

World Bank x PIER Climate Finance Forum

# Landscape of Adaptation Finance in Thailand

Kannika Thampanishvong, Ph.D.

Puey Ungphakorn Institute for Economic Research (PIER)



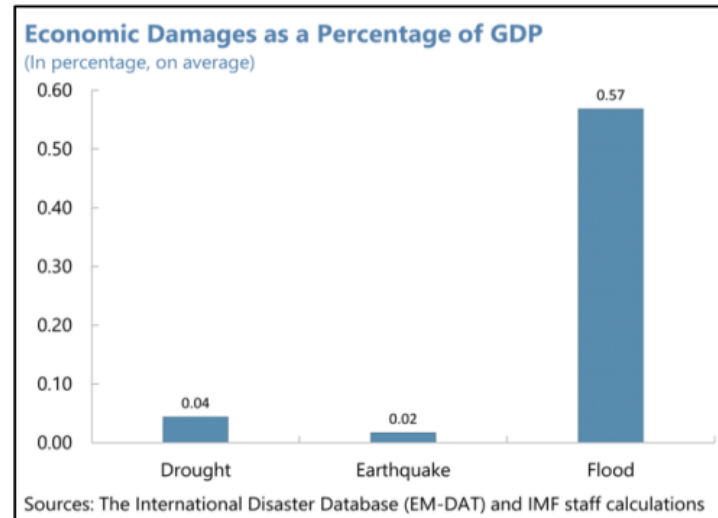
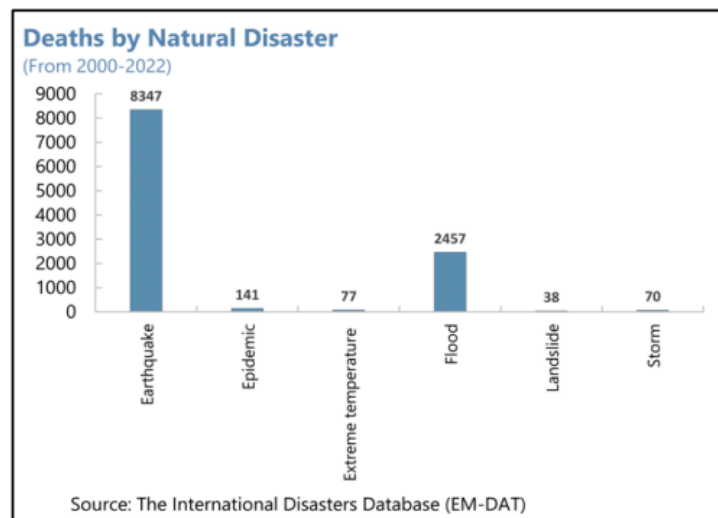
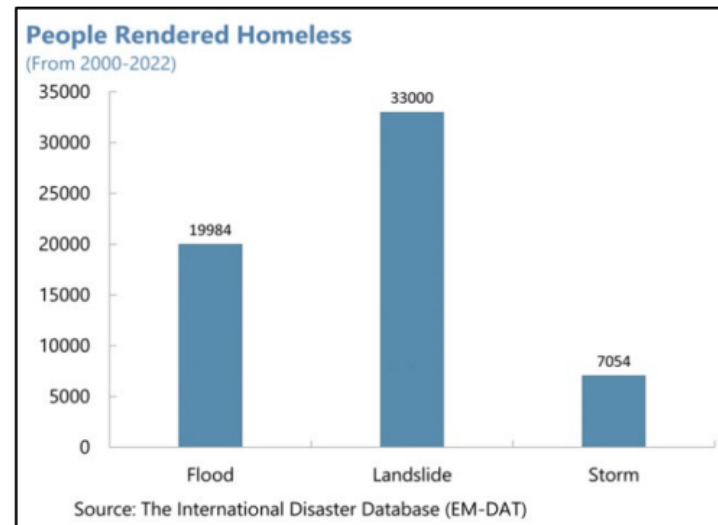
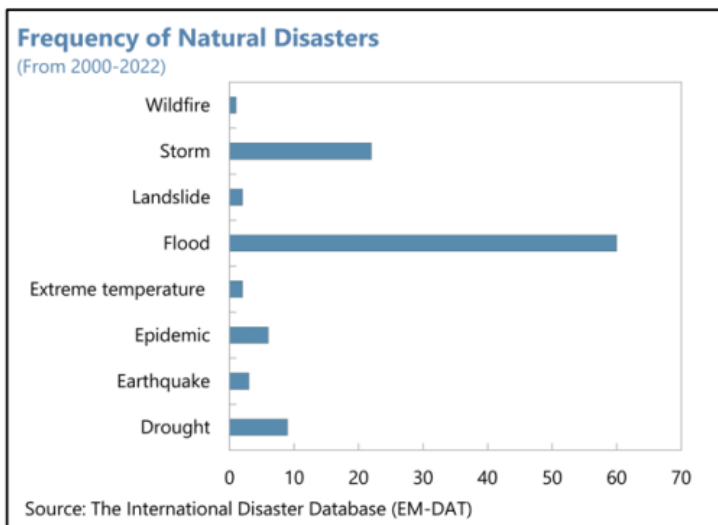
PUEY UNGPHAKORN INSTITUTE  
FOR ECONOMIC RESEARCH

