

Overview of climate change and its effect on Thailand and Thailand's existing blueprint



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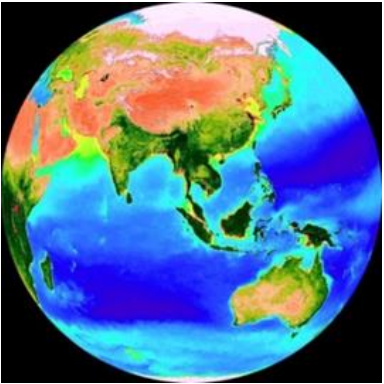
Department of Environmental Quality Promotion (DEQP)



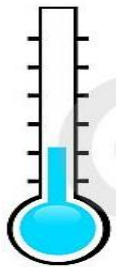
Policy Forum on Thailand's Sustainable Green Growth: Embedding Resilience

19 May 2021

Observed/projected changes in temperature over Thailand



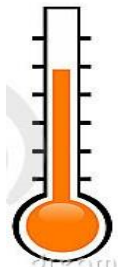
Past change +1 °C



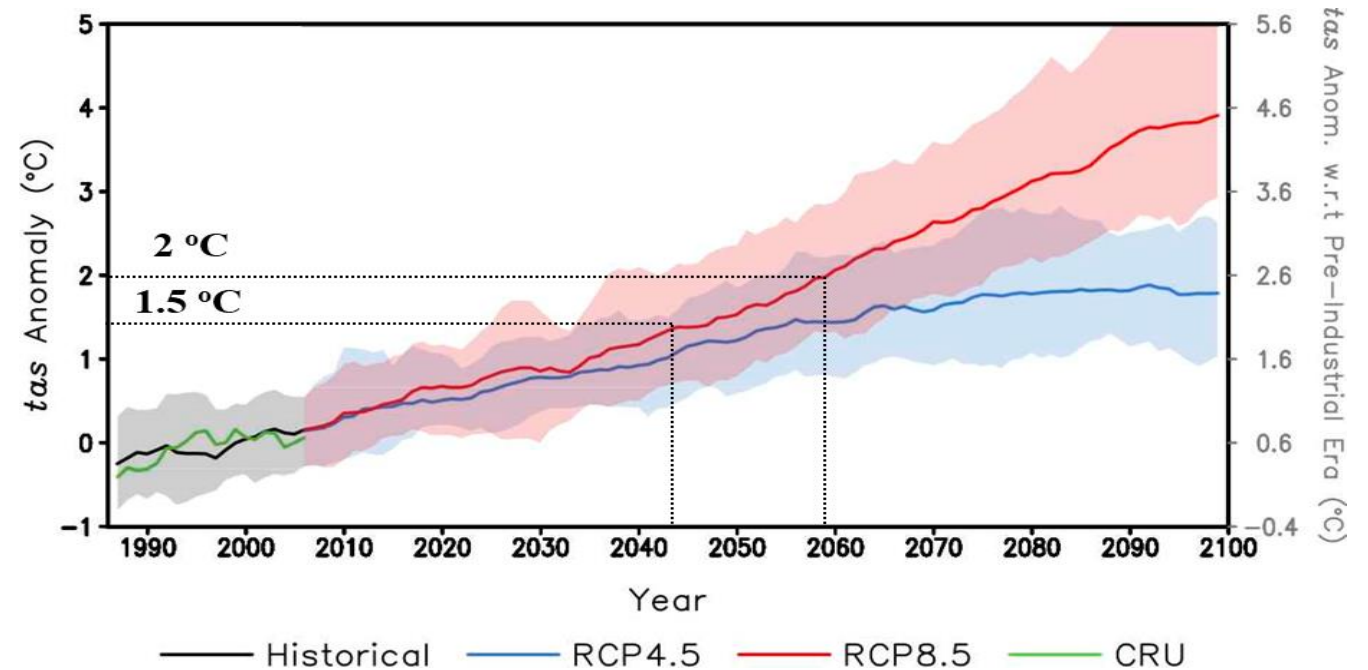
1960



1980

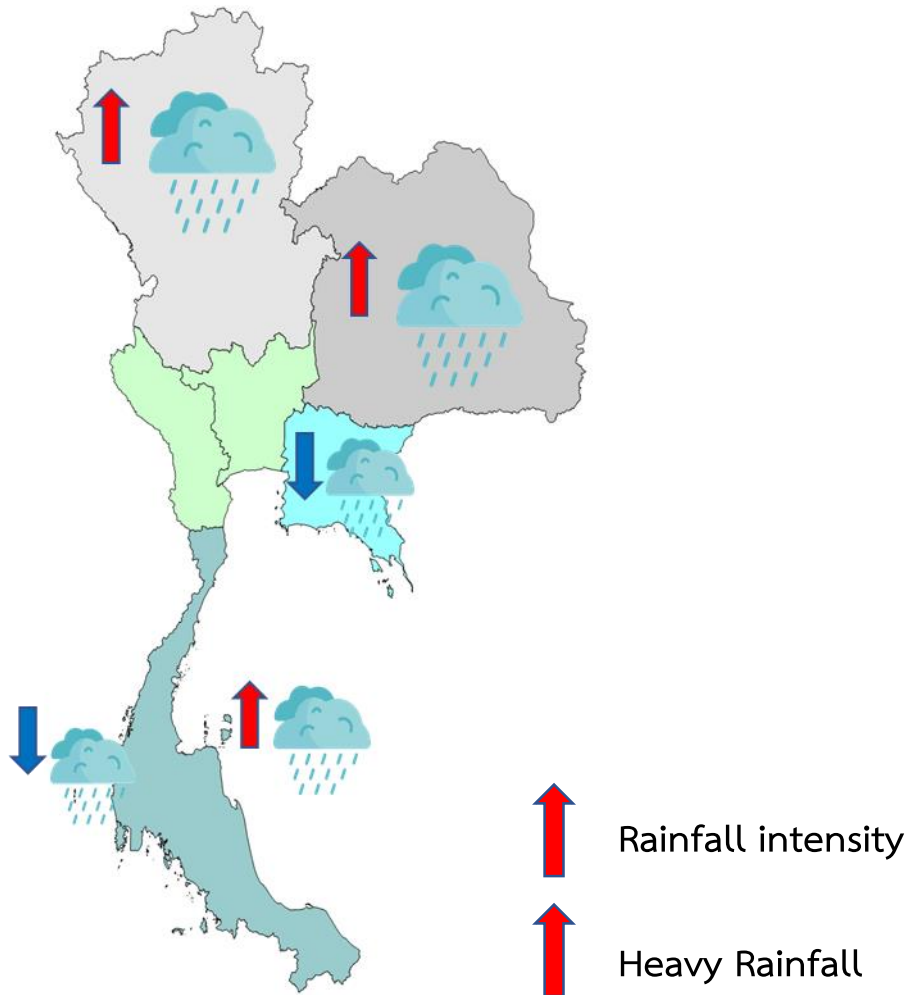


2000



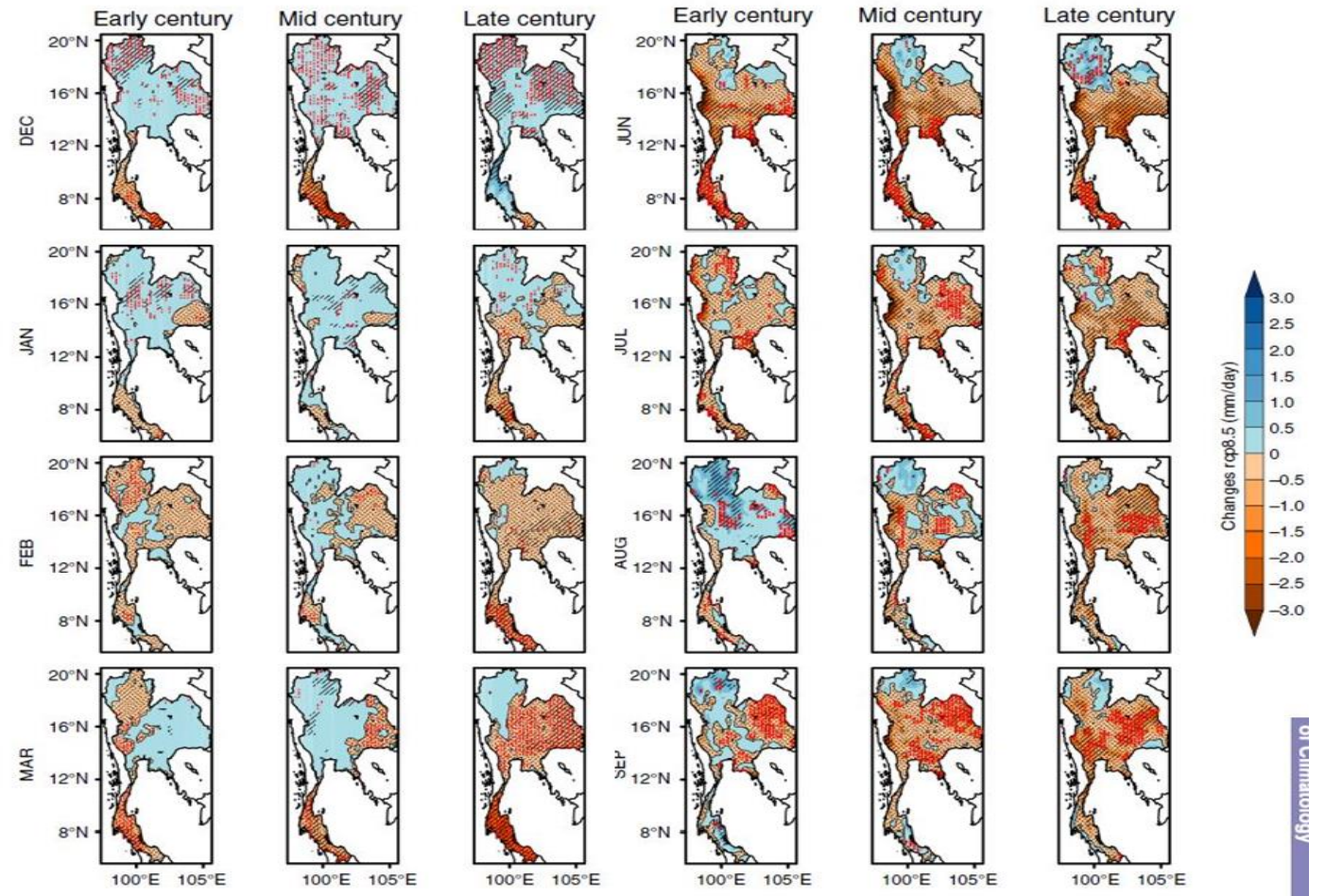
Observed/projected changes in rainfall over Thailand

Rainfall change: 1955-2014

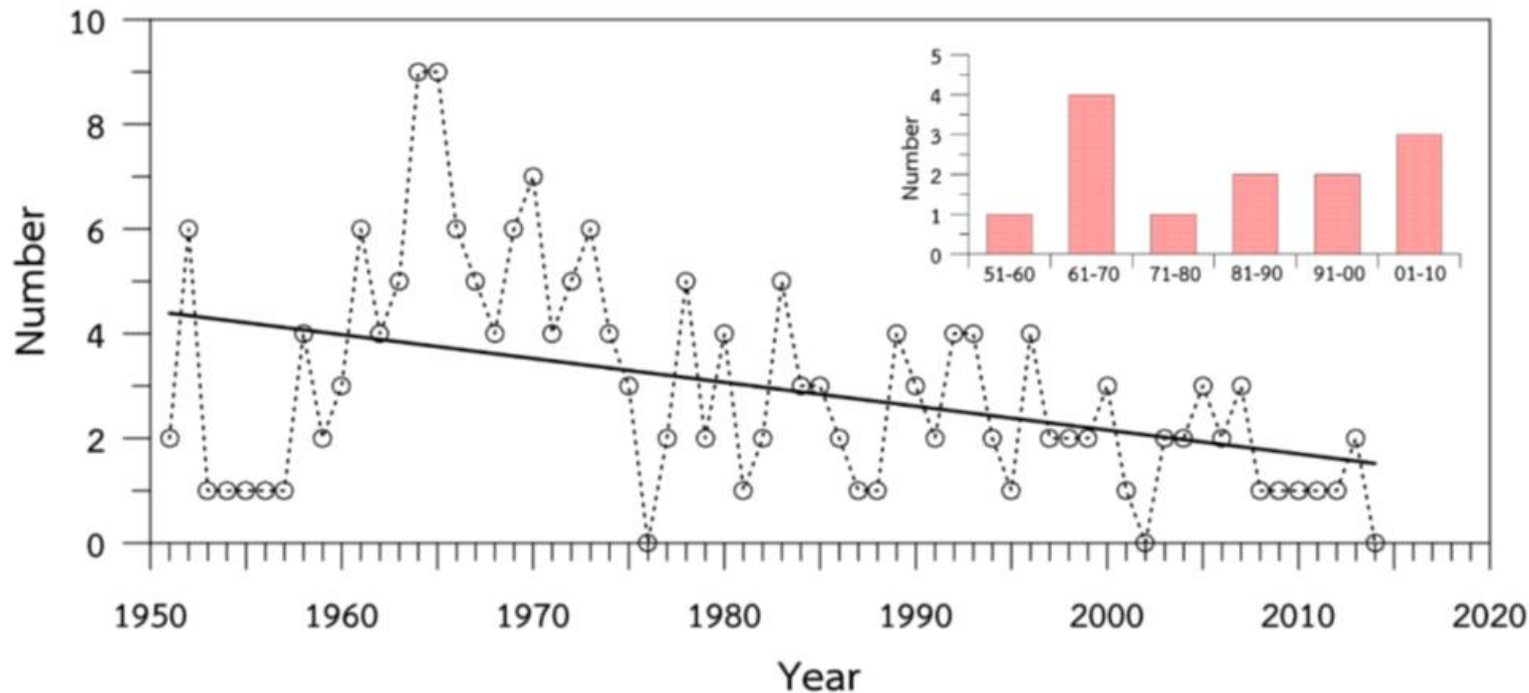


Dry season

Wet season



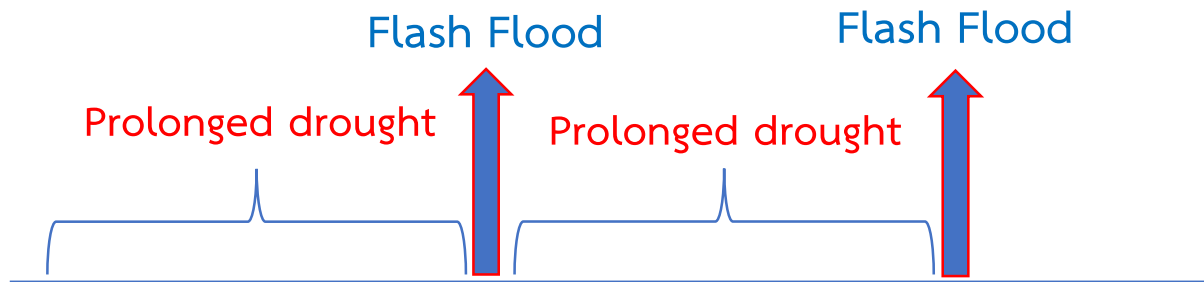
Frequency of tropical cyclones entering Thailand (1951-2014)



