



ประเทศไทย

THAILAND PAVILION

UN CLIMATE CHANGE CONFERENCE
BAKU AZERBAIJAN 2024

TOUCH TO START

IMPACT - DRIVEN POLICY

CLIMATE POLICY

THAILAND'S
GHG
EMISSIONS

NDC

NAP

DRAFT OF
CLIMATE
CHANGE



CLIMATE ACTION



THAILAND'S
NDC
TRACKING

PEOPLE

YOUTH

FORESTATION

CLIMATE TECHNOLOGY

HARD
INNOVATION

SOFT
INNOVATION

HEAT INDEX

CARBON
CAPTURE &
STORAGE
(CCS)

CLIMATE FINANCE

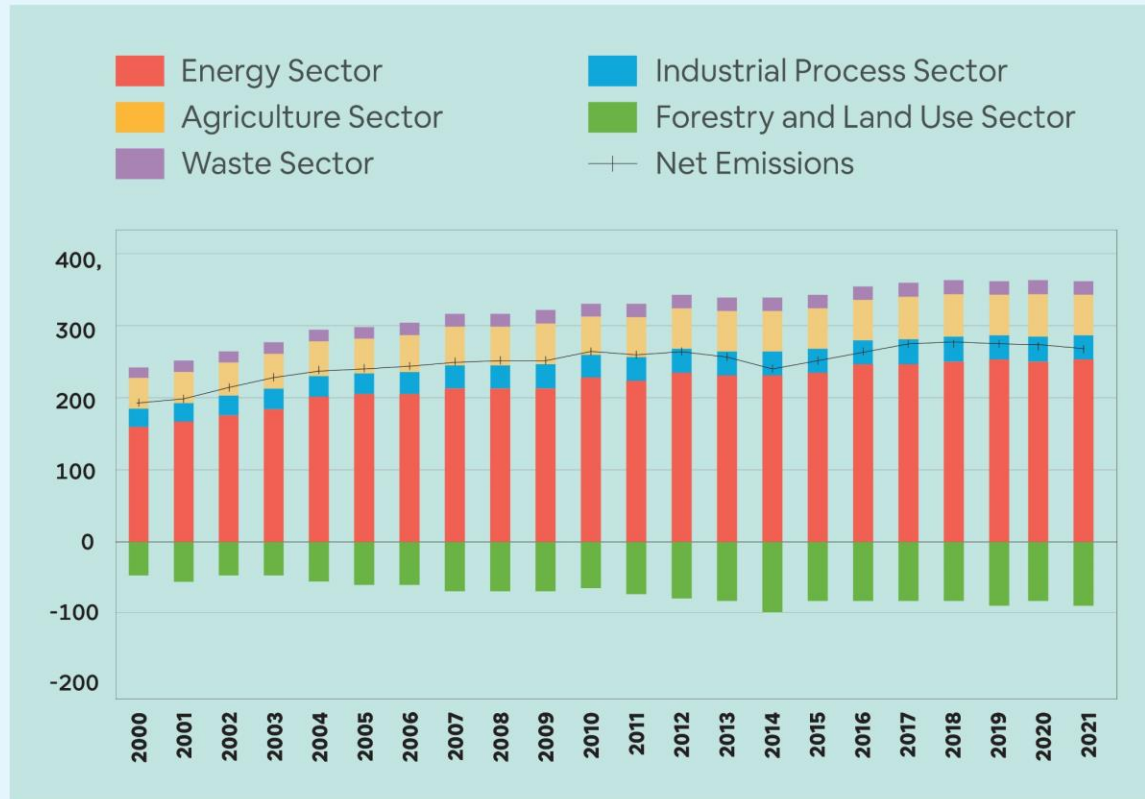


ThaiCI
BY ENVIRONMENTAL FUND

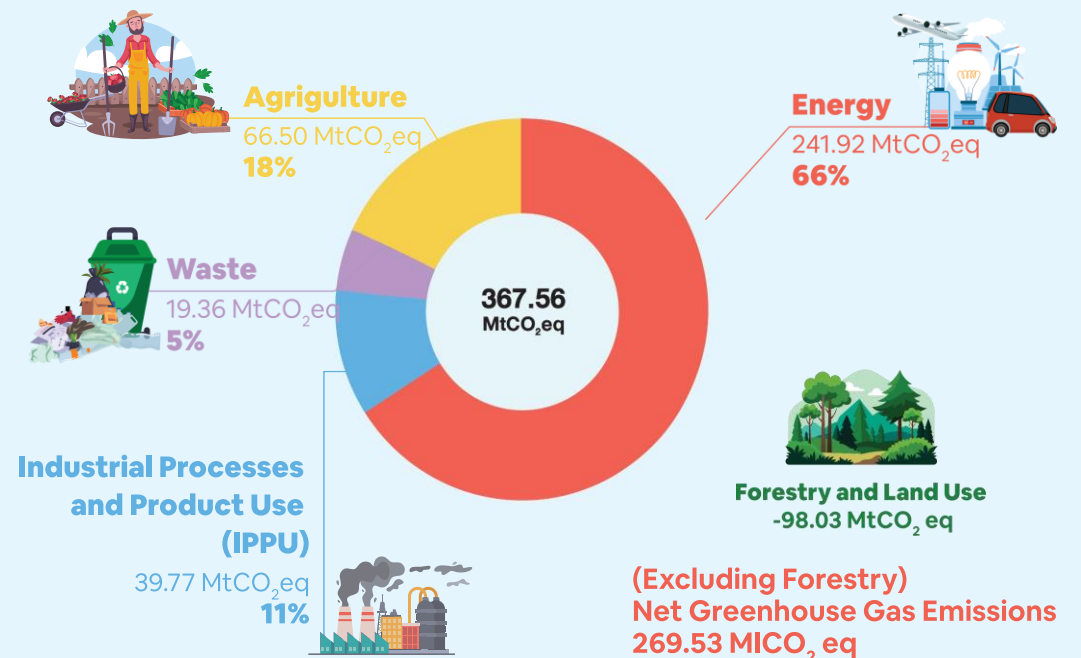
CLIMATE POLICY



THAILAND'S Greenhouse Gas Emissions Trend from 2000 to 2021



Greenhouse Gas Emissions in 2021





Vision

Thailand achieve NDC target 30 -40% by 2030

Linkages of National Policies & Plans

1

National Strategy (B.E. 2561 - 2580)

The 5th strategy: Eco-friendly Development and Growth
The 3rd development guideline: Promoting sustainable climate-friendly based society growth

2

Master Plan under National Strategy	The National Reform Plan	The 13 th National Economic and Social Development Plan
		National Security Policy and Plan

3

(Draft) NDC Action Plan on Mitigation 2021 - 2030

(Draft) NDC Action Plan on Mitigation 2021 - 2030

Domestic 184.8 MtCO ₂ e หรือ 33.3%					Support 35.7 MtCO ₂ e 6.7%
Sectors	Energy	Transport	IPPU	Waste	Agriculture
	 สำนักงานนโยบายและแผนพลังงาน กระทรวงพลังงาน	 สทศ กรมการขนส่งทางบก	 กรมโรงงานอุตสาหกรรม DEPARTMENT OF INDUSTRIAL WORKS	 กรมควบคุมมลพิษ POLLUTION CONTROL DEPARTMENT	 สำนักงานเศรษฐกิจการเกษตร Office of Agricultural Economics
	124.6 MtCO ₂ e (22.5%)	45.6 MtCO ₂ e (8.2%)	1.4 MtCO ₂ e (0.3%)	9.1 MtCO ₂ e (1.6%)	4.1 MtCO ₂ e (0.7%)
	Development guideline 1	Development guideline 2	Development guideline 3	Development guideline 4	Development guideline 5
	Sectoral GHG emission reduction implementing and monitoring	Developing/ improving of tools and mechanisms for supporting the implementation	Capacity building and stakeholders engagement	Preparing for long-term implementation	Promoting of the international collaboration





National Adaptation Plan : NAP



Approved by the Cabinet on 2 April 2024 and submitted to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) on 18 April 2024



Vision “Thailand is immuned and can adapt to the impacts of climate change to achieve sustainable development, consisting of 6 areas.”