Disclaimer: The opinions expressed herein are those of the authors. They do not purport to reflect the opinions or views of the Bank of Thailand, PIER or its members.

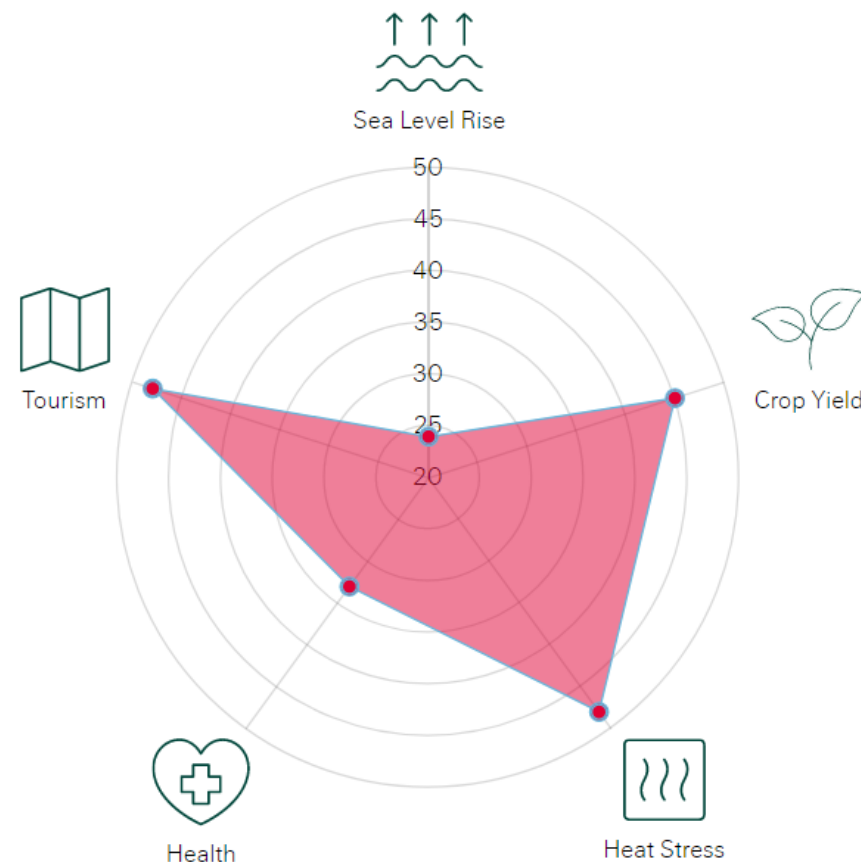
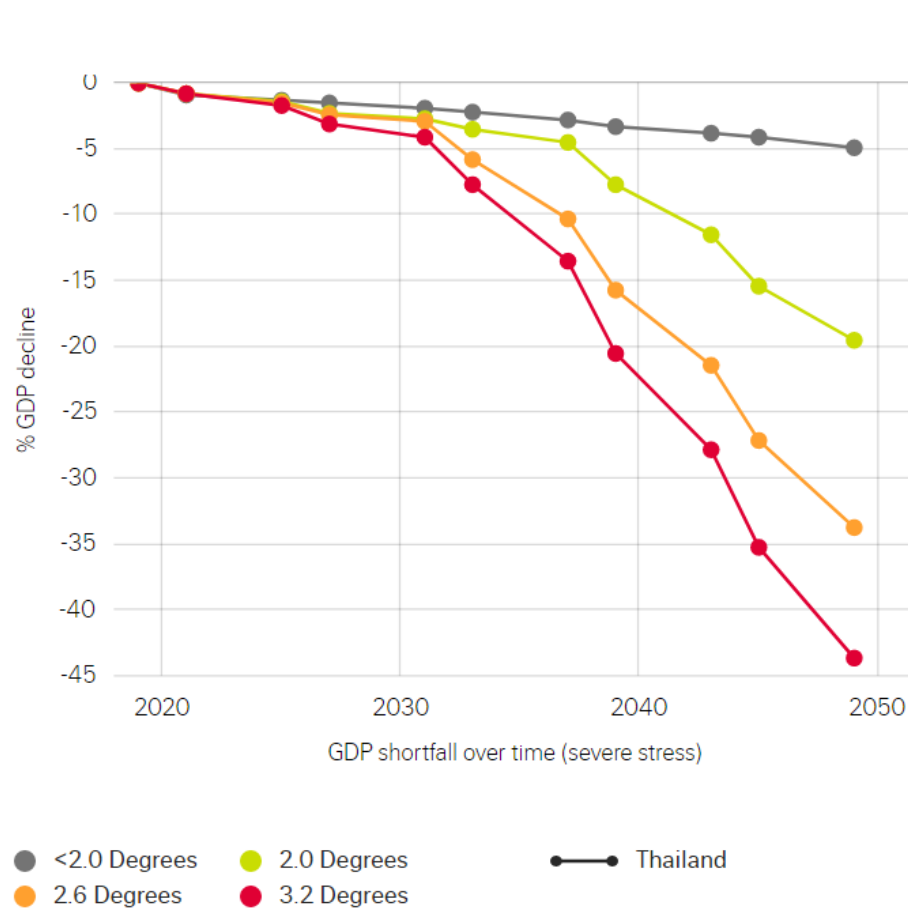
# Rationale for Climate Finance