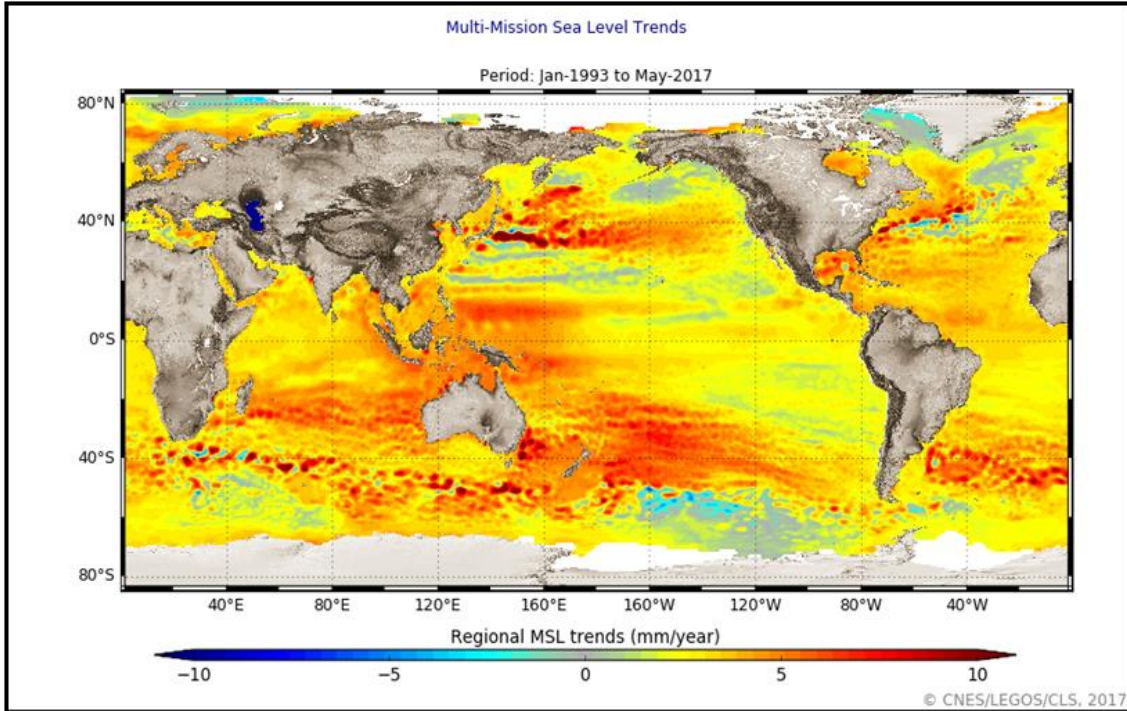
- Significant decrease in number of tropical cyclones.
- Increase in tropical storm and typhoon (>61 km/hr) occurred every ten since 1970.

Future

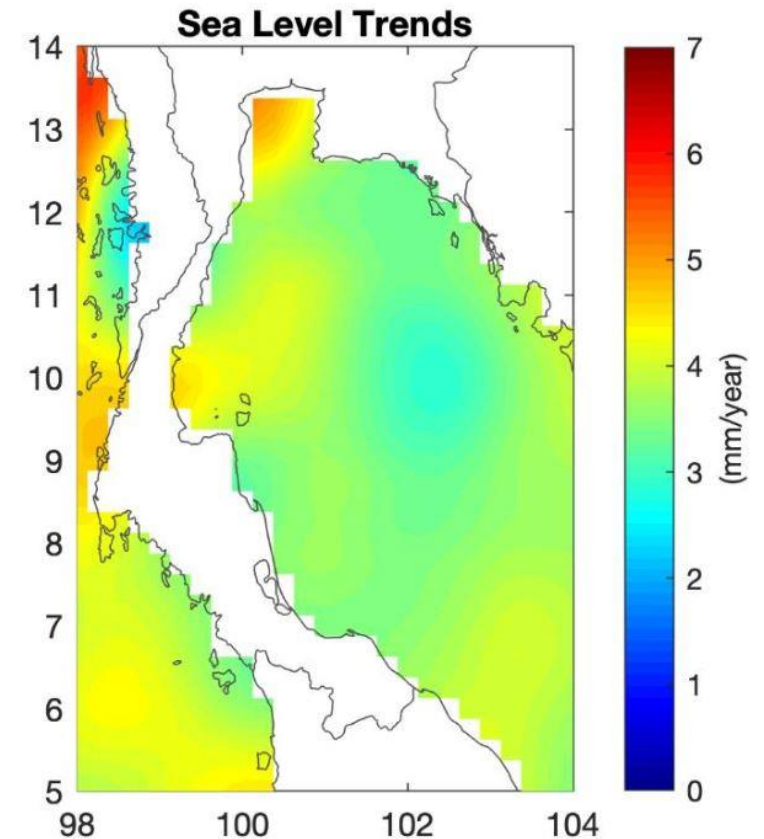
Frequency of tropical cyclones entering Gulf of Thailand will decrease 20-40% but intensity will increase 3-9%.



Sea level rise



Satellite altimetry data: 1993-2019 (3.6-6.6 mm/yr)

