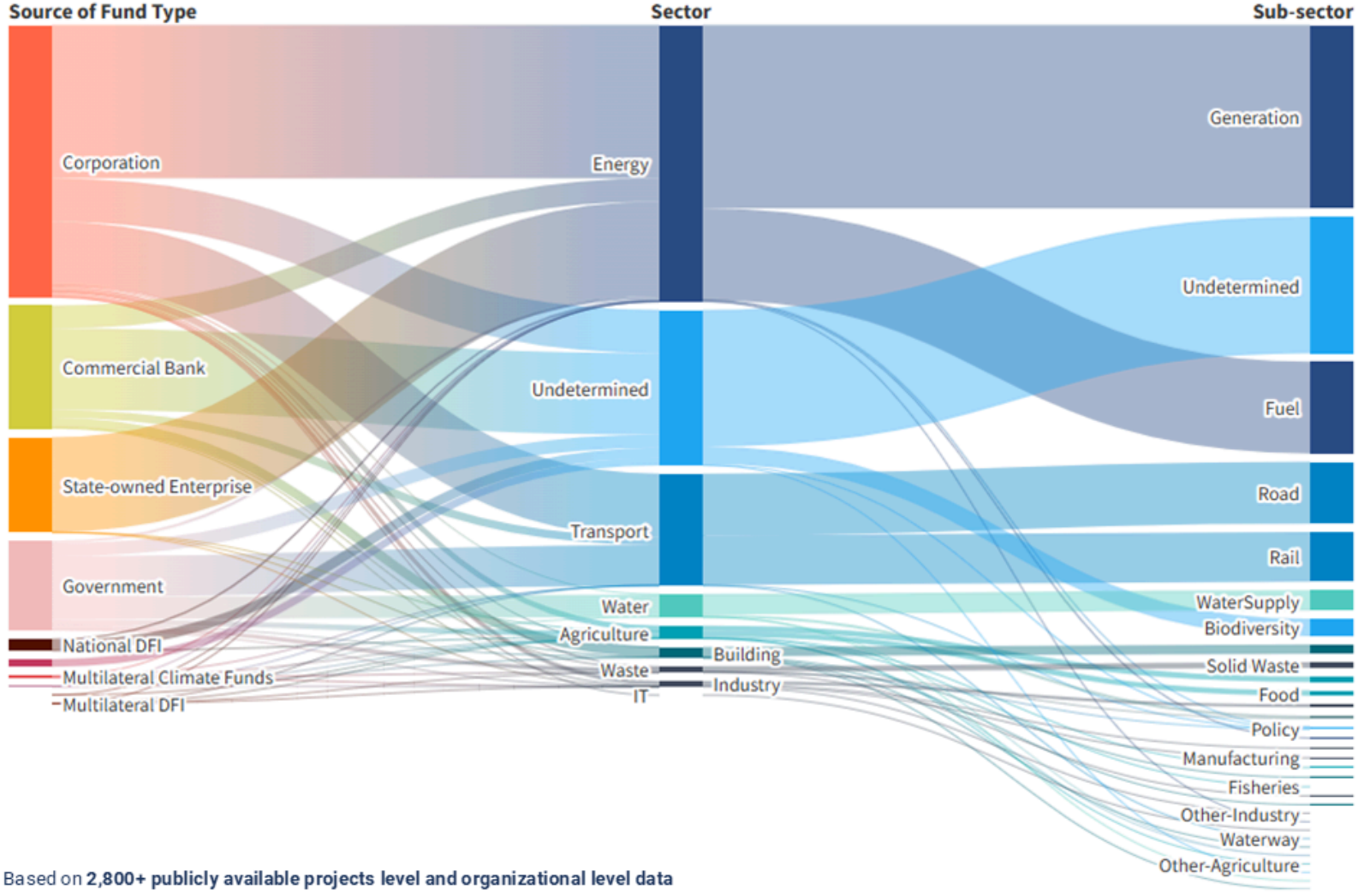
Private

Corporations (Examples)	C.P. GROUP, BAFS, CARABAO GROUP, ThaiBev, GULF, BANPU, GPSC, Thaioil, bcpg, Energy Absolute, B.GRIMM SINCE 1878, SCG, CENTRAL PATTANA
Commercial Banks	SCB, ttb, TISCO, KIATNAKIN PHATRA, UOB
Impact Investors	มูลนิธิแม่ฟ้าหลวง ในพระบรมราชูปถัมภ์ Mae Fah Luang Foundation under Royal Patronage, THAILAND SOLAR FUND กองทุนแสงอาทิตย์, ÆON THAILAND FOUNDATION มูลนิธิอิออนประเทศไทย