- Thailand is both highly vulnerable to climate change and a relatively important producer of global emissions.
- For several years, Thailand was ranked among the top 10 countries in the world most impacted by extreme weather events in the last two decades.
- Thailand accounts for about 0.8 percent of global emissions (but only 0.5 percent of global GDP).
- The country also faces looming challenges in energy security, an important area considering that decisions on energy security will impact GHG emissions
- The Thai Government acknowledges the intrinsic importance of climate change for sustainable development in both the Paris Agreement and Thailand's long-term low GHG emissions development strategy (LT-EDS). The strategy implies achieving carbon neutrality in 2050, and net zero emissions in or before 2065.

# Costs Associated Climate-related Disasters Have been High in Thailand



# Projected Costs of Climate Change on Thai Economy



# Sectoral Impacts of Climate Change are Heterogeneous

## Agriculture

- Impacts on yields/productivity of crop and livestock
- Impacts on farming areas
- Cumulative damages of climate change on Thailand's agriculture during 2021-2045 are around 0.61-2.85 trillion THB or 17,912-83,826 million THB/year (Attavanich, 2017)

## Industrial

- Extreme weather events, especially floods and drought, adversely impact the manufacturing process and damage the factory, machinery and equipment.

## Tourism

- High temperature, floods, droughts, etc. negatively affect the attractiveness of tourist attractions, impact the tourism activities and damage the tourism infrastructure.

