From Policy to Practice:

Thailand's Approach to Governing AI for Climate Action And Resilience

Ministry of Higher Education, Science, Research and Innovation, THAILAND

Why AI for Climate Matters for Thailand?

High vulnerability: floods, droughts, extreme heat, air pollution

Impact on agriculture, water, health, and economy

Economic cost: Climate-related disasters cost Thailand an estimated 1.5-2% of GDP annually

National Commitments:

- Carbon neutrality by 2050
- Net-zero emissions by 2050 (accelerated from 2065)

AI as an enabling infrastructure for resilience.

Thailand's Integrated Policy Architecture

National AI Strategy and Action Plan (2022 – 2027)

Explicit focus on social and environment impact

Climate Change Master Plan (2015 – 2050)

Adaptation, mitigation, enabling environment

Climate Change Act (Approved 2 Dec. 2025)

ETS, carbon reporting, digital MRV systems

AI THAILAND

National AI Committee (PM-chaired)

Whole-of-government coordination

MHESI's Bridging Role: From Policy to Practice

MHESI's Mandate:

- Oversight of 170+ universities and research agencies
- AI infrastructure and innovation ecosystems
- AI talent development and research funding
- Budget allocation: 15% of R&I funding directed toward climate solutions

Bridging Function:

Policy ⇔ Science ⇔ Implementation

National Goals ⇔ Research priorities

Technology ⇔ Capacity building

Core Climate Strategies for 2026

Four Strategic Pillars:

Mission to Net Zero and Climate Resilience

- Leading public-sector net-zero agency
- Integration of climate resilience into all policy processes

Green Human Capital

- Universities as climate research hubs
- Mandatory climate literacy for all students
- Target: 500,000 students/year

Climate Innovation for Action

- Low-carbon technology development
- Digital MRV systems for national tracking
- AI-powered optimization tools

National and International Cooperation

- Green Climate Fund mobilization
- Regional technology transfer
- ASEAN and APCTT partnership

Key Initiatives and Milestones

Policy & Standards:

- Climate Change Act readiness framework (Q1 2026)
- Green Enterprise Indicators (GEI) as national standard
- Net Zero Campus: 25 universities by end of 2026

Education & Capacity:

- Environmental curriculum (SIMPLE) rollout nationwide
- VR/AR-enabled climate education modules
- Target: Train 10,000 climate professionals by 2027

Innovation Focus Areas:

- Energy Resilience: Climate-adaptive infrastructure assessment tools
- Coastal Vulnerability: AI-powered early warning systems for 23 coastal provinces
- EV Transition: Supporting "30@30" policy (30% EV production by 2030)
- BCG Model: Precision agriculture and weather forecasting for 4.2M farming households

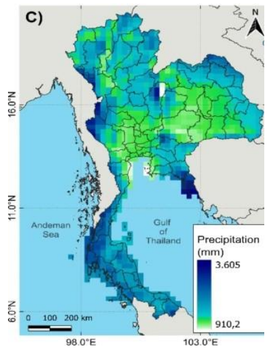
Thailand Case Snapshot 1:

AI for Climate Forecasting and Risk Reduction

System Components:

AI-driven rainfall, flood, and drought forecasting

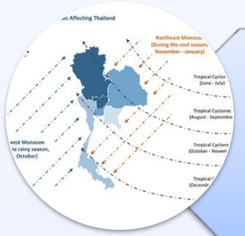
Satellite data integration (Sentinel, Landsat, Thai satellites)



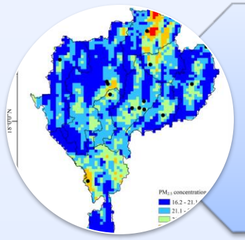
Downscaling: Global models => 1km resolution

Thailand Case Snapshot 1:
AI for Climate Forecasting and Risk Reduction

Governance Integration:



Real-time data sharing across 12 agencies



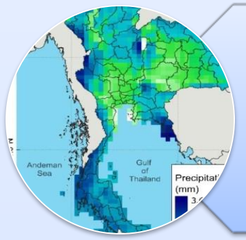
Integration with National Disaster Warning Center

Decision-support dashboards for provincial governors

Impact:

72-hour advance flood warnings (previously 24 hours)

30% reduction in disaster-related agricultural losses (2024 pilot)

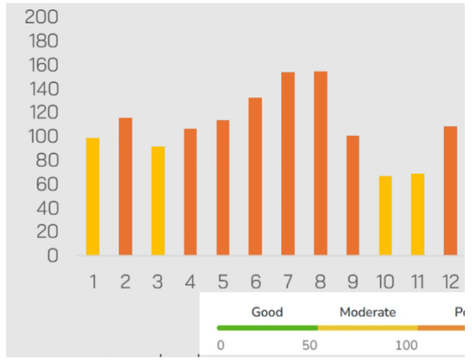


Early warning coverage for 15 million people in flood-prone areas

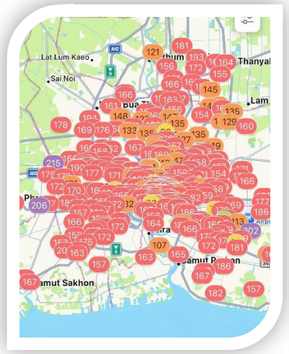
Thailand Case Snapshot 2:

AI for Quality and PM2.5 Management

System Capabilities:



AI-powered PM2.5 Forecasting (5-day horizon)



Real-time monitoring from 200+ stations

Satellite-based hotspot detection

Source apportionment modeling

Thailand Case Snapshot 2: AI for Quality and PM2.5 Management

Governance Framework:

- Integration with public alert mechanisms (mobile apps, SMS)
- Inter-agency coordination (Environment, Health, Education)
- Cross-border data sharing (ASEAN Specialized Meteorological Centre)
- School closure and activity restriction protocols

Policy Outcomes:

- **85% forecast accuracy for next-day PM2.5 levels**
- **Public alert system reaching 40 million people**
- **Evidence base for crop burning regulations and traffic management**
- **Regional cooperation framework with neighboring countries**

Key Insight: Air pollution governance requires data interoperability, institutional coordination, and regional cooperation—AI provides the technical backbone.

Governance, Ethics and Trust

Responsible AI as Foundation for Scaling

Ethical Framework:

- National AI ethics guidelines (2023)
  - Aligned with UNESCO Recommendation on AI Ethics
  - Principles: Human rights, transparency, accountability, sustainability
- Mandatory AI Impact Assessment for government deployments
- Public consultation mechanisms for high-impact AI systems

Governance, Ethics and Trust

Responsible AI as Foundation for Scaling

Data Governance:

- Personal Data Protection Act (PDPA) compliance
- Data quality standards for climate applications
- Interoperability protocols across agencies
- Open data initiatives with privacy safeguards

Governance, Ethics and Trust

Responsible AI as Foundation for Scaling

Capacity Building:

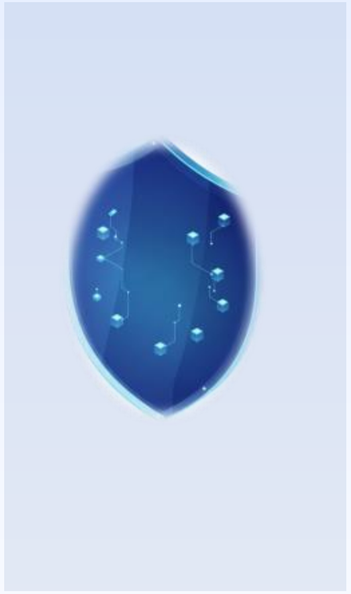
- AI literacy programs for public officials (5,000 trained by 2025)
- Technical training for climate data scientists
- Ethics training for AI developers
- Public engagement and awareness campaigns

Accountability Mechanisms:

- AI system audits and performance monitoring
- Explainability requirements for policy-critical systems
- Grievance mechanisms for affected communities
- Regular impact reporting to Parliament

Key Challenges Being Addressed

Data Challenges



Capacity Challenges

Sustainability Challenges

Institutional Challenges

Financial Challenges

Policy Takeaways

- Integration, Not Isolation
- Governance as Enabler
- Regional Cooperation is Essential

THANK YOU
FOR YOUR ATTENTION

FOR MORE INFORMATION