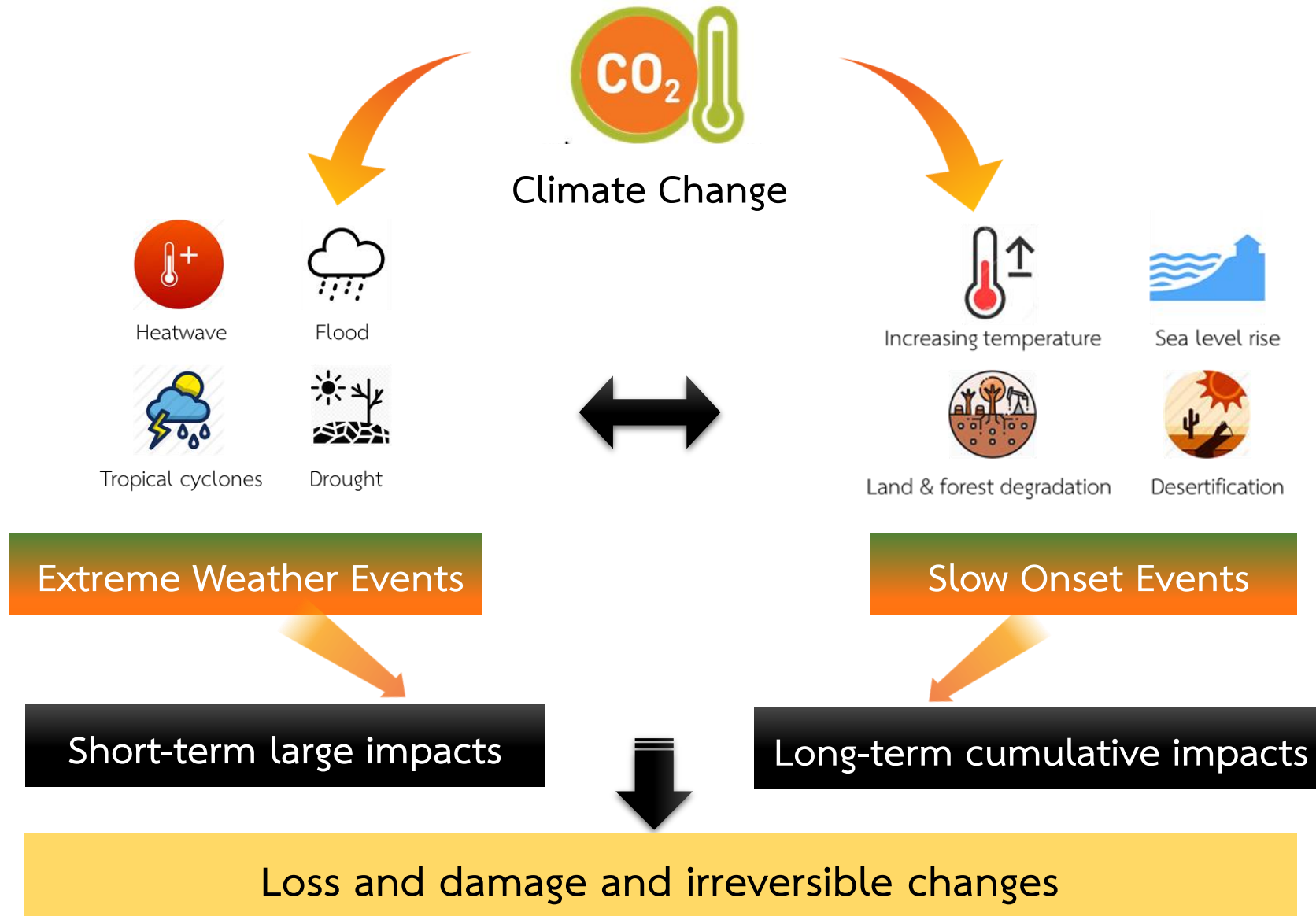


Future projections of SLR (cm) as compared to today's level for Thailand.

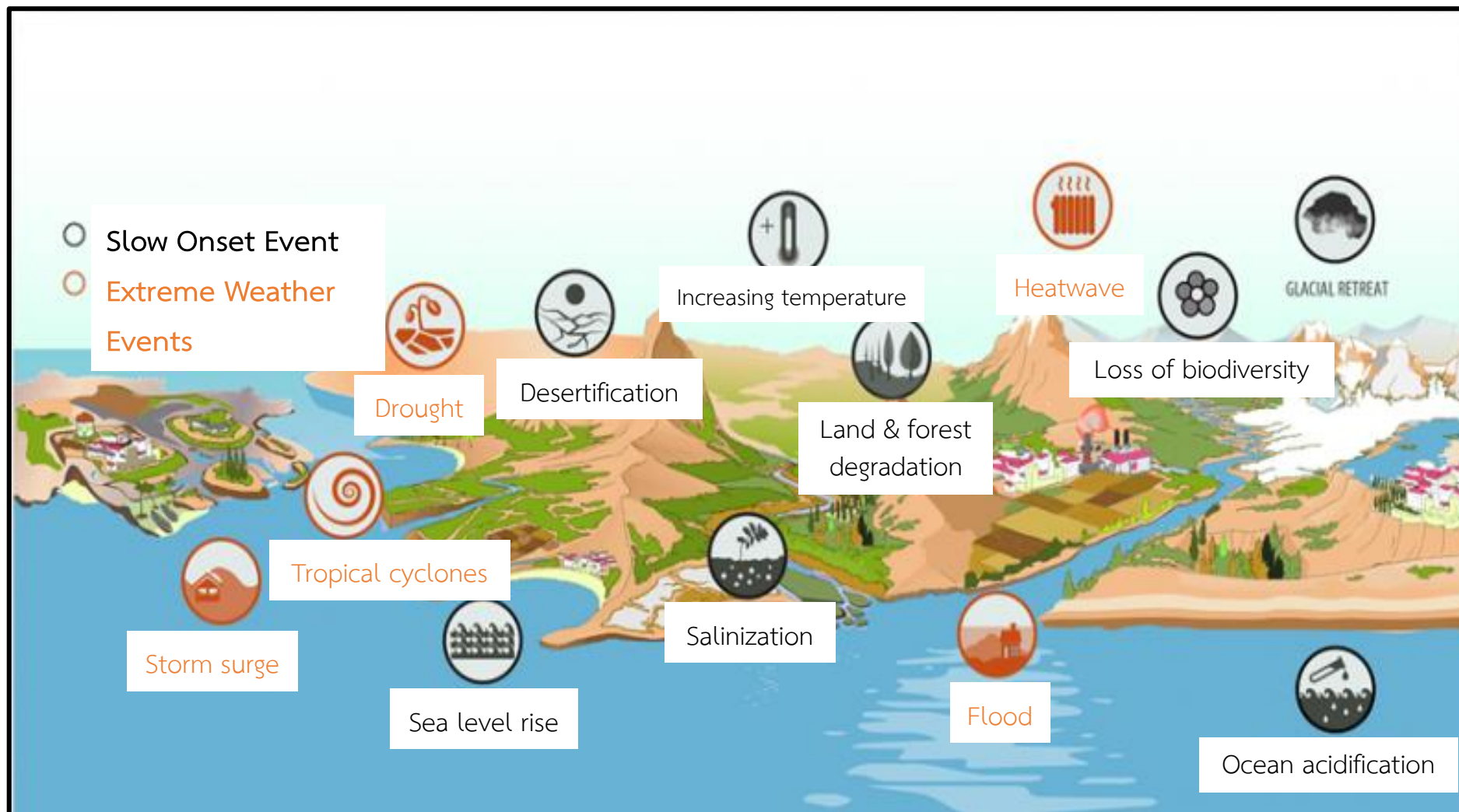
Sea Level Rise (cm)	2050	2100	2150	2200
RCP 2.6 (1.6°C)	33.5	69	102	136.5
RCP 4.5 (2.4°C)	35	80	124	166
RCP 8.5 (4.3°C)	38	99	163	239

Source: 2nd TARC (2016), Hutfilter et al. (2019)

Climate change impacts on Thailand



Various climate-induced changes observed in Thailand



Climate disasters in Thailand during 1989-2018

Disaster Type	Events Count	Total Deaths	Total affected (million people)	Damage (million US\$)
Drought	11	No Data	42	3 726
Extreme temperature	2	77	1	No Data
Floods	67	2 905	51	45 753
Storm	32	843	4.2	880