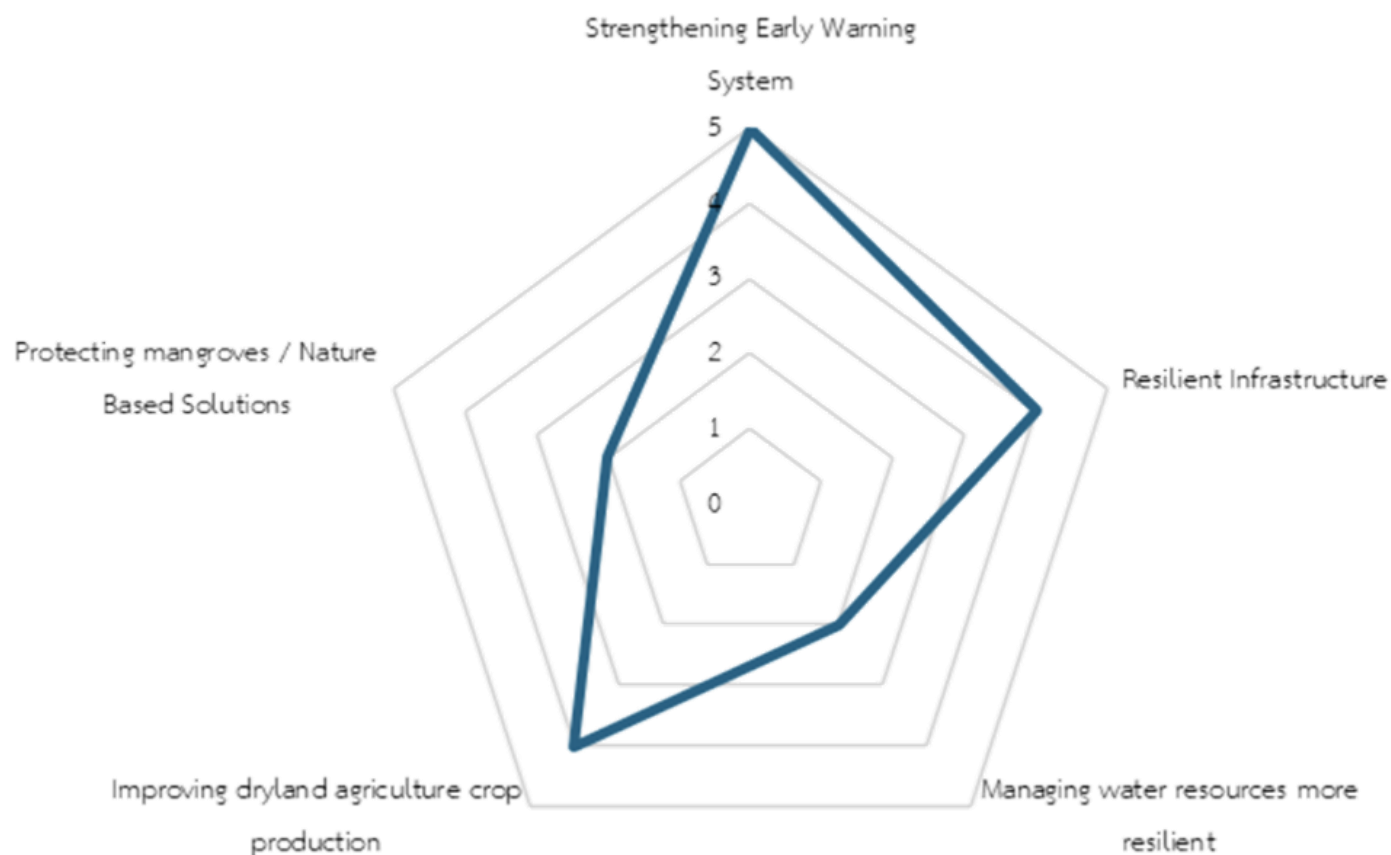
# Adaptation Strategies under the National Adaptation Plan (NAP)

| Sectors           | Highlighted Adaptation Strategies   |
|-------------------|---|
| Agriculture       | Integrated farming; change crop/livestock varieties; climate-smart agriculture; remote sensing technology; improved irrigation system   |
| Tourism           | Encourage all-year-round tourism activities and adjustment of tourism calendar; improved flood prevention infrastructure in tourism attractions; water reserve system; early warning system |
| Water resources   | Improve drainage efficiency; develop flood prevention infrastructure; develop rainfall reserve infrastructure; develop wastewater treatment technology to recycle water                     |
| Health            | Surveillance and early warning system; strengthen capacity of the healthcare facilities in responding to climate risks (e.g. flood wall, water reserve system, etc.)                        |
| Human settlement  | Develop green multi-use spaces, expedite the integration of a climate-resilient building approach into the standards and regulations of building designs                                    |
| Natural resources | Conserve and protect endemic and endangered species in terrestrial, marine and coastal ecosystem; promote reforestation and afforestation; forest fire prevention network                   |

# Climate Change Adaptation Priorities

UNESCAP identifies three major adaptation priorities for Thailand, considering the climate risks that the country faces.