Climate Mitigation Finance in Thailand

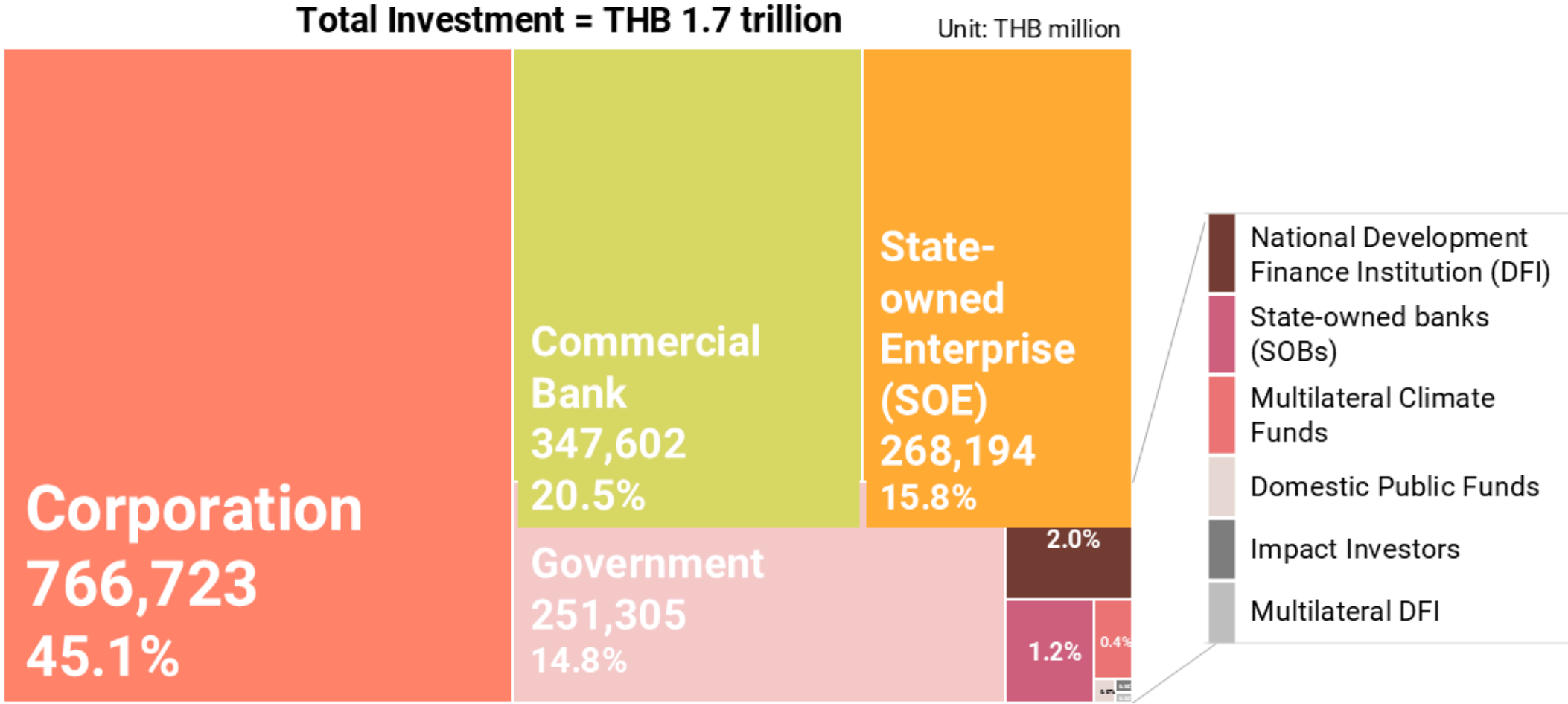
2018 – May 2025

Total Amount: THB 1,698,470.63 million

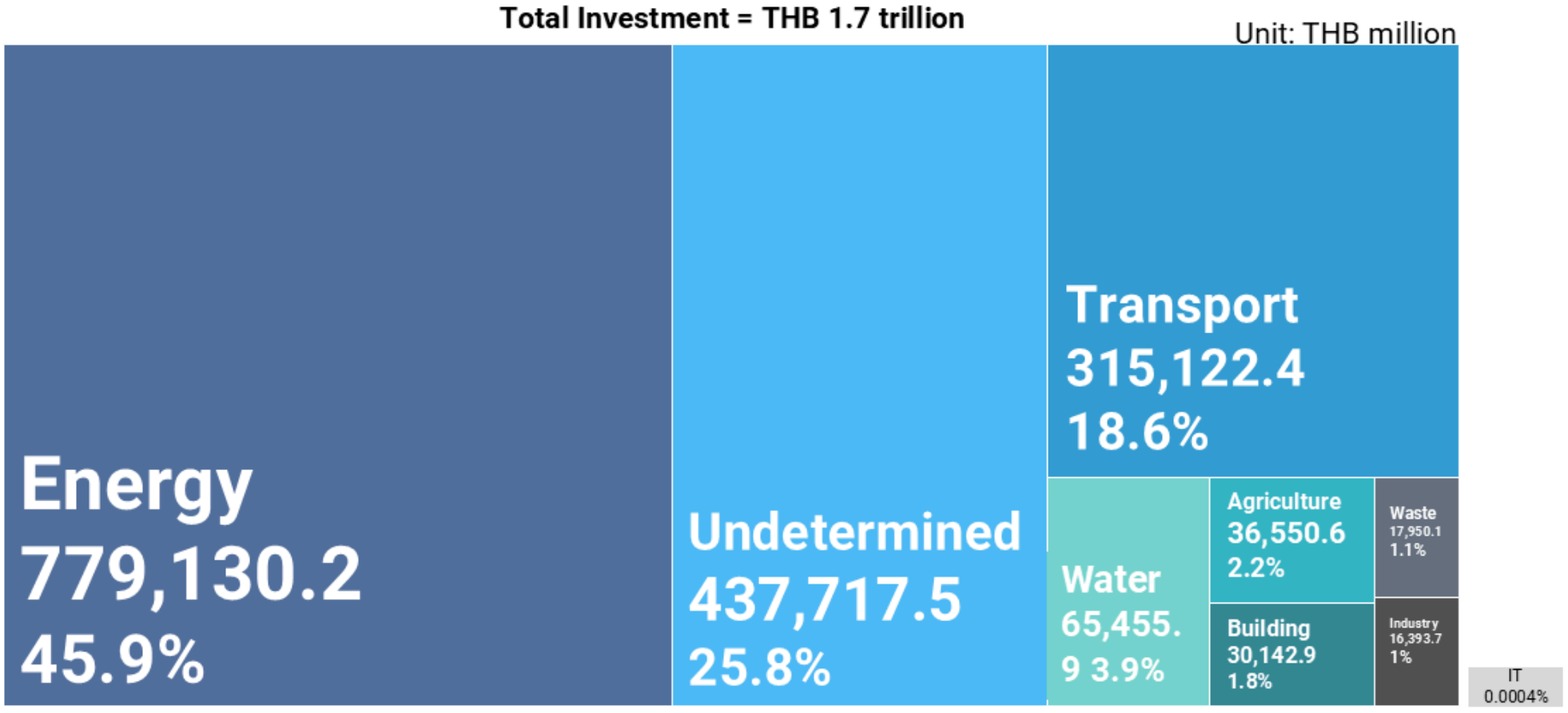


Based on **2,800+ publicly available projects level and organizational level data**

Nearly half of Thailand's climate mitigation finance from 2018 to May 2025 has come from the corporate sector.



Almost two-thirds of climate mitigation finance in Thailand goes to energy and transportation sector.



Energy and transport sectors dominate the top 5 climate mitigation activities.

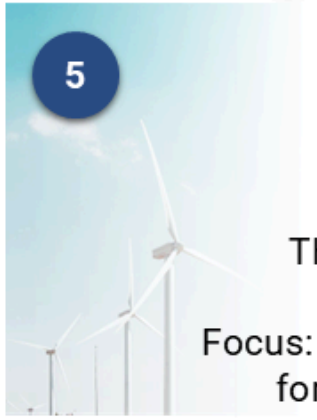