Based on Emergency Events Database (EM-DAT) <https://www.emdat.be>

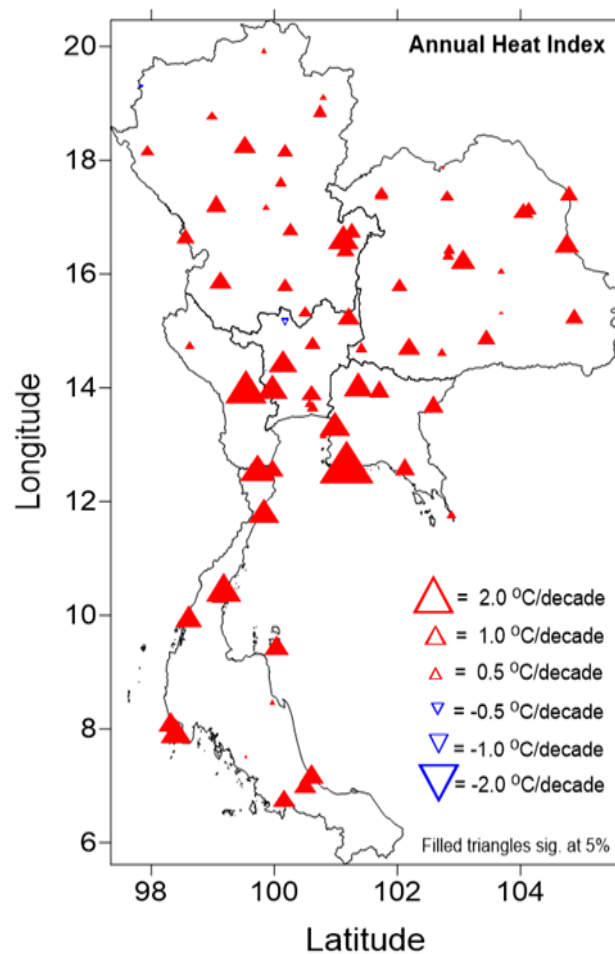
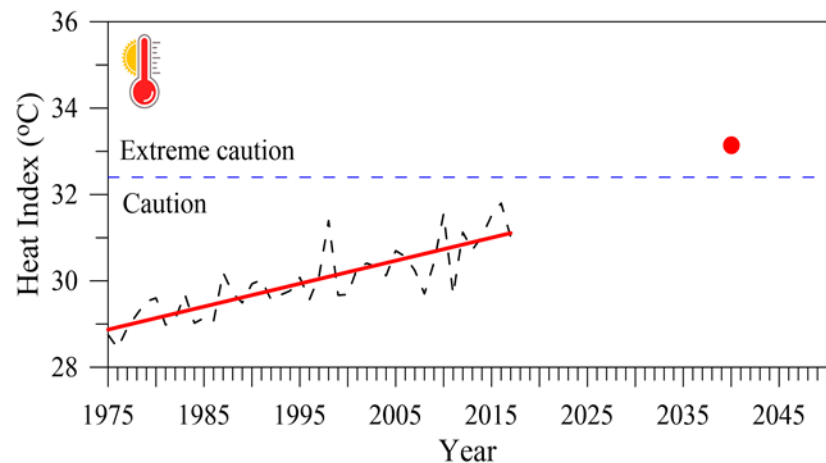


Floods and extreme rainfall events in urban areas



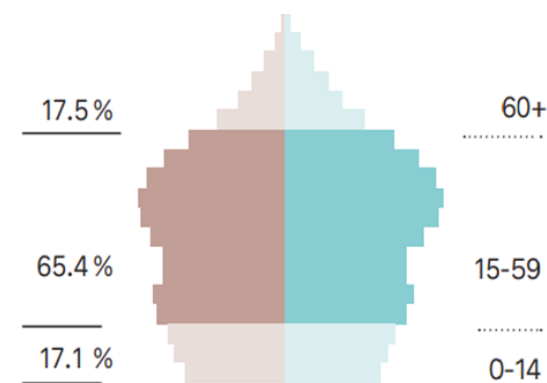
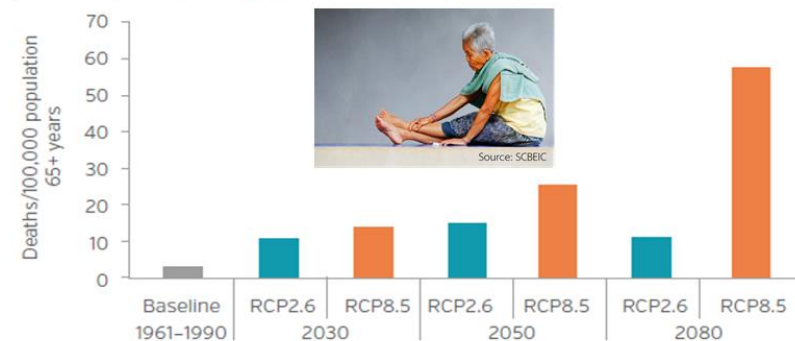
Floods and extreme rainfall events have become climate-related disasters strongly affecting human settlement in Thailand's major cities.

Extreme heat and its health effects



HEAT-RELATED MORTALITY

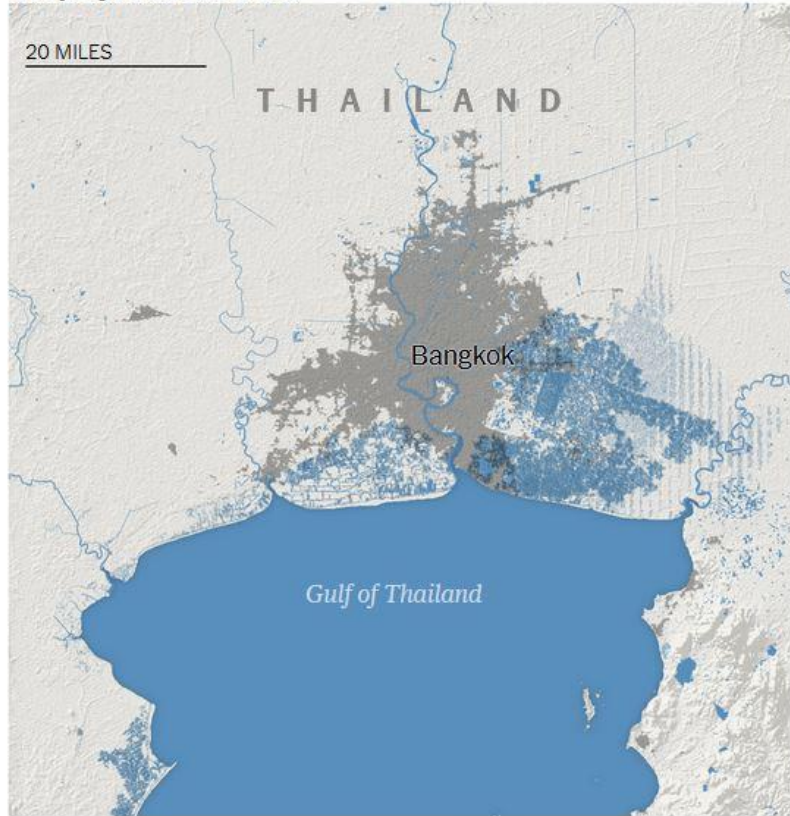
Heat-related mortality in population 65 years or over, Thailand
[deaths / 100,000 population 65+ years]



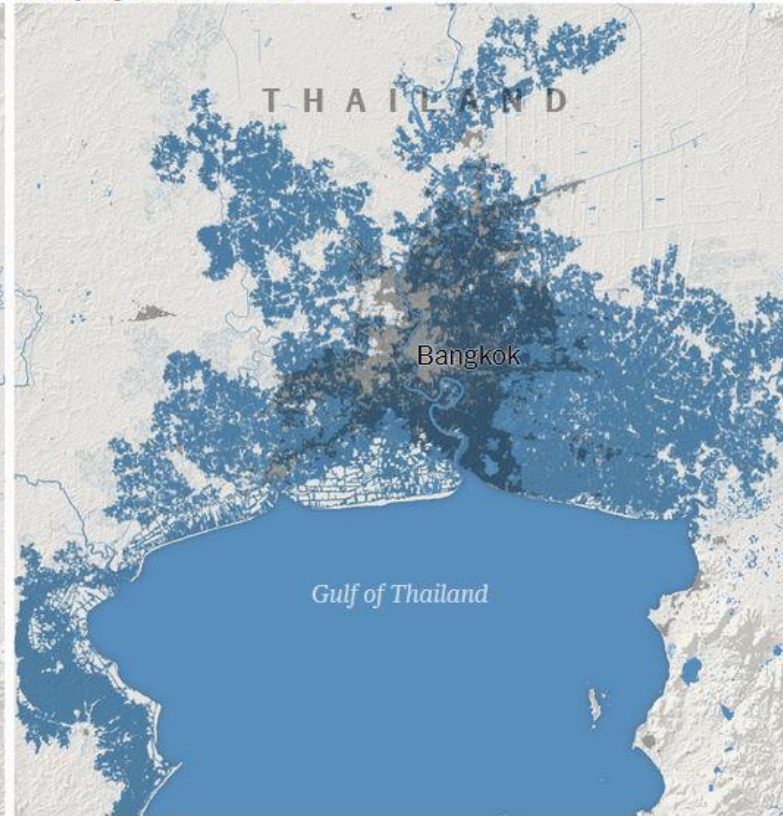
Larger areas affected by sea level rise than estimated