1. Strengthening its early warning system
2. Reinforcing the resilience of its infrastructure
3. Improving its dryland agriculture crop production



# Investment in Climate Change Adaptation is Imperative

According to the IMF staff's estimates on adaptation financing for Thailand, Thailand needs:

- 0.4 percent of GDP investment in public infrastructure annually  $\approx$  \$2,060 million/year or 69,834 million THB/year
- 0.7 percent of GDP investment in private infrastructure annually  $\approx$  \$3,605 million/year or 122,209 million THB/year

UNESCAP estimates that Thailand's adaptation costs related to climate hazards such as floods, tropical cyclones and droughts is at \$5,000, or 1.2% of its GDP. This figure is based on the RCP 8.5 climate scenario.



# Tracking Adaptation Finance in Thailand

## Sources of adaptation finances:

Multilateral funds  
e.g. GEF, Green  
Climate Funds,  
Adaptation Funds

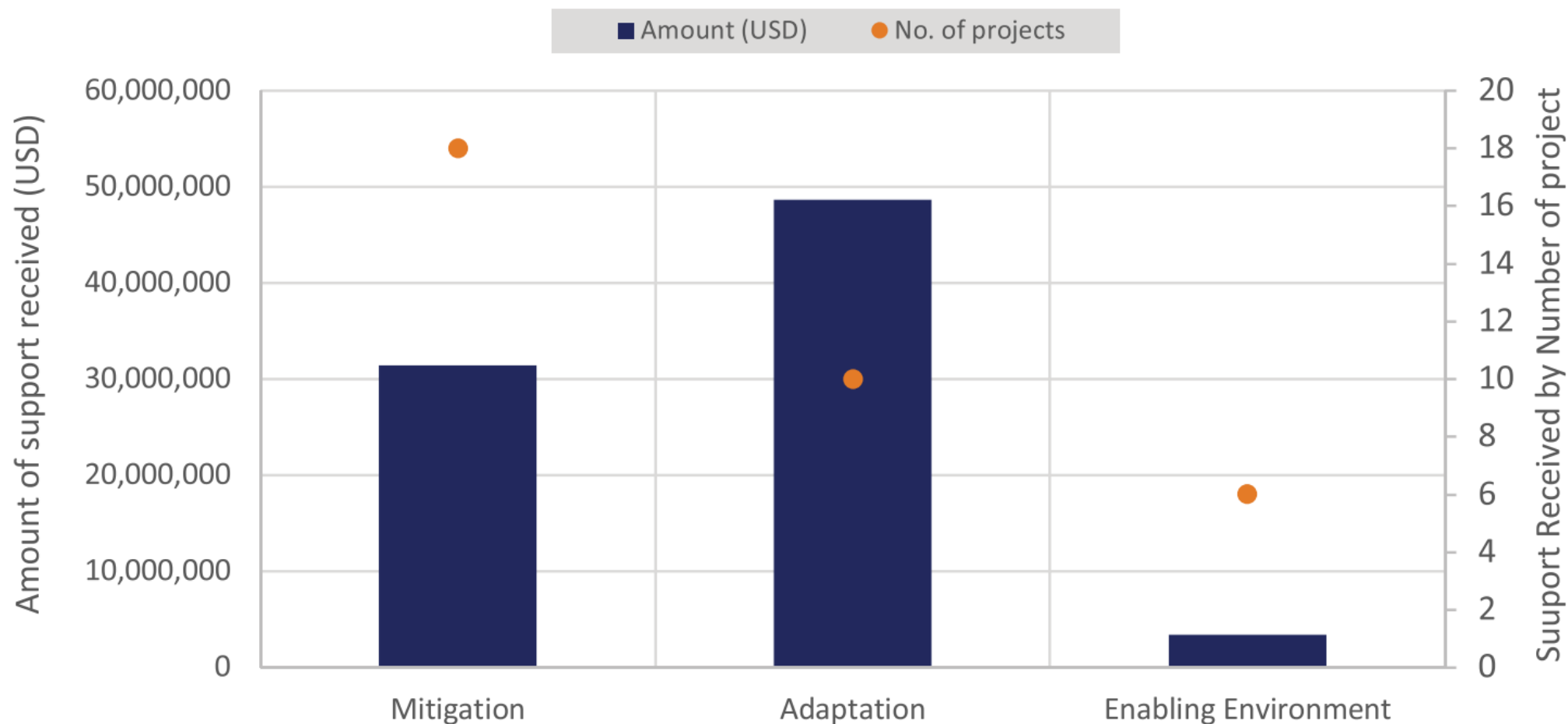
Bilateral supports  
e.g. IKI  
(Germany), JICA  
(Japan)