Travel

Approach 1 Management of Natural Tourist Attractions

- Improving the tourism calendar
- Managing marine tourist attractions, especially coral bleaching
- Determining tourism formats in risk areas, taking into account the area's capacity to support
- Developing a response plan in the event of a natural disaster

Approach 3 Tourism Support Mechanisms

- Developing a risk management plan for tourist attractions
- Promoting tourism in various forms
- Increasing the capacity of tourism operators
- Business Continuity Plan (BCP)
- Developing a tourism warning mechanism that is linked to other warning systems

Approach 2 Management of Man-made Tourist Attractions

- Develop infrastructure and flood
- Prevent systems and structural damage to buildings and architecture.



Water Management

Approach 1 Watershed Management

- Conserve watershed forests
- Prevent soil erosion

Approach 2 Management of Midstream and Downstream Area

2.1 Flood Management

- Develop infrastructure such as reservoirs, water retention areas, flood retention areas, riverbank improvements and embankments.
- Increase drainage efficiency, improve water barriers in urban communities and important economic areas.
- Develop flood prevention systems in urban areas

2.2 Drought Management

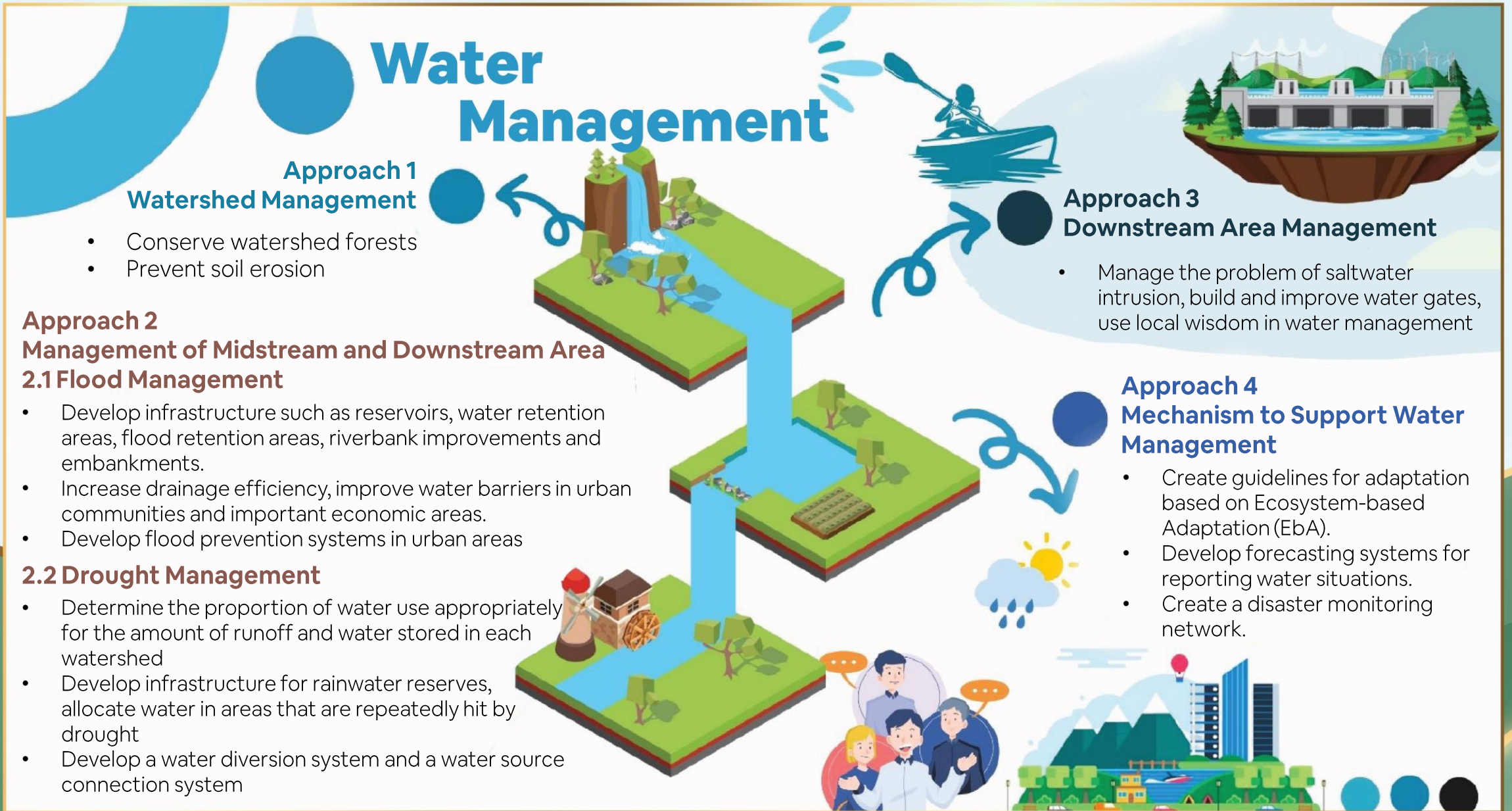
- Determine the proportion of water use appropriately for the amount of runoff and water stored in each watershed
- Develop infrastructure for rainwater reserves, allocate water in areas that are repeatedly hit by drought
- Develop a water diversion system and a water source connection system

Approach 3 Downstream Area Management

- Manage the problem of saltwater intrusion, build and improve water gates, use local wisdom in water management

Approach 4 Mechanism to Support Water Management

- Create guidelines for adaptation based on Ecosystem-based Adaptation (EbA).
- Develop forecasting systems for reporting water situations.
- Create a disaster monitoring network.



Agriculture and Food Security



Approach 1 Preventing the Impacts of Climate Change on Health

- Prevent and care for the health of risk groups, including the elderly, children, pregnant women, patients with chronic diseases, working-age groups (farmers and those who have to work outdoors), and disadvantaged groups.
- Develop standards for the maintenance of public health service systems.

Approach 2 Public Health Support Mechanisms

- Develop risk monitoring and forecasting systems.
- Emergency plans for prevention, health impacts, transfer and mobilization plans with communities in the event of a disaster.
- Provide information and advice, raise public health awareness.
- Develop the structure of public health service facilities to be ready to cope with climate change.



Natural Resource Management

Management of Livestock Production Areas

- Improving the ventilation system of the barn, providing water sources and reserve animal feed sources.
- Developing a system for controlling, preventing and treating animal diseases.

Approach 4 Support Mechanisms for Agriculture and Food Security

- Developing a mechanism for warning and reporting agricultural warning situations or a system for warning of diseases and pests.
- Creating a map of agricultural areas at risk
- Precision farming
- Promoting production in line with the new theory of agriculture, sustainable agriculture, and integrated agriculture.
- Establishing a bank of plant, livestock and aquatic animal species.
- Developing a national food reserve system.

Approach 3 Management of Fishing and Aquaculture Areas

- Breeding aquatic animals to withstand higher water temperatures.
- Restoring fishery resources and aquatic animal habitats.