Energy sector Transport sector

1 Solar photovoltaic for power generation

THB 286,524 million
16.9%
Focus: solar PV installation

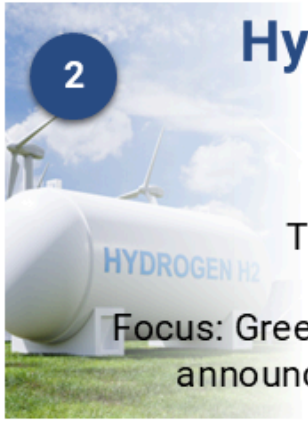
3 Electric vehicles

THB 173,455 million
10.2%
Focus: EV and battery manufacturing



5 Multiple renewables

THB 113,043 million
6.7%
Focus: Mixed renewables for power generation



2 Hydrogen from renewables

THB 232,067 million
13.7%
Focus: Green hydrogen project announced by PTT in 2023

4 Railway and electric transport

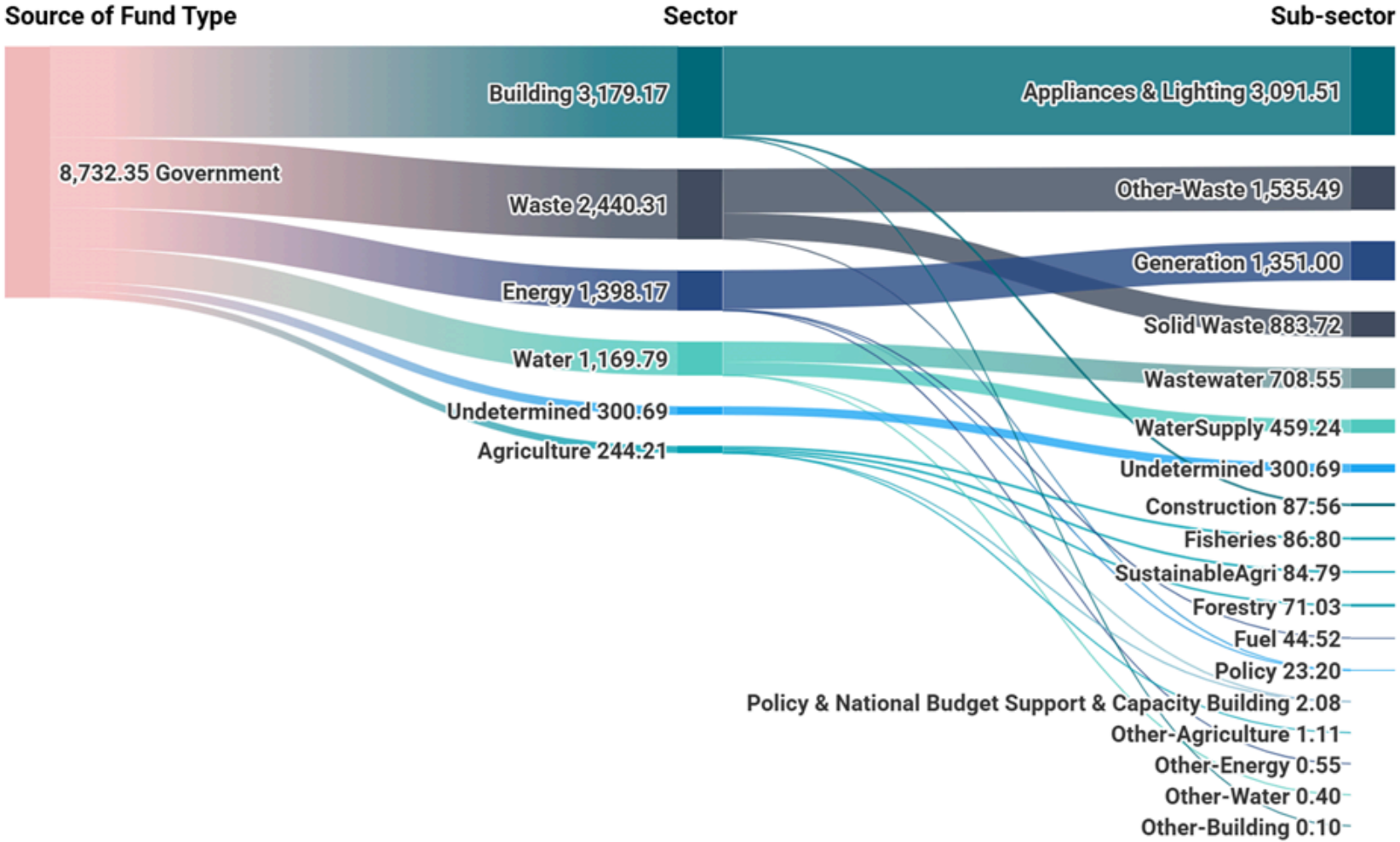
THB 141,381 million
8.3%
Focus: High speed railway, BMTA, MRTA, and BTS projects