Green Bonds/  
Sustainability Bonds

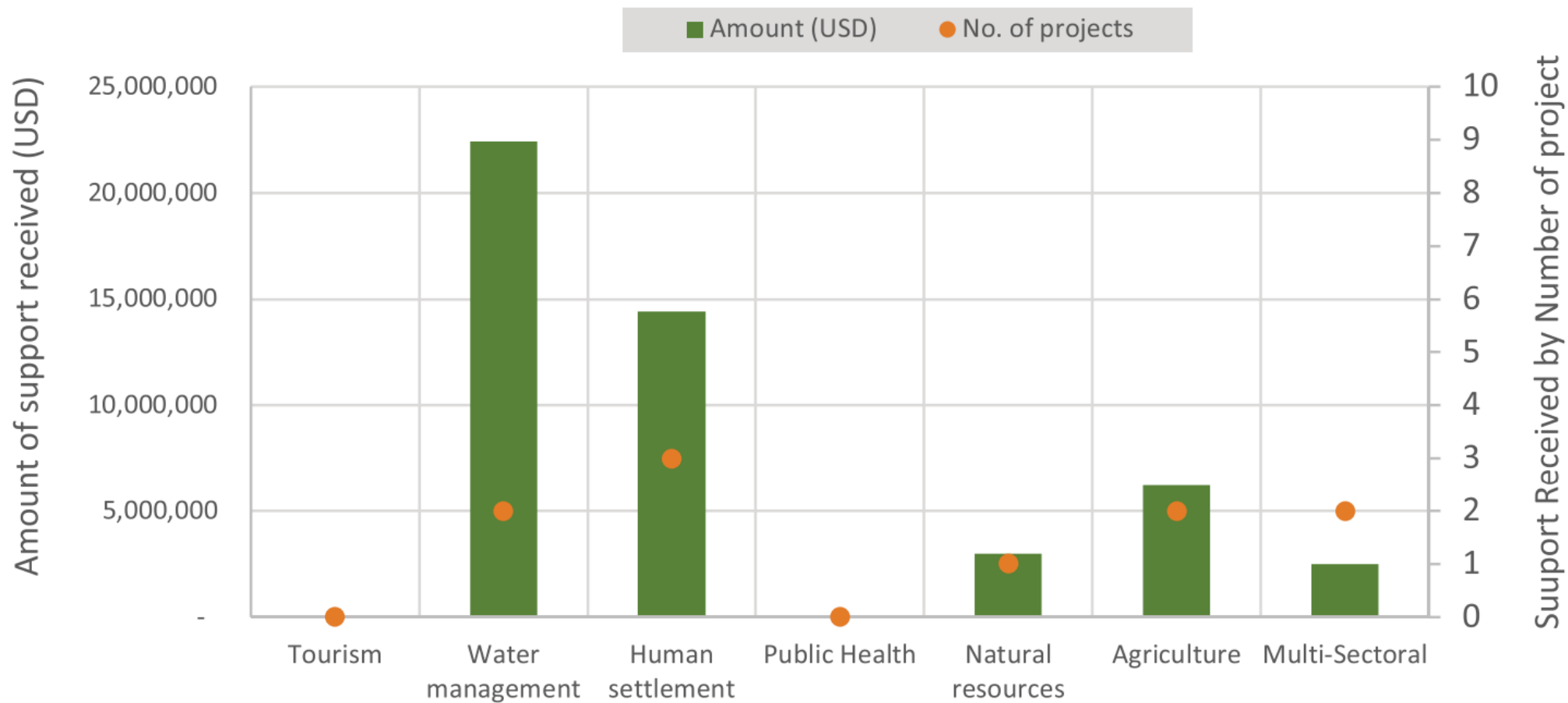
Government Budgets

Domestic Funds  
e.g. ThaiCI Funds

# Overall Supports Received for Thailand



# Supports for Adaptation Actions for Thailand



# Examples of Adaptation Projects Received International Supports



Enhancing Climate Resilience in Thailand through Effective Water Management and Sustainable Agriculture



Thai Rice GCF: Strengthening Climate-Smart Rice Farming



Capacity Building in Health Systems Resilience to Climate Change in Thailand



Enhancing climate resilience in Thailand through effective water management and sustainable agriculture: E-WMSA

# Green Climate Funds Adaptation Projects

| No. of projects | Total GCF financing ⓘ |
|-----------------|-----------------------|
| 2               | 57.3m                 |

| Projects  |   |
|---|---|
| <div> <div>FP214</div> <div>CROSS-CUTTING</div> <div>THAILAND</div> <div>Thai Rice: Strengthening Climate-Smart Rice Farming</div> </div> | <div> <div>FP170</div> <div>ADAPTATION</div> <div>THAILAND</div> <div>Enhancing climate resilience in Thailand through effective water management and sustainable agric...</div> </div> |

## Climate Rationale:

In the Chao Phraya basin in Thailand, significant increases in the frequency of heavy rains are predicted as a result of climate change – in turn increasing the risk of severe floods. But alongside the risk of flooding, there is also a risk of drought, caused by increasing pressure on water supplies for crops and irrigation, linked to rising temperatures. This requires innovative approaches to increase the efficient use of existing water supplies and more effective flood management within the basin.

## Project Objectives:

This project aims to improve water management, food security, and the agricultural livelihoods of inhabitants in the Yom and Nam sub-river basins. It will improve water management by integrating ecosystem-based adaptation (EbA) ‘green’ measures with ‘traditional’ grey infrastructure for flood control and irrigation, supported by enhanced technology and climate-informed planning and capacity development.