Approach 1 Management of Crop Cultivation Areas.

- Adjusting the cultivation calendar, planting low-water crops in the dry season, breeding drought-resistant/flood-resistant plants.
- Mixed crop cultivation or crop rotation



Settlement and Human Security

Approach 2 Wetland Management

- Restore wetland areas to be water-retentive areas, help slow down and prevent flooding.
- Manage fire risk in peat swamp forests

Approach 3 Marine and Coastal Ecosystem Management

- Restore marine and coastal ecosystems using natural systems, monitor and watch for coral bleaching, and watch for invasion and destruction of habitats, food sources and spawning grounds of aquatic animals.
- Prevent impacts from storm surges, such as mangrove planting, and prepare for storm surges by creating evacuation plans and routes and drills for all sectors.

Approach 1 Terrestrial Ecosystem Management

- Reduce forest encroachment
- Support reforestation and increase forest area.
 - Conserve and manage forest groups, reforestation as an ecological corridor and buffer.
 - Develop a network to monitor areas at risk of forest fires, using technology to manage areas at risk of forest encroachment and forest burning.

Approach 4 Mechanisms to Support Natural Resource Management and Biodiversity

- Promote and develop communities with Eco-villages.

The Driving Force of Thailand's Climate Change Act

Private Investment Budget

Create participation from private sector and implement according to the plan



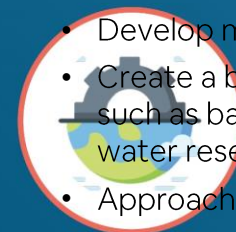
Tools & Mechanisms

Approach 1

Develop economic tools and mechanisms to stimulate investment

Metropolis and Megacity Management

- Mixed-use land development
- Develop multi-use green spaces.
- Create a backup plan for systems that are essential for life at the local level, such as backup energy systems, smart grid development, food reserves, water reserves, public health services, and transportation routes.
- Approaches to cope with the heat island effect in mega-cities)



Approach 2

Small-scale City and Community Management

- Create a specific urban plan for adaptation to the impacts of climate change.
- Create a land use plan that preserves areas with natural value.
- Create a network to link news and information to keep up with events.
- Develop backup systems that are essential within households or communities (Approach 3) Mechanisms to support management in terms of settlement and human security.



Follow Up and Evaluate

- Develop a disaster warning and reporting mechanism
- Continuously improve and develop operations based on results

Approach 3 | Support Mechanisms for Management in Terms of Human Settlement and Security



State Investment Budget

- Buildings that use the concept of climate resilience architecture
- Adaptive design principles
- Increase the capacity of the public sector to cope with disasters

Conductive Environment

Create and develop an investment environment

- Support vulnerable groups to access various forms of assistance
- Support climate insurance business

Integrate government budget allocation to achieve goals



The Driving Force of Thailand Climate Change Act

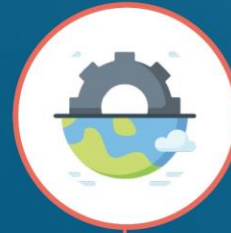
Private Investment Budget

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Tools & Mechanisms

Develop economic tools and mechanisms to stimulate investment



Conducive Environment

Create and develop an investment environment



State Investment Budget

Integrate government budget allocation to achieve goals



Follow Up and Evaluate

Continuously improve and develop operations based on results

Climate Change Act B.E....



Thailand Climate Change Act (Draft)

POLICY AND PLANNING

1.
General Chapter

3.
National Climate Change Policy Committee

2.
Thailand Climate Change
Targets

5.
National Climate Change
Master Plan

12.
Climate Change Adaptation

4.
Climate Change Fund

ADAPTATION

GAS REDUCTION

6.
Greenhouse Gas
Information

8.
Greenhouse Gas
Emission Trading system

10.
Carbon Tax

7.
National
Greenhouse Gas
Reduction Action

10.
Carbon Border
Adjustment
Mechanism

10.
Carbon
Credit

13.
Economic Activities
Categorization Standards for
Climate Change and
Environment

13.
Penalty
Provisions

FINANCIAL MECHANISM



Thailand Climate Change Act (Draft)

10. Carbon Credit

To ensure reliable carbon credit management without any conflict to the nation's sustainable development goals.



Credit Management Mechanism

Governance

Registration

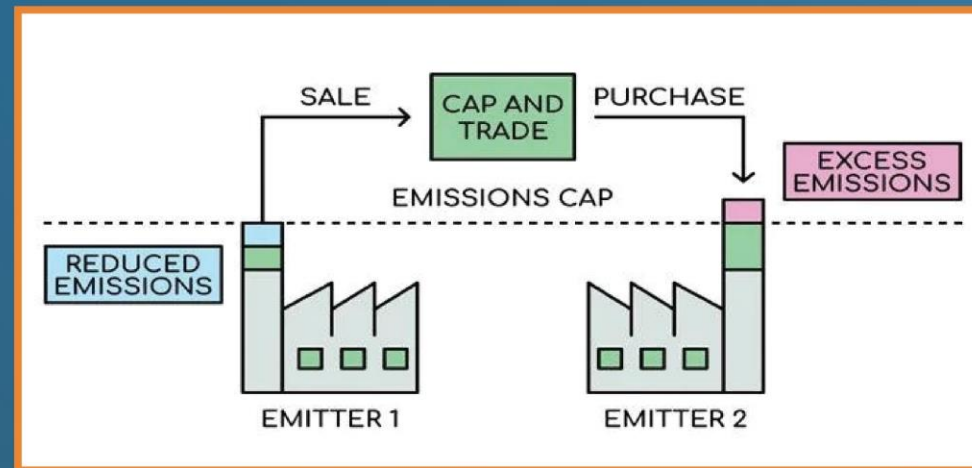
Thailand's Greenhouse Gas Emission

Under the Draft Act, carbon credit can be used for:

1. offsetting against greenhouse gas emission within proportion and specification
2. international purposes (under article 6.2 of the Paris Agreement)

Carbon credit can be traded through authorized centers in accordance with the Securities and Exchange Act, futures, digital business operations as applicable, or through direct trading between buyers and sellers.