Lack of granular data

Undetermined
THB 437,718 million
25.7%

Zooming in: Local government represents less than 5% of total government support

Total amount (local government) = **THB 8,732.35 million** (3.5% of government's climate financing)



Top 3 climate mitigation activities focus on energy and waste management

Energy Generation

THB 1,259.28 million
14.42%
Focus: Waste to energy projects

Energy Efficiency

THB 335.74 million
3.85%
Focus: Building, Appliances & Lighting

Waste Management

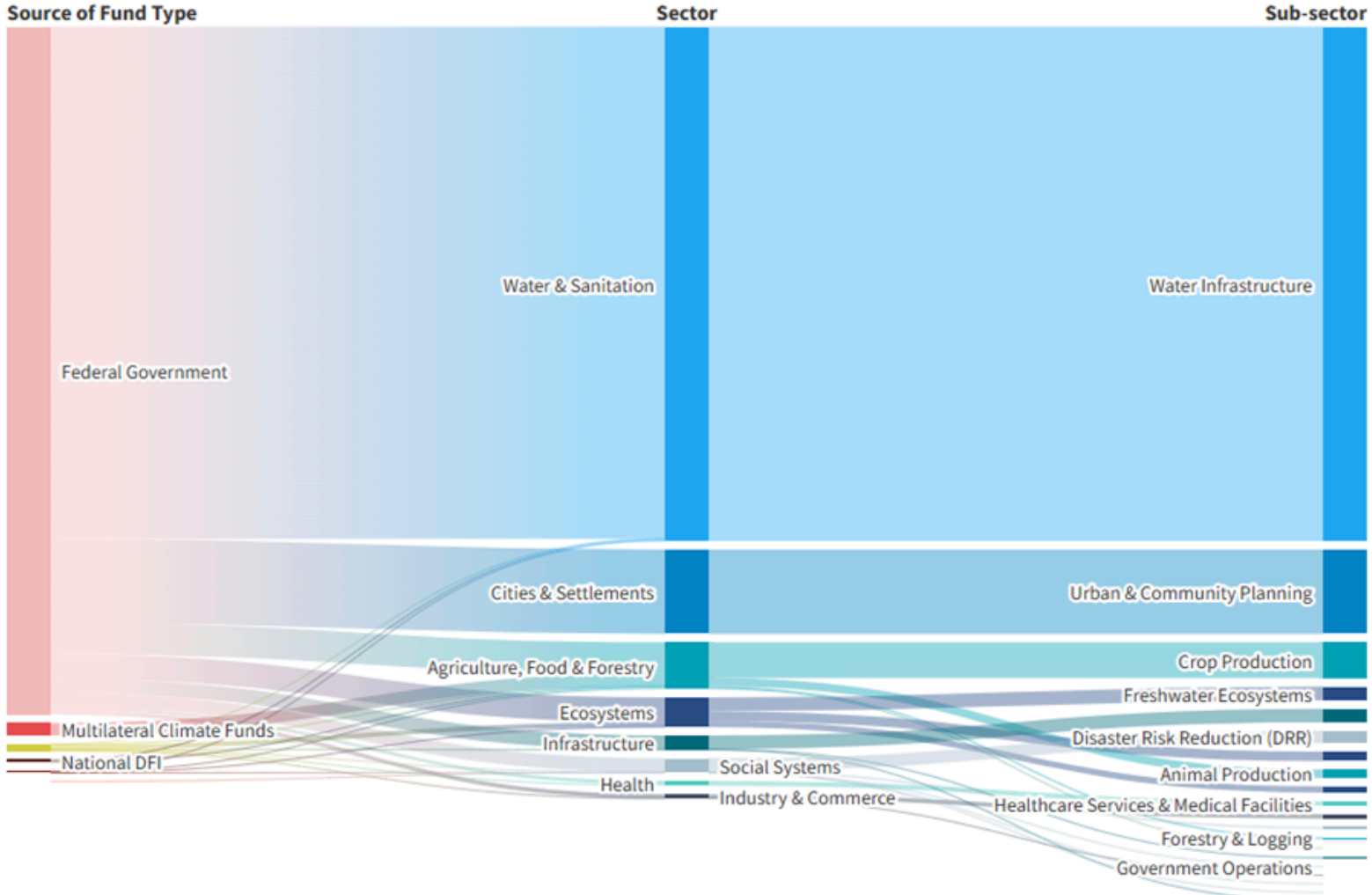
THB 287.43 million
3.30%
Focus: Solid waste management