■ Land underwater at high tide ■ Populated area

Old projection for 2050

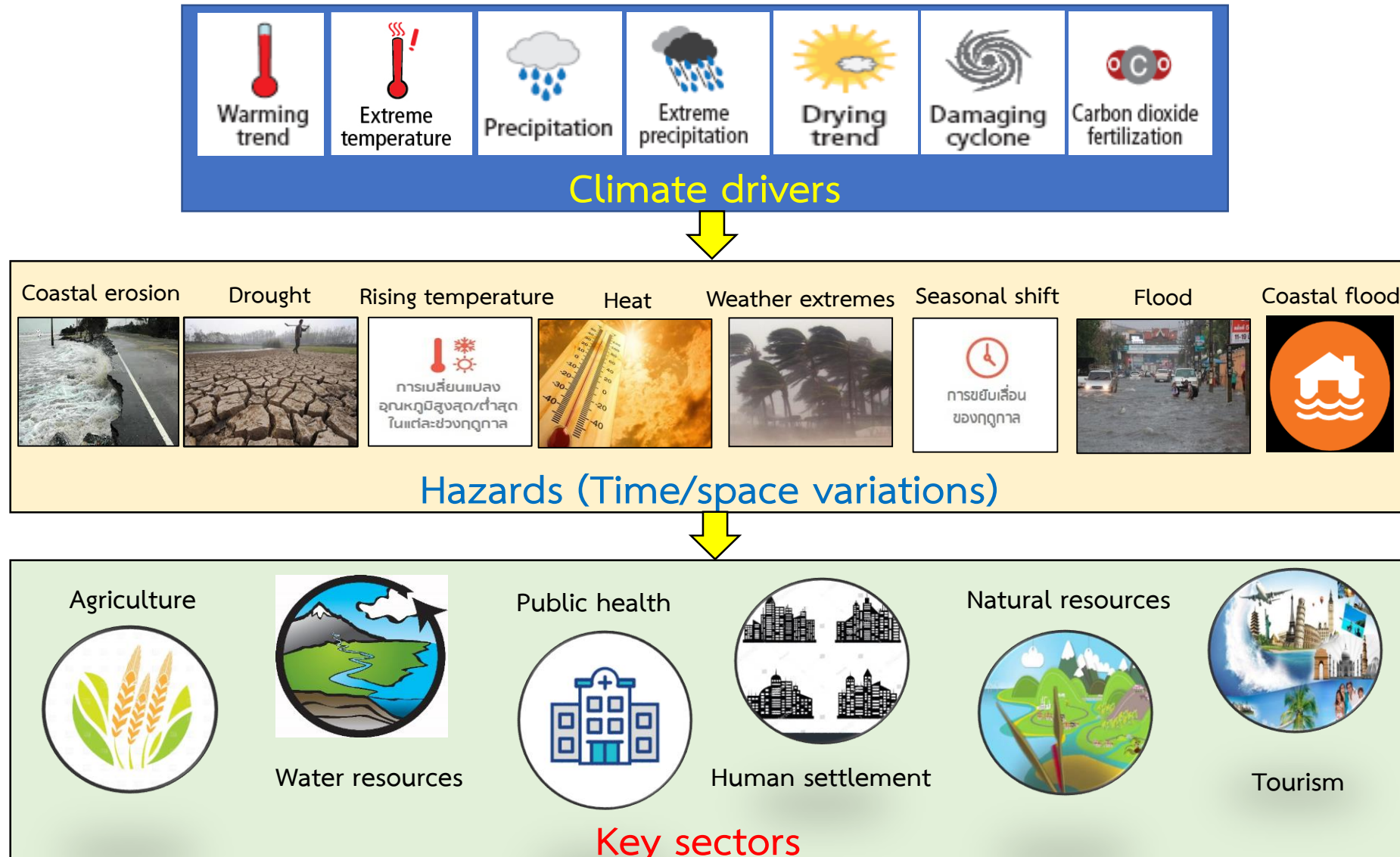


New projection for 2050

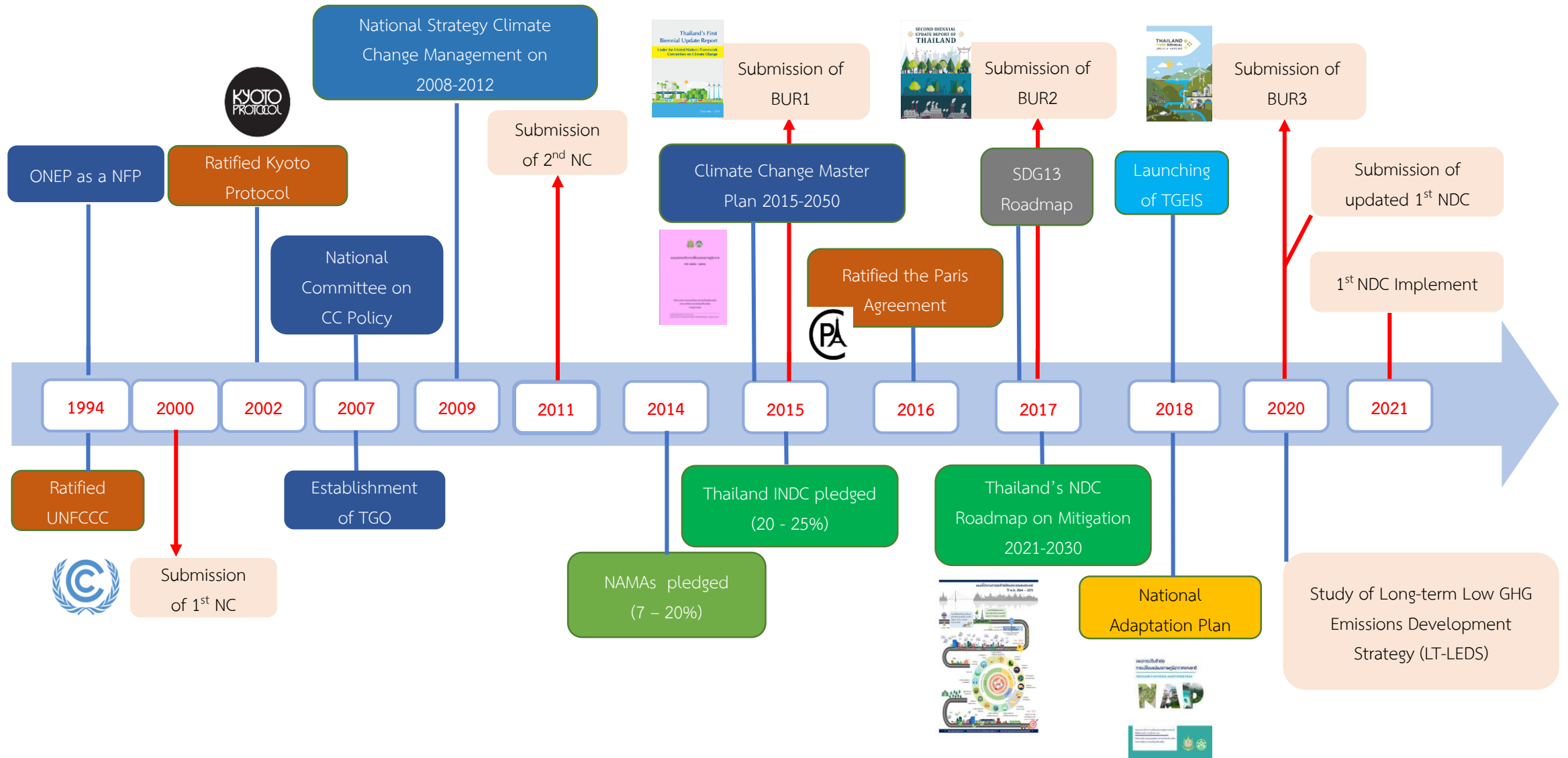


- More than 10% of citizens now live on land that is likely to be inundated by 2050, compared with just 1% according to the earlier technique.
- The political and commercial capital, Bangkok, is particularly imperiled.