Greenhouse Gas Emission Trading System



Carbon credit within proportion and specification*

Carbon Credit
Voluntary
Mechanism

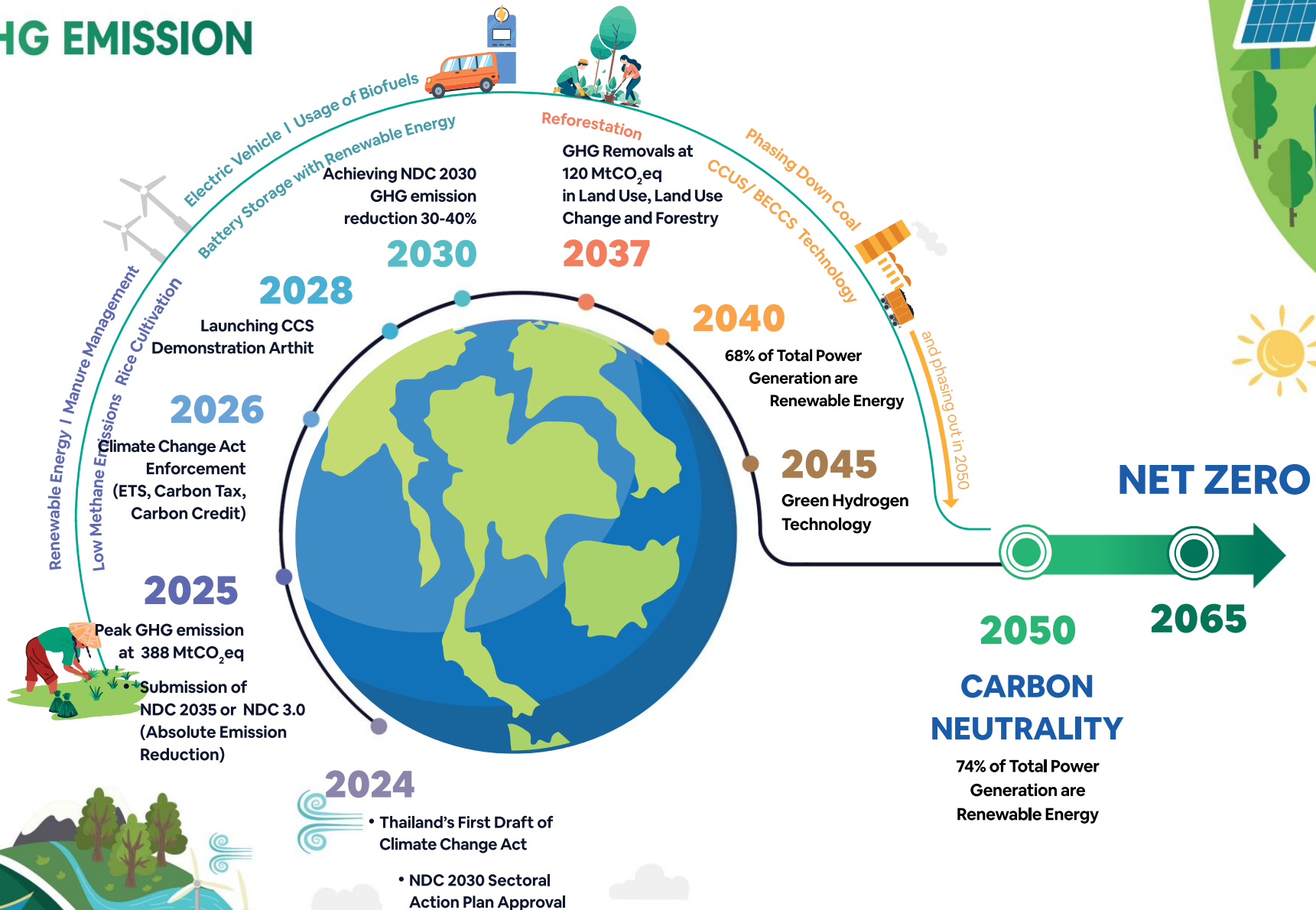
Under 15%

*Applicable carbon credit under Thai-ETS must be in accordance with the announcement committee regulations, taking into account the following:

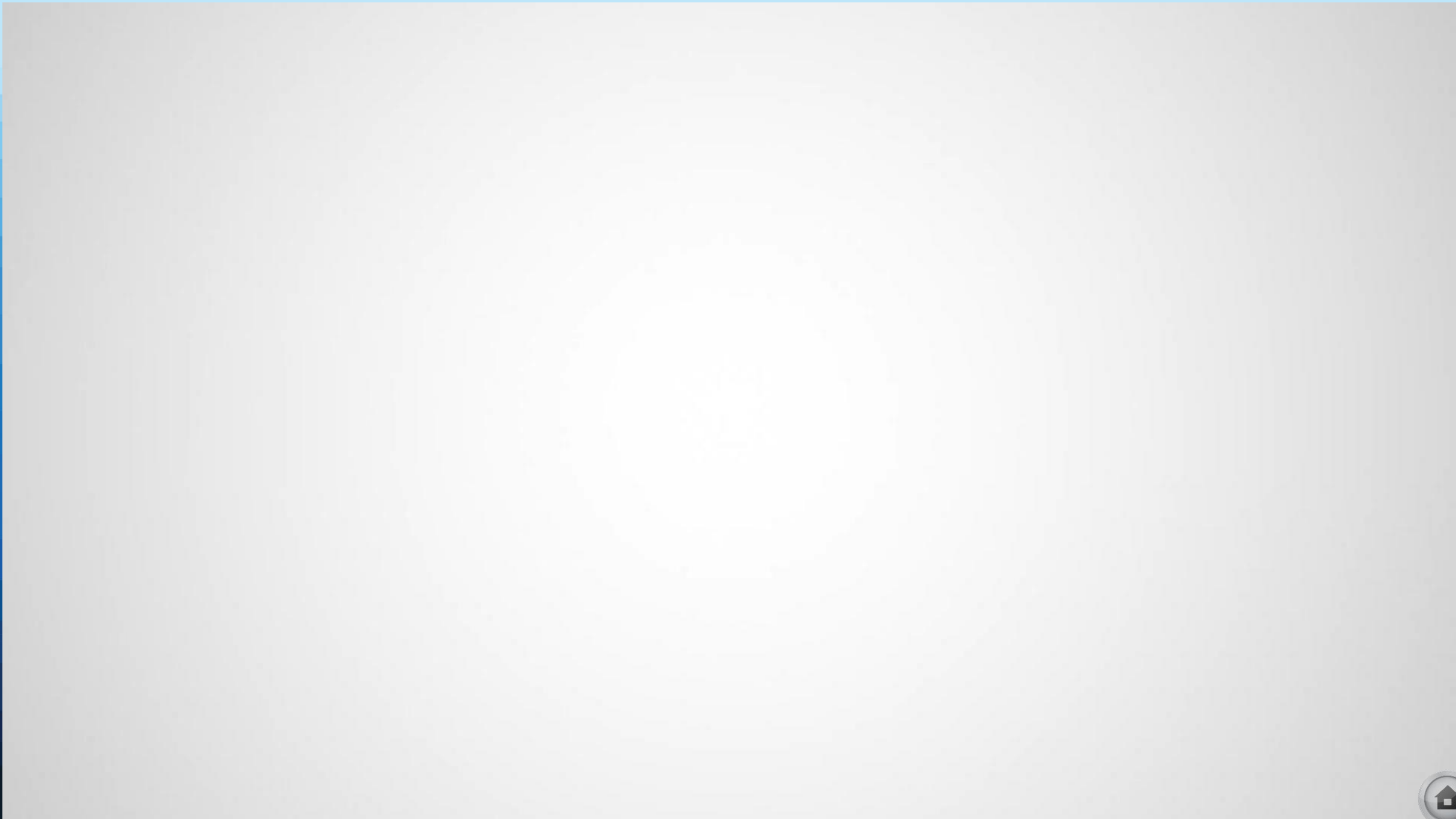
- Quality
- Specification
- Carbon amount
- Project type
- Project size