Climate Adaptation Finance in Thailand

2020 – 2024

Total Amount: THB 148,096.20 million

In collaboration with the Puey Ungphakorn Institute for Economic Research (PIER), we draw data from over **670 publicly available project- and organization-level sources.**



Top 3 climate adaptation activities focus on water and agriculture.

1 **Sustainable water infrastructure**

THB 106,969 million
72.2%
Focus: Irrigated water management to prevent drought and flood

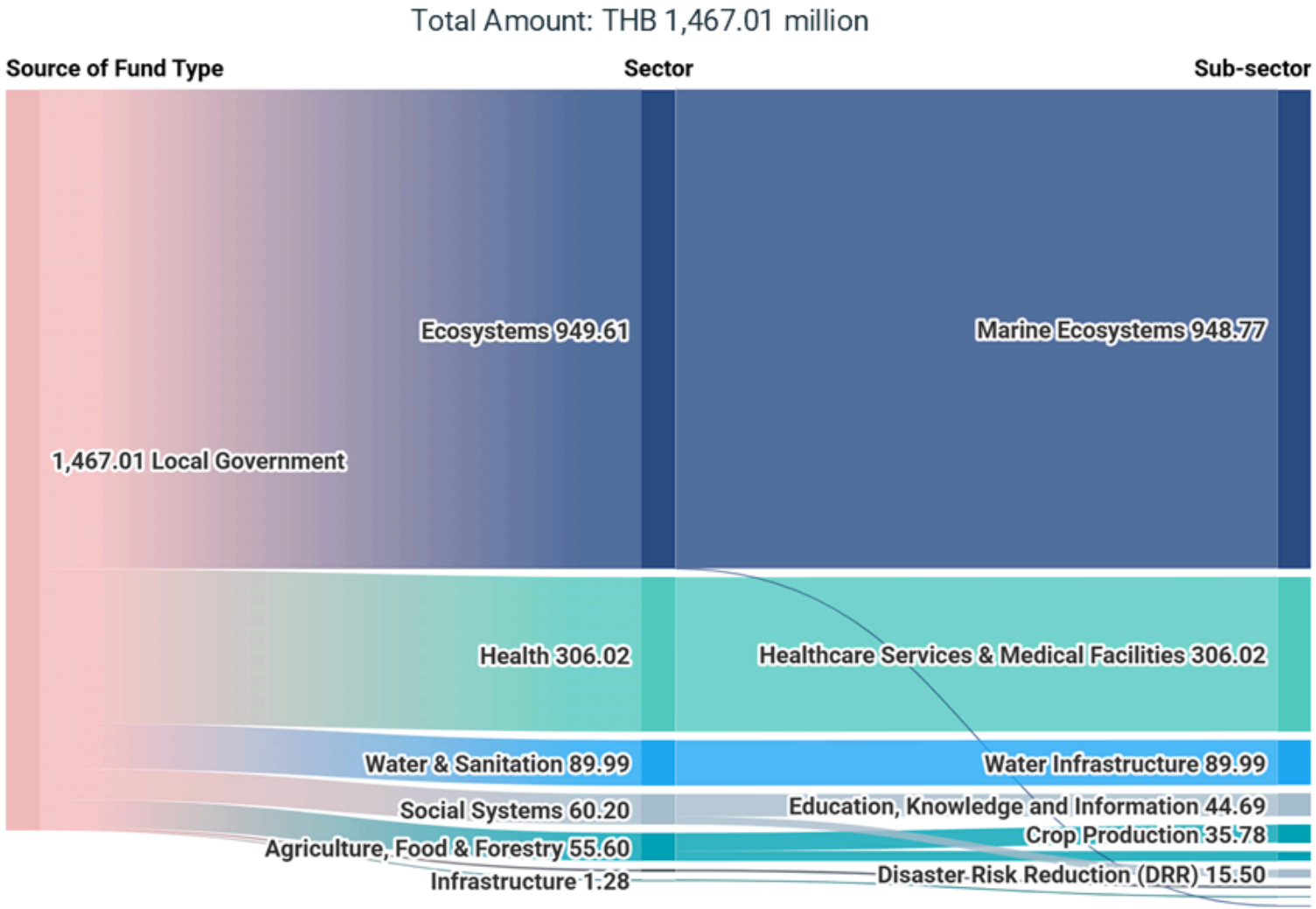
2 **Urban resilience**

THB 17,534 million
11.8%
Focus: Disaster prevention in urban area

3 **Sustainable agriculture**

THB 5,815 million
3.9%
Focus: Integrated farming system

Zooming in: Local government represents less than 1% of total government support



Marine ecosystem accounts for 2/3 of total adaptation finance from local government.