Climate change impact chains for Thailand



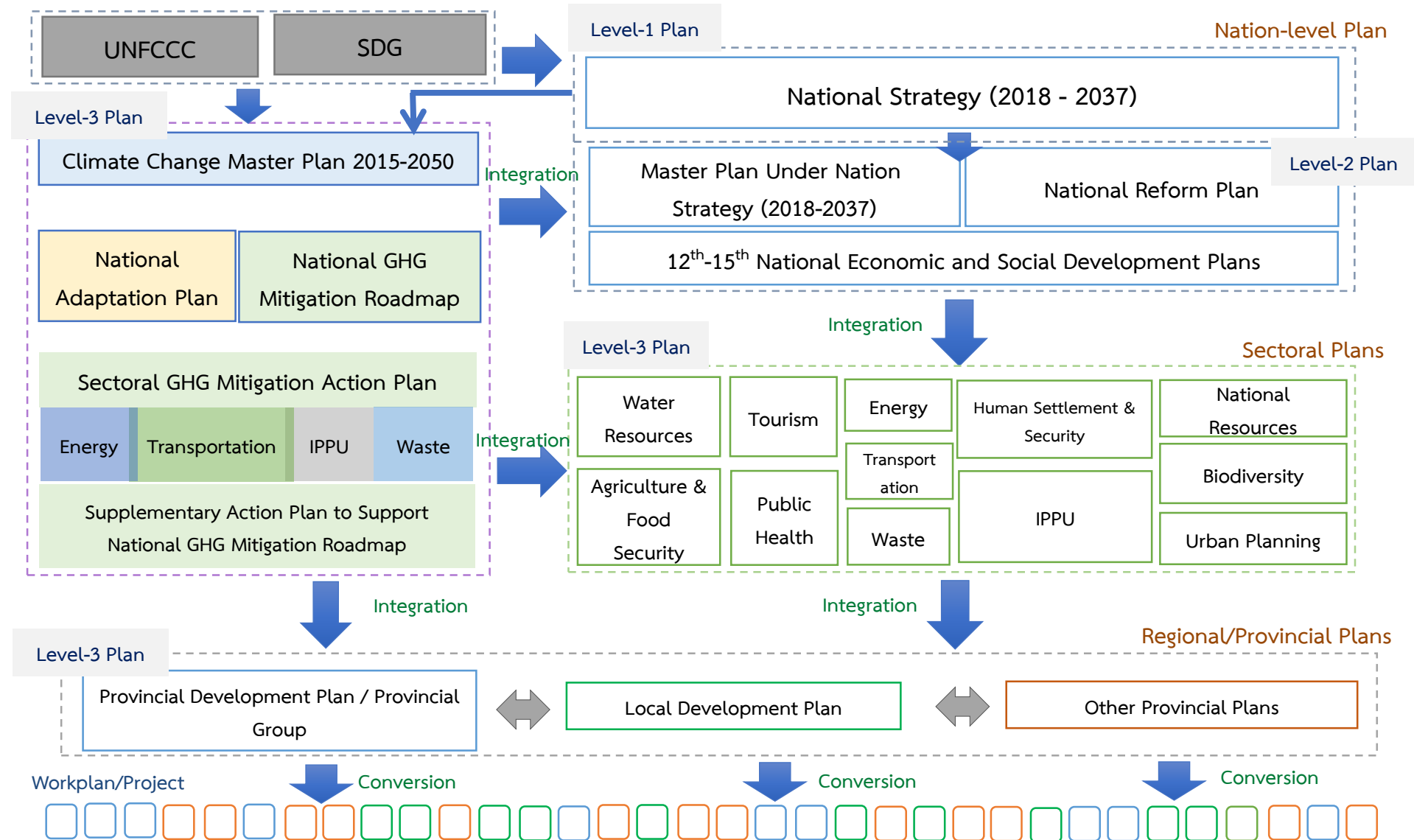
Timeline of Thailand's climate change policies and actions



Important elements of Thailand in solving climate change



Overall of Thailand's climate change policies and plans



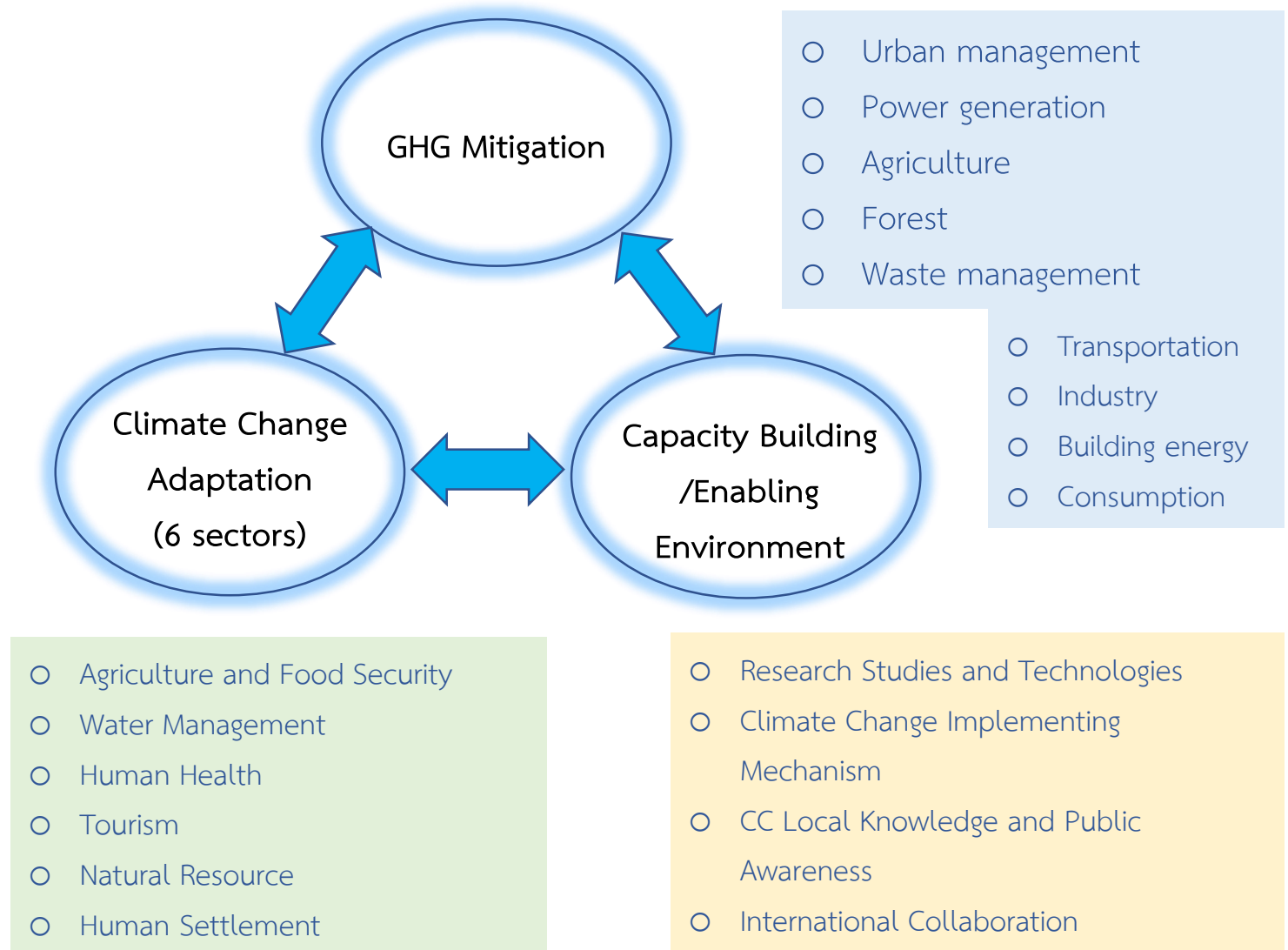
Thailand's Climate Change Master Plan 2015-2050