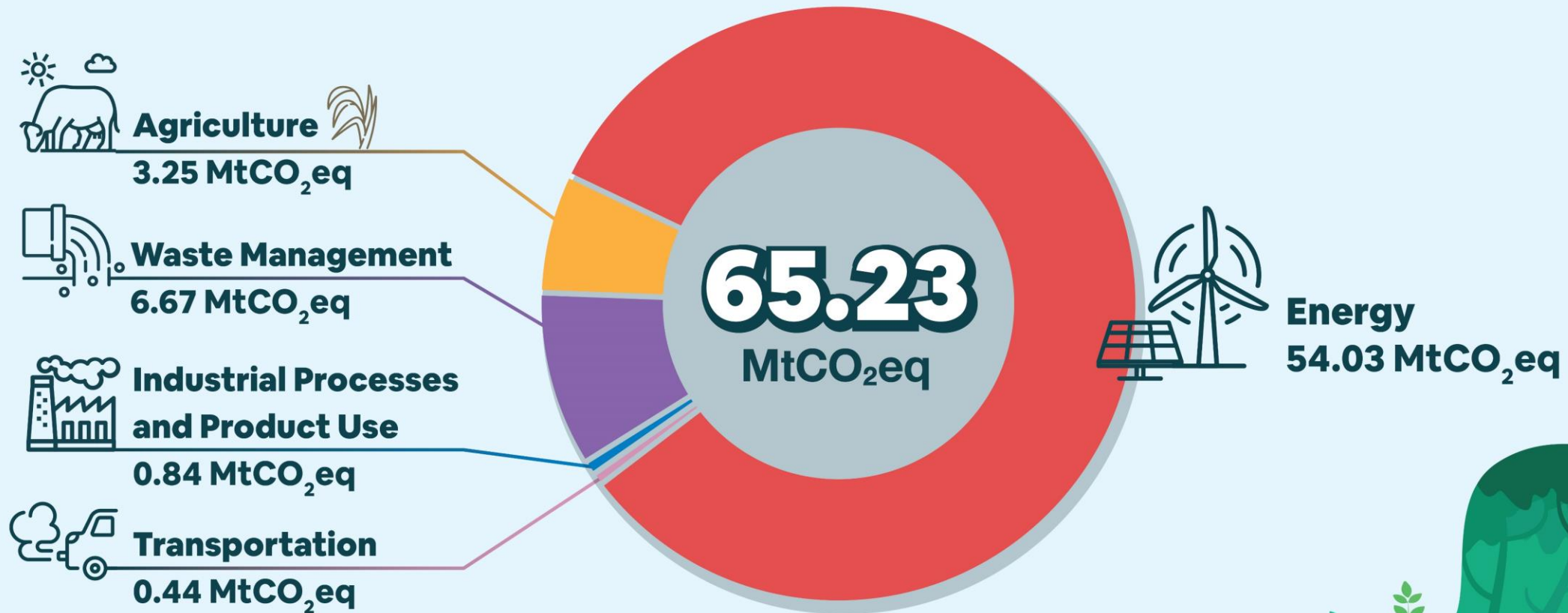
THAILAND ROADMAP TO ACHIEVE NET ZERO GHG EMISSION



CLIMATE ACTION



GHG Reduction Tracking **as of 2022** UNDER NDC



PEOPLE



ทศน

ประเทศไทย
THAILAND PAVILION

UN CLIMATE CHANGE CONFERENCE
BAKU AZERBAIJAN 2024

TOUCH TO START

PEOPLE

ชุมชนปลอดภัย บ้านเหนือ จ.อุบลราชธานี

ประเทศไทย
THAILAND PAVILION

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BAKU AZERBAIJAN 2024

TOUCH TO START

YOUTH

Zero Waste School



Eco School



University Youth



Power of the new generation for a sustainable future...





Zero Waste School

St. Teresa School is a school of the Archdiocese of Bangkok, under the Office of the Private Education Commission, Ministry of Education. We aim to improve quality according to standards. Learners are virtuous, leading in academics, and creating innovations.



Creativity form Waste Activity



We are a learning organization, aiming for international standards and having a vision of operating **a zero-waste school**. We manage with participation, manage waste using the **3Rs principle**, **use resources with appreciation**, and develop into **a zero-waste school** according to the philosophy of the sufficiency economy and the Apostolic Message of Praise to the Lord (Laudato Si') of Pope Francis on caring for the world, the home we live in together. We also promote and support an understanding of **sustainable and proper waste management**.



In 2023, St. Teresa School won the **Zero Waste School Project Contest** at the national level, Group B, Secondary School, from the Department of Climate Change and Environment, Ministry of Natural Resources and Environment, and the Princess Maha Chakri Sirindhorn Trophy Award. HRH Princess Maha Chakri Sirindhorn 2023. The school has outstanding **waste management learning bases**, such as the Climate Change Learning Base, the Magic Egg Shell Learning Base, the Fun Weight Learning Base, the Good Soil Learning Base, the Right Color Learning Base, Right (Trash Bin Color), Sufficiency Economy Learning Base, and the Eco-Friendly Innovation Learning Base.

Good Soil Learning base



Magic Egg Shell Learning Base



Making Bio-fertilizer





Eco School

ประเทศไทย

THAILAND PAVILION

UN CLIMATE CHANGE CONFERENCE
BAKU AZERBAIJAN 2024

TOUCH TO START

CCB Children & Youth Gold Level 2024

King Mongkut's Institute of Technology Ladkrabang

Production of Bricks from Waste Materials

Production of bricks from waste materials is the reuse of used foam, water hyacinth, and sewage sludge, which is an alternative that supports sustainable development. Production of bricks from waste materials focuses on using polystyrene foam and sewage sludge as ingredients in concrete to produce flooring materials and other materials with economic value. Therefore, the community focuses on enabling community members to have the potential to think of new innovations that can be put to practical use.



Brick Production Process

1. Mix foam, wastewater sediment, water hyacinth, sand and water in various proportions and form into concrete blocks. Cure in water for 14 days.
2. Perform initial strength tests by dropping samples 30 centimeters onto the ground.
3. Perform compression strength tests for the best products.
4. Perform heavy metal leaching tests.
5. Calculate the amount of carbon reduction from the activity.



The club divides participants into 4 groups with approximately equal numbers. Emphasize that each group finds a way to produce bricks from sediment, foam and plant waste to replace sand in brick-making components. Then, they test their strength and utilization potential. Four production formulas were obtained. All formulas reuse waste materials to reduce greenhouse gas emissions to the environment caused by waste disposal.

CARBON FOOTPRINT

Reduces GHG emissions caused by waste disposal by up to

84.9152 kg CO₂eq

Ratio Analysis Results

Group 1: Fine Sand: Foam: Water: Cement (2: 3: 1.5: 2)

Not Found That Heavy Metals Dissolved from the Sample.

Group 2: Coarse Sand: Sediment: Water: Cement (5.4: 0.95: 1.2: 2.1)

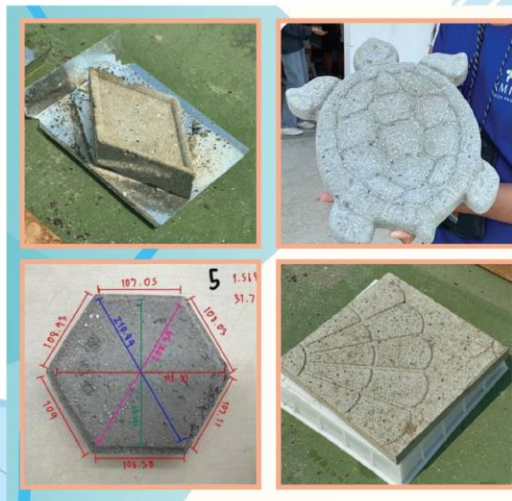
Not Found That Heavy Metals Dissolved from the Sample,
Compression Force 0.78 MPA.

Group 3: Fine Sand: Foam: Water: Water Hyacinth: Cement (2: 1.5: 1.6: 1: 1)

Not Found That Heavy Metals Dissolved from the Sample.

Group 4: Coarse Sand: Foam: Water: Cement (1.5: 5: 2: 1.5)

Not Found That Heavy Metals Dissolved from the Sample,
Compression Force 0.78 MPA.