1

Marine ecosystem

THB 949 million
64.69%
Focus: Mangrove plantation for coastal erosion prevention

2

Healthcare services and medical facility

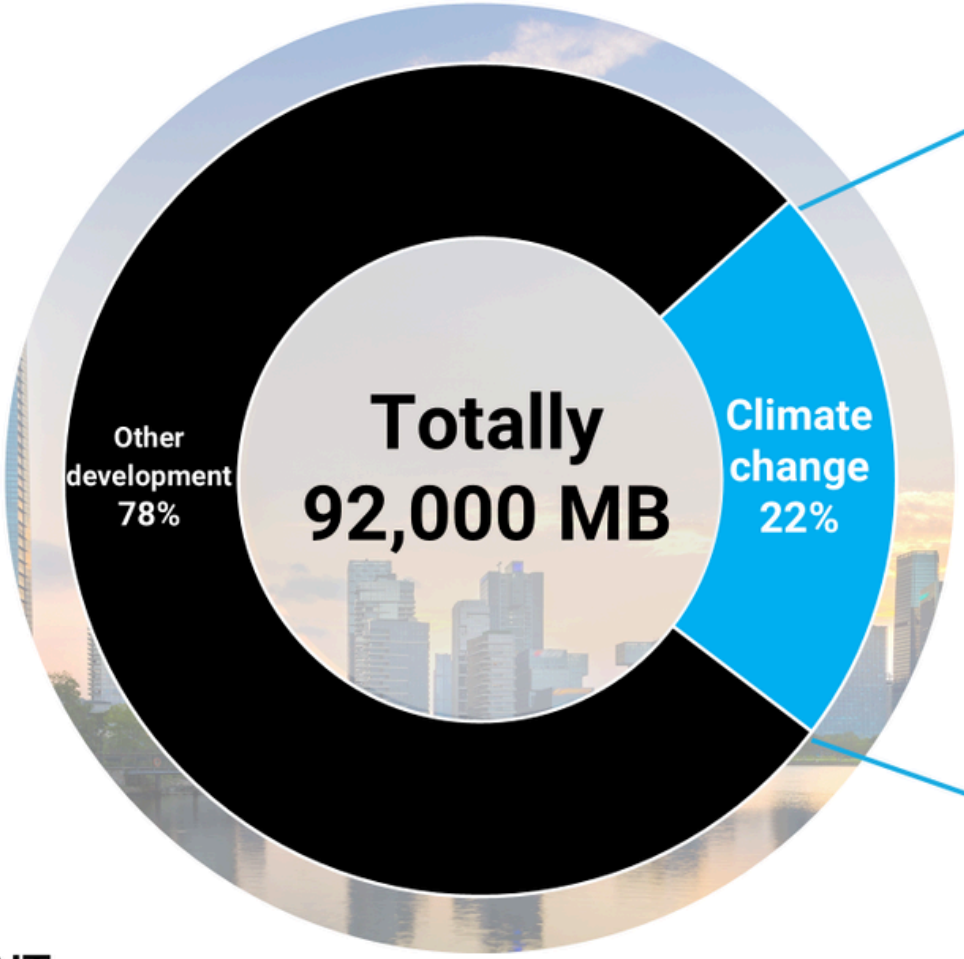
THB 306 million
11.8%
Focus: Emerging & contagious disease prevention (insects)

3

Education, knowledge, and information

THB 44.69 million
3.05%
Focus: Capacity building for adaptation and resilience

Zooming into Bangkok: Bangkok has made progress in climate financing; however, the information is not yet publicly available.



Mitigation
(13,142 MB)
66%

Adaptation
(6,273 MB)
32%

Prevention (470 MB)
2%

Mitigation - Key projects

1. **Waste management**
   - Municipal solid waste sorting
   - Incineration plant
2. **Transportation**
   - BRT, shuttle bus
   - Smart traffic light
3. **Urban Tree planting**

Adaptation - Key projects

1. **Urban flooding prevention**
2. **Green space**
3. **BKK Food Bank for food security**

CFNT
Climate Finance Network Thailand

Source: BMA (2025). Climate Finance Tracker.

Adaptation finance is the missing piece.

= THB 1 trillion

Mitigation Finance

Need

THB 12 trillion in total*

*Estimated by DCCE

2018 – May 2025 total flows

THB 1.7 trillion

Adaptation Finance

Expected Annual Loss

THB 0.9 – 1 trillion*

*Estimated by UNESCAP

2020 – 2024 total flows

THB 148,096 million

Source: DCCE (2024). Thailand's Climate Finance Strategy: Conceptual Framework 2030, UNESCAP (2025). Risk and Resilience Portal.

Limitations: what we know (and what we don't).

No data classification

No widely accepted standard and no mandate to flag the use of funds

Inconsistent level of disclosure

Insufficient detail on sources of fund and instruments

Lack of monitoring, reporting, and verification

Relies on **reported data**, no independent verification, and on **commitments,** not actual disbursements

Let’s explore our data!


CFNT
Climate Finance Network Thailand

CFNT
Climate Finance Network Thailand

BKK CAW

Q&A

Living the Impacts, Leading the Change.

#BKKCAW2025

CFNT
Climate Finance Network Thailand

BKK CAW

Mobilizing Climate Finance for a Climate Resilient Bangkok

Living the Impacts, Leading the Change.