# Examples of Bank Loans that Support Adaptation Projects



- Water conservation technology
- Water recycling system
- Evaporative Cooling House (EVAP)



# Examples of Green Bonds Proceeds that Funded Adaptation Projects



## Use of Proceeds:

- Environmentally sustainable management of living natural resources and land use
- Sustainable water and wastewater management



## Use of Proceeds:

- The Development and Promotion of the Utilization of Vetiver Grass Project According to the Royal Initiatives



## Use of Proceeds:

- To finance or refinance projects related to environmentally sustainable agriculture, animal husbandry, climate-smart farming, environmentally sustainable fishery and aquaculture, forestry (including afforestation or reforestation), and natural landscape preservation or restoration.
- Sustainable water, wastewater management and flooding mitigation

# Current Policy and Research Gaps on Adaptation Finance

- Lack research that quantify the climate change impacts (including losses and damages) on different sectors of Thai economy, including tourism, industrial, etc. and the systematic estimation of adaptation needs.
- Progress in adaptation financing is not fast enough to close the enormous gap between needs and flows, and the amount of climate adaptation finance in Thailand remains minuscule compared to the financing needs.
- Lack of adaptation finance tracking, including green budget tagging (monitoring of climate-related expenditure in the national budget system), green loans dedicated to adaptation financing, local budgets allocated to finance adaptation projects/initiatives.
- Needs for additional financial instruments to mobilize money to support adaptation, such as blended finance, which helps mitigate risks and unlocks private capital.



Thank You



PUEY UNGPHAKORN INSTITUTE  
FOR ECONOMIC RESEARCH