Number of projects

34 projects

Approx. **325,571.30 Rai**

Expected GHG reduction **329,498 tCO₂eq**



Number of projects

1 projects

Approx. **400 Rai**

Expected GHG reduction **380 tCO₂eq**



Number of projects

15 projects

Approx. **21,984.08 Rai**

Expected GHG reduction **178,553 tCO₂eq**

Results of Operations in Promoting Reforestation

Under the regulations on sharing carbon credits obtained from planting, maintenance, conservation and restoration of the Royal Forest Department, the Department of National Parks, Wildlife and Plant Conservation, and the Department of Marine and Coastal Resources

Total 50 projects
Approx. 347,955.38 rai
Expected GHG reduction
58,431 tCO₂eq



* Note: Data as of September 13, 2024

** tCO₂eq = tons of carbon dioxide equivalent



CLIMATE TECHNOLOGY



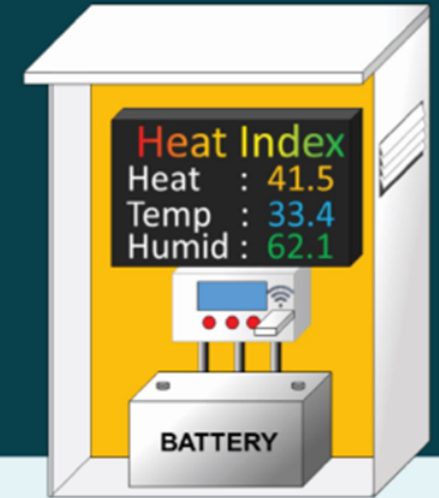
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HEAT INDEX

- Measures temperature in the range of <10 to $>50^{\circ}\text{C}$, relative humidity of 0 to 100%, and heat index of 27 to -50°C .
- Displays real-time heat index values and changes color according to health impact levels (4 levels) on the RGB display.
- Records data locally and via Cloud server, and connects to IoT systems and displays results automatically via Dashboard.
- The bias, error, and absolute error values are within acceptable limits when compared to standard occupational health and safety tools.
- Can be used with both direct current (Solar cell) and alternating current (AC) via an adapter.
- Inexpensive, easy to install, and durable for both indoor and outdoor environments.



Risk to human health from continued exposure to excessive heat

Level	Heat Index (°C)	Description
Caution	27 – 32.9	Fatigue possible with prolonged exposure and/or physical activity.
Extreme Caution	33 – 41.9	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity.
Danger	42 – 51.9	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity.
Extreme Danger	≥ 52	Heat stroke is likely high.



Main and Second Element of a Simple Hot Weather Warning Instrument (Prototype 2)



PCB



ESP32



RTC



SHT45



RGB



Solar cell



Solar charge controller



Radiation Shield



Waterproof box



battery

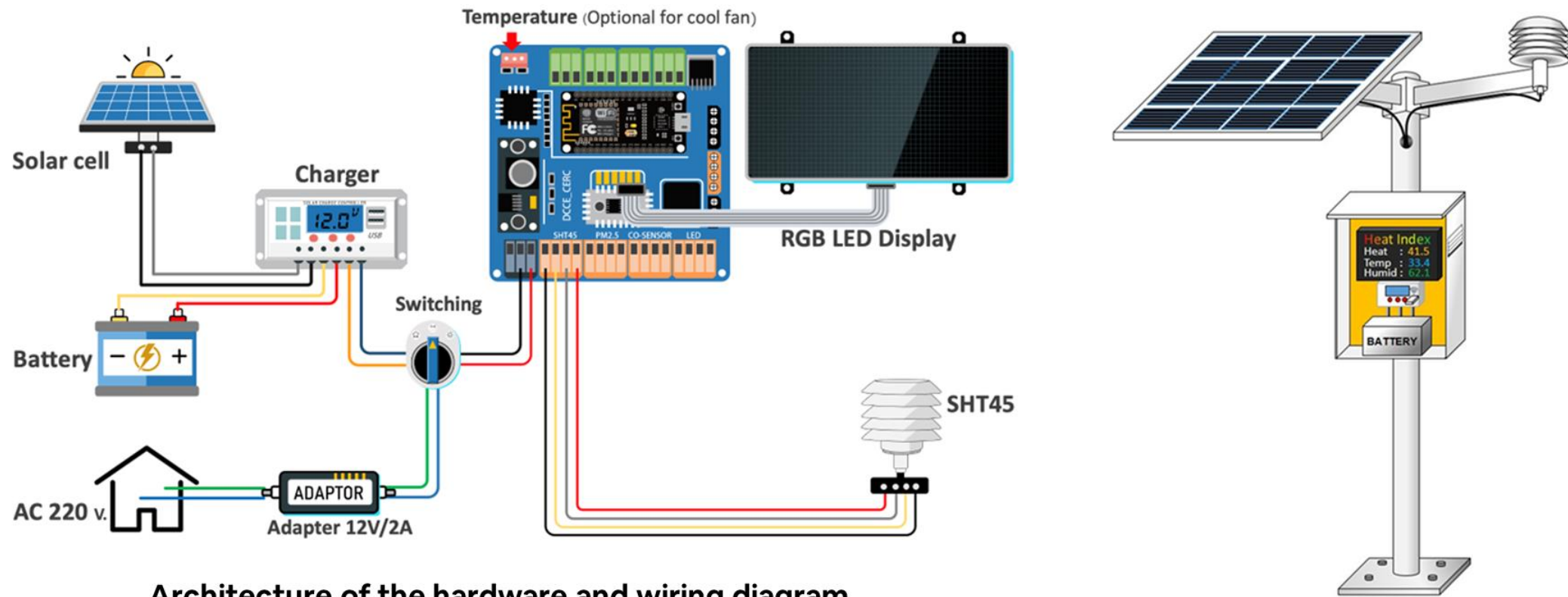


Adapter



Stand

A Simple Hot Weather Warning Instrument (Prototype 2)