#BKKCAW2025

CFNT
Climate Finance Network Thailand

BKK CAW

Financing Climate Action in Bangkok
Challenges & Opportunities

Nikki Kemp
Executive Director,
Singapore Green
Finance Centre

Guo Hongyu
Deputy Director,
Greenovation Hub

Dr. Ornsaran Manuamorn
Senior Financial Sector
Specialist, Word Bank

Moderator
Thanida Lawseriwanich
Head of Research, CFNT

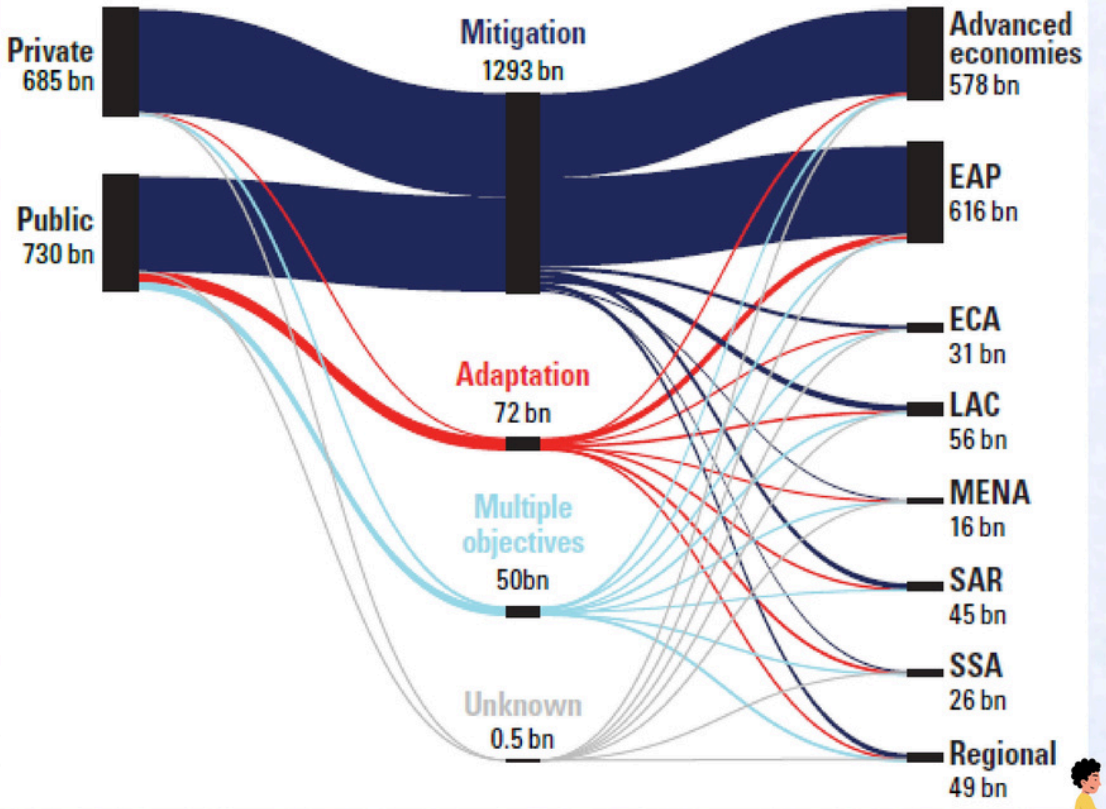
THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

CATALYZING CLIMATE FINANCE FOR THAILAND GREEN ACTION

Dr. Ornsaran Pomme Manuamorn

Senior Financial Sector Specialist
World Bank

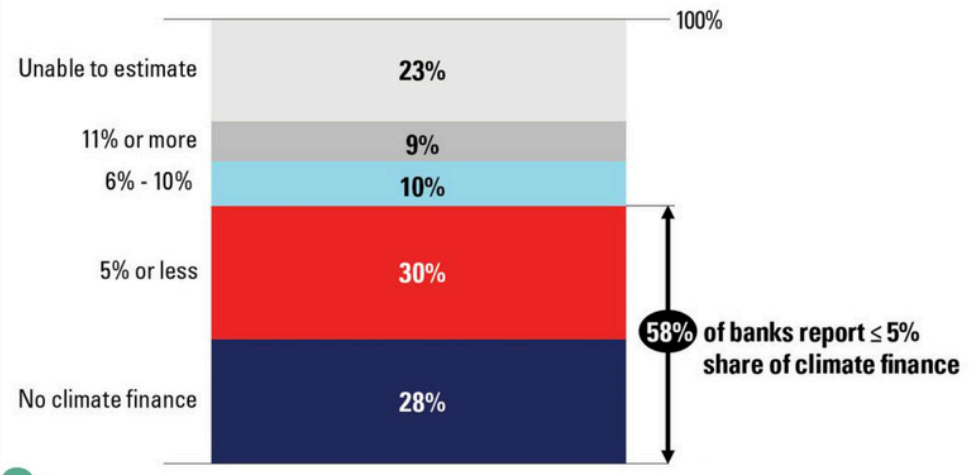
Global climate finance flows in 2022 $ billions



Source: World Bank , Finance and Prosperity Report 2024

Developing countries need 3x more climate financing by 2030, including increased lending by their banks

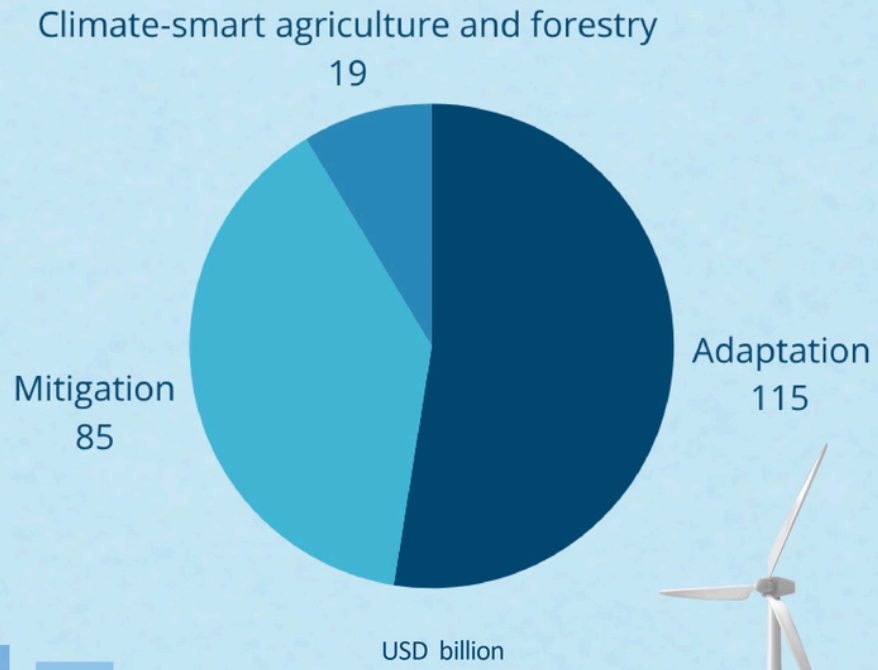
Climate Financing is 5% or less of lending portfolio for almost 60% Emerging Market and Developing Economies (EMDEs) banks
(percent of total loans)



Source: World Bank , Finance and Prosperity Report 2024

Thailand's Climate Finance Needs

Thailand will need an additional **USD 219 billion** in climate investments over the next 25 years, **around 2.4 % of cumulative GDP.**



Priority one

Advance sustainable finance through **greening finance** and **financing green.**

Priority two

Unlock new funding from various sources, including carbon pricing and international carbon markets.

Thailand's Sustainable Finance Landscape

2023 SBFN Overall Progression Matrix

Preparation

Commitment

Formulating

- Eastern Caribbean States**
- Fiji
- Jamaica
- Kosovo
- Kyrgyz Republic
- Lao PDR
- Maldives
- Moldova
- Samoa
- Serbia
- Tajikistan

Implementation

Developing

Thailand

- Argentina
- Armenia
- Azerbaijan
- Cambodia
- Chile
- Costa Rica
- Dominican Republic
- Ecuador
- Guatemala

Advancing

- Bangladesh
- Egypt
- Ghana
- Kenya
- Mongolia
- Morocco
- Nigeria
- Paraguay
- Philippines
- South Africa
- Sri Lanka
- Türkiye
- Vietnam

Maturing

Consolidating

- Brazil
- China
- Colombia
- Georgia
- Indonesia
- Mexico

Mainstreaming behavioral changes

Source : https://www.sbfnetwork.org/wp-content/uploads/2024/10/2024-sbfn-global-progress-brief-en.pdf

Financing Low Carbon Cities :
Cities as Climate Actors

Bangkok's e-bus deal with Switzerland set a precedent under Article 6.2.

TOD can drive up to **$2B/year** in green investment by making Pattaya, Khon Kaen, and outer Bangkok more walkable, connected, and less car-dependent.

Other themes of climate investments: Water Resilience, Heat Resilience, Coastal Resilience, Nature-based Solutions etc.

Thailand Low Carbon City offers system-building support to accelerate decarbonization investments

Advance domestic carbon pricing instruments

Support to reduce emissions in hard-to-abate sectors, build foundation for ETS, support T-VER accreditation, develop mechanism to aggregate VERs at scale, & pilot digital MRV

Strengthen regulatory & institutional frameworks for climate finance

Strengthen financial regulations to classify carbon credits, register brokers, & encourage green finance instruments

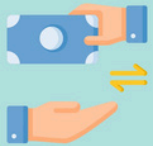
LCC enable subnational asset upgrades in cities.

Facilitate urban investments to generate large volumes of VERs

LCC enable subnational Urban credit bundling could **unlock $1.5B in carbon value.**

Catalyze private sector participation

Engage private sector to upgrade implement asset upgrades



Support market transaction

Develop innovative financing strategies & facilitateinternational carbon credit sales

In October 2026, Thailand will host the IMF-World Bank Group Annual Meetings, for the first time since 1991

These events aim to reflect on Thailand's development journey while charting pathways for the future, anchored by the development vision report and foresight process

"**Building Thailand's Future Today**"

Vision

An inclusive and sustainable high-income society

Disruption

Successfully navigating global mega trends

Industry pathways

Building Thailand's industries of the future

- Digital services
- Green manufacturing
- Kitchen of the world
- Sustainable tourism
- Creative economy

Key enablers

- Spurring investment, innovation, and trade
- Investing in Thailand's future workforce
- Building Thailand's cities of the future


THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP
Thank You

CFNT
Climate Finance Network Thailand

BKK CAW

Q&A

Living the Impacts, Leading the Change.

#BKKCAW2025

CFNT
Climate Finance Network Thailand

BKK CAW

Mobilizing Climate Finance for a Climate Resilient Bangkok

Living the Impacts, Leading the Change.

#BKKCAW2025

CFNT
Climate Finance Network Thailand

BKK CAW

Feedback Form for the 2025 Climate Finance Tracker Launch Event

#BKKCAW2025