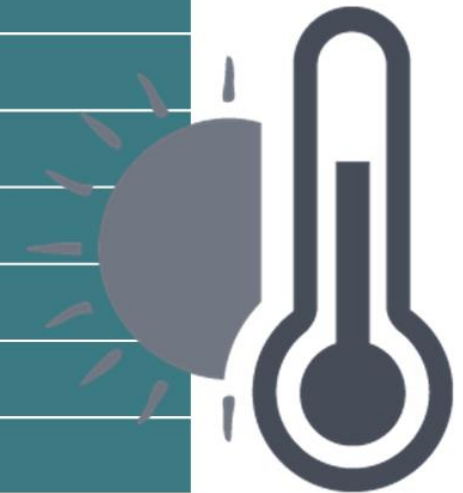


Architecture of the hardware and wiring diagram

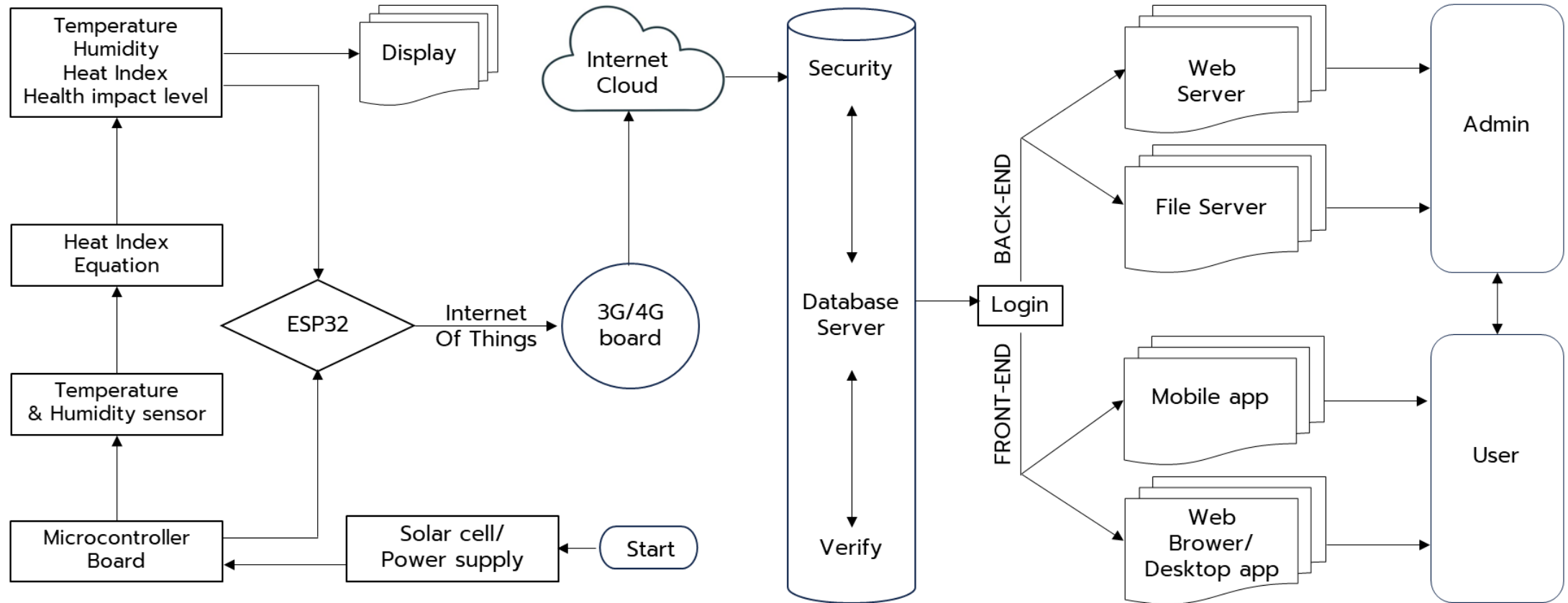
A Simple Hot Weather Warning Instrument (Prototype 2)



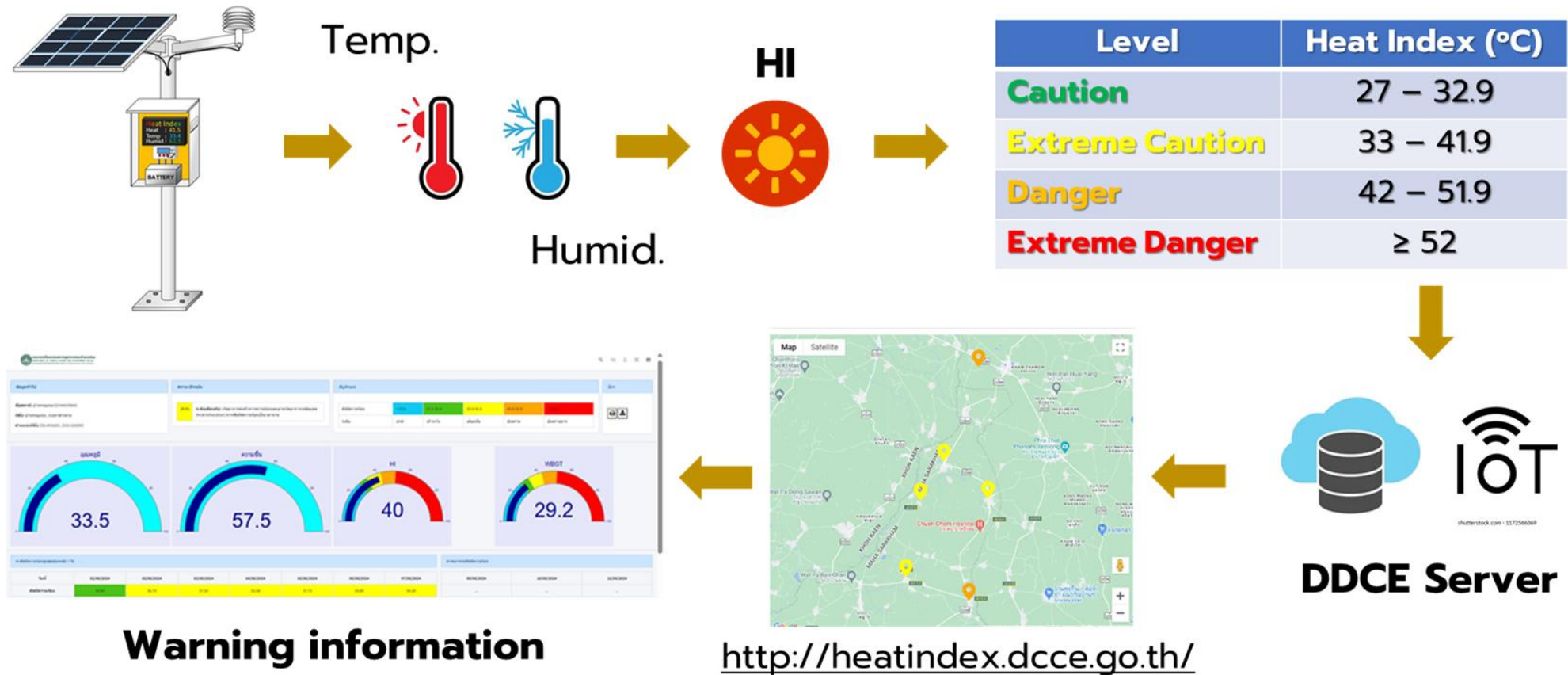
Technical specifications	
Temperature range	10 to 50°C
Humidity range	0 to 100%
Heat index range	20 to 60°C
Display (HI 5 levels)	RGB
Normal (white)	HI < 27°C
Caution (green)	HI 27°C to <32.9°C
Extreme caution (yellow)	HI 33°C to <41.9°C
Danger (orange)	HI 42°C to <51.9°C
Extreme danger (red)	HI ≥ 52°C
Power supply	AC/DC



Surveillance and Warning System for Extremely Hot Weather at the Community Level



Surveillance and Warning System for Extremely Hot Weather at the Community Level





Carbon Capture and Storage

Background

Carbon Capture and Storage (CCS) is a process of capturing carbon dioxide (CO₂) emitted from industrial sectors before it enters the atmosphere and permanently storing it in an underground geological formation. The sequestered carbon will be managed and monitored for total safety. As CCS is capable of significantly reducing emissions compared to other technologies, several countries have plans to use it as a key technology to support their decarbonization ambitions.

Objectives

CCS is one of PTTEP's strategic pathways amidst the energy transition to become a low-carbon organization with sustainable growth and to achieve Net Zero greenhouse gas emissions by 2050, which will support Thailand's commitment to reduce industrial and domestic emissions as part of its commitment at the United Nations Framework Convention on Climate Change (UNFCCC)'s 26th session of the Conference of the Parties (COP26) to reach carbon neutrality by 2050 and net zero greenhouse gas emissions in 2065.



Technology Details and Process

Natural Gas Production:

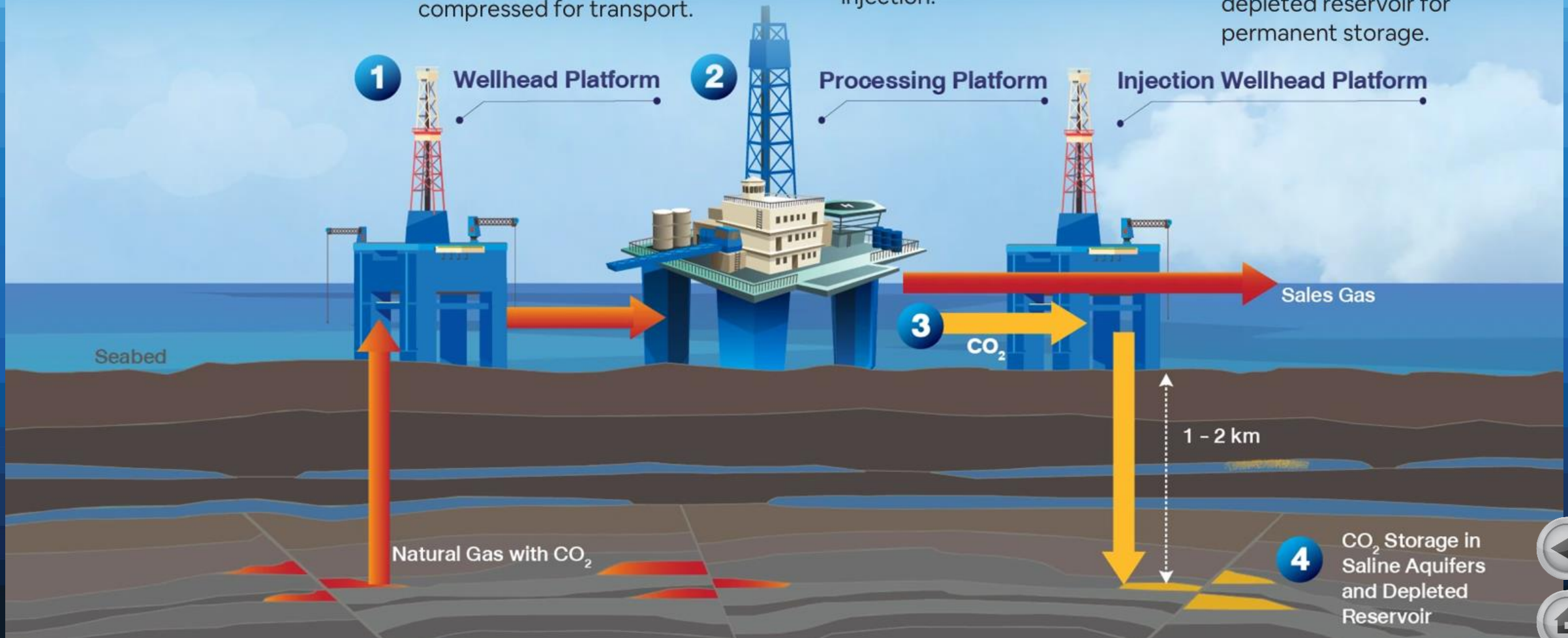
Gas containing CO₂ is produced from natural gas reservoirs at wellhead platforms.

Capture and Compress:

CO₂ (concentration at >95%) is captured from produced gas by membrane technology and compressed for transport.

Transport of CO₂: CO₂ is transported from capture-compress facility to the wellhead platform for injection.

Geological Storage: CO₂ compressed up to 150 bar pressure is injected back into specified saline aquifers and depleted reservoir for permanent storage.



CLIMATE FINANCE

Green Climate Fund: GCF

The United Nations Framework Convention on Climate Change (UNFCCC) was established in 2010 to support a global paradigm shift towards sustainable development that is low-emission and resilient to climate change.

The framework for consideration of support from the Thailand Fund in 5 projects:

- **Project Group 1:** GHG reduction through strategy development, technology, systematic planning and best practices
- **Project Group 2:** Development of knowledge and databases in agriculture and waste management
- **Project Group 3:** Development with advanced adaptation technologies and multi-sectoral benefits
- **Project Group 4:** Development of financial mechanisms for climate change
- **Project Group 5:** Knowledge exchange and awareness raising



Projects which are funded by GCF

	Project	Amount	Objective	Duration	Target Area	Department
1	Enhancing climate resilience in Thailand through effective water management and sustainable agriculture Project	579 million baht	Improving water management and agriculture in the Yom and Nan river basins to address issues caused by climate change, light and flooding.	4 Year	Phitsanulok, Sukhothai and Uttaradit	Royal Irrigation Department
2	Thai Rice GCF (Strengthening Climate-Smart Rice Farming Project	1,477 million baht	Shifting the paradigm to zero-emission rice farming and enhancing the capacity to adapt to Climate Resilience.	5 Year	Chainat, Singburi, Angthong, Phra Nakhon Si Ayutthaya, Pathumrani, Suphan Buri, Lopburi, Nakhon Sawan, Phaeng Phet, Phitsanulok, Woes, Uthai Thani, Ubon Ratchathani, Roi Et, Surin, Nakhon Ratchasima, Buriram, Kapsin, Si Sa Ket, Chiang Rai and Chiang Mai	Rice Department
3	Increasing resilience to climate change Impacts in marine and coastal areas along the Gulf of Thailand	98 million baht		4 Year	18 coastal provinces (Trat, Chanthaburi, Rayong, Chon Buri, Chachoengsao, Samut Prakan, Bangkok, Samut Sakhon, Samut Songkhram, Phetchaburi, Prachuap Khiri Chan, Chumphon, Surat Thani, Nakhon Si Thammarat, Phatthalung, Long Pla, Pattani, Narathiwat	Department of Climate Change and Environment and Department of Marine and Coastal Resources





Adaptation Fund : AF

Adaptation Fund has played a key role in supporting adaptation efforts since 2001 and will continue to do so under the Paris Agreement, in particular by supporting the implementation of Nationally Determined Contribution (NDC) targets of developing countries, particularly those with vulnerability to the adverse impacts of climate change, taking into account the needs and ownership of developing countries, to drive adaptation actions and build resilience to climate change in areas such as agriculture, food and water security, disaster mitigation, coastal management, forest management, and urban and rural development.



Projects which are funded by AF

	Project	Amount	Objective	Duraiton	Target Area	Department
1	Mekong EbA South Project: Enhancing Climate Resilience in the Greater Mekong Sub-region through Ecosystem-based Adaptation in the Context of South-South Cooperation	231 million baht	To enhance awareness and action of government and local communities in the Mekong River subregion to adapt to the impacts of climate change using the EbA	4 Year	Thailand Vietnam	Department of Water Resources
2	Groundwater Resources in the Greater Mekong Subregion Project : Collaborative Management to Increase Climate Change Resilience	162 million baht	To utilize and manage groundwater to reduce vulnerability, build resilience	4 Year	Thailand, Cambodia, Laos, Vietnam	Department of Groundwater Resources
3	Project Enhancing Climate Resilience of Mekong River Communities through Strengthening Climate Services (ECR-MEKONG)	411 million baht	To reduce vulnerability and increase climate resilience for communities in the Mekong Basin in 5 countries	5 Year	Thailand, Cambodia, Laos, Vietnam	Meteorological Department





ThaiCI
BY ENVIRONMENTAL FUND



Thai Climate Initiative Fund or ThaiCI Fund is a financial mechanism to support climate protection in Thailand. It focuses on providing financial support to climate mitigation and adaptation projects. The ThaiCI is implemented under the Environmental Fund (EF) and receives technical support as well as seed funding from the International Climate Initiative (IKI), Federal Ministry for Economic Affairs and Climate Action of Germany (BMWK) through Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

Objective

- Establish financial mechanism to support climate change initiatives (ThaiCI Fund) and provide financial support for climate mitigation and adaptation projects
- Enhance the operational capacity of the Environmental Fund to meet international standards
- Enhance the capacity of project developers in proposal development, project monitoring and evaluation in the field of climate change and promote knowledge exchange and learning in project implementation