Vision 2050

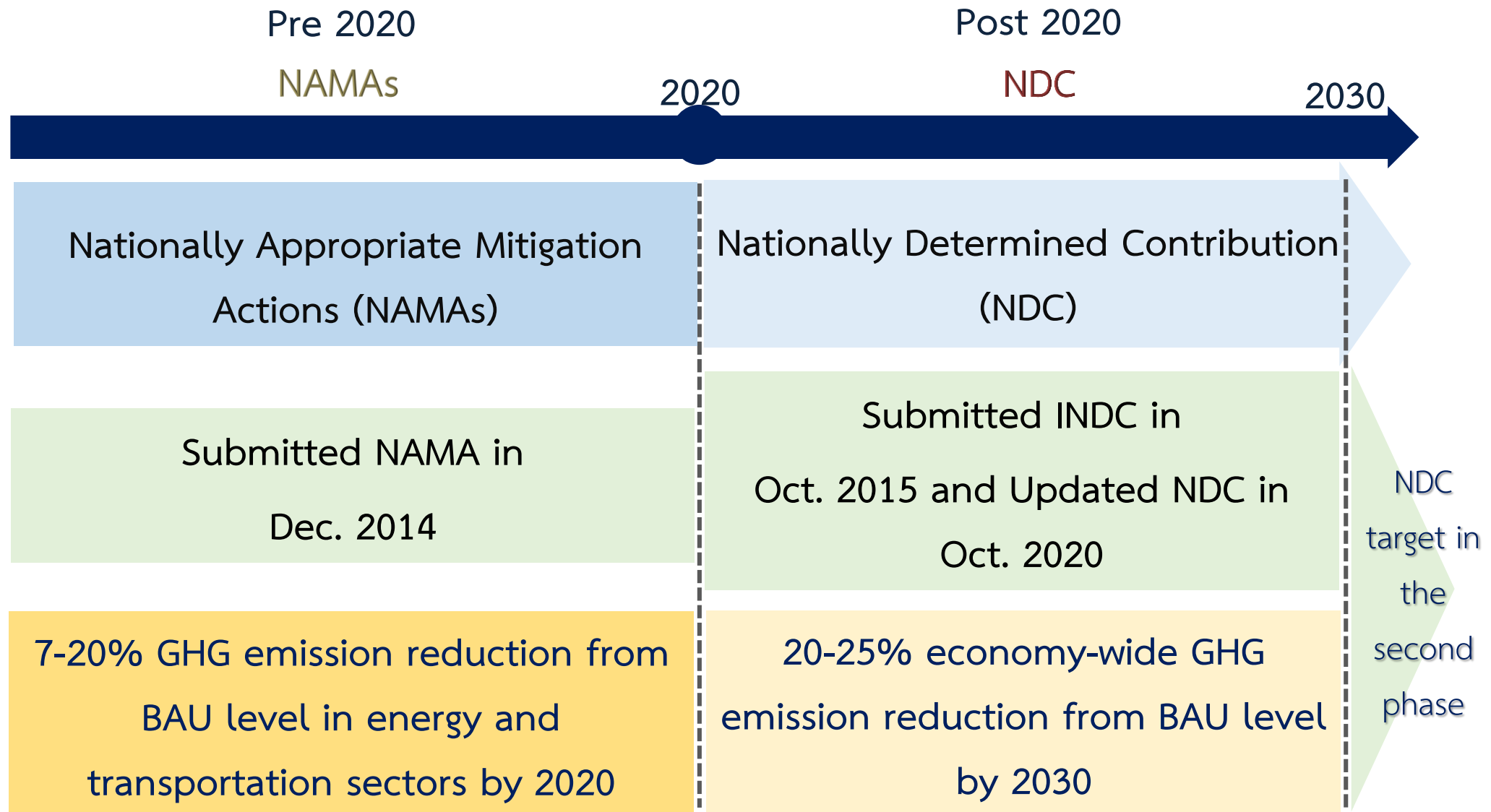
“Thailand becomes a climate change resilient and low-carbon development society following sustainable development pathway”



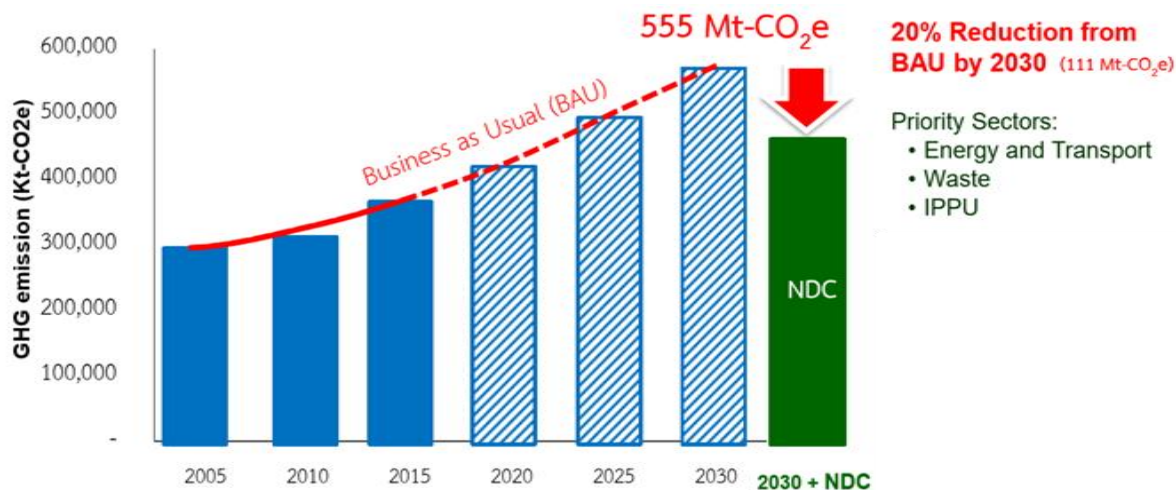
Source: Climate Change Master Plan (2015)



Thailand's GHG emission mitigation targets



Thailand NDC Roadmap 2021-2030



GHG emission reduction potential in 2030 under Thailand NDC Roadmap = 115.6 Mt-CO₂e (20.8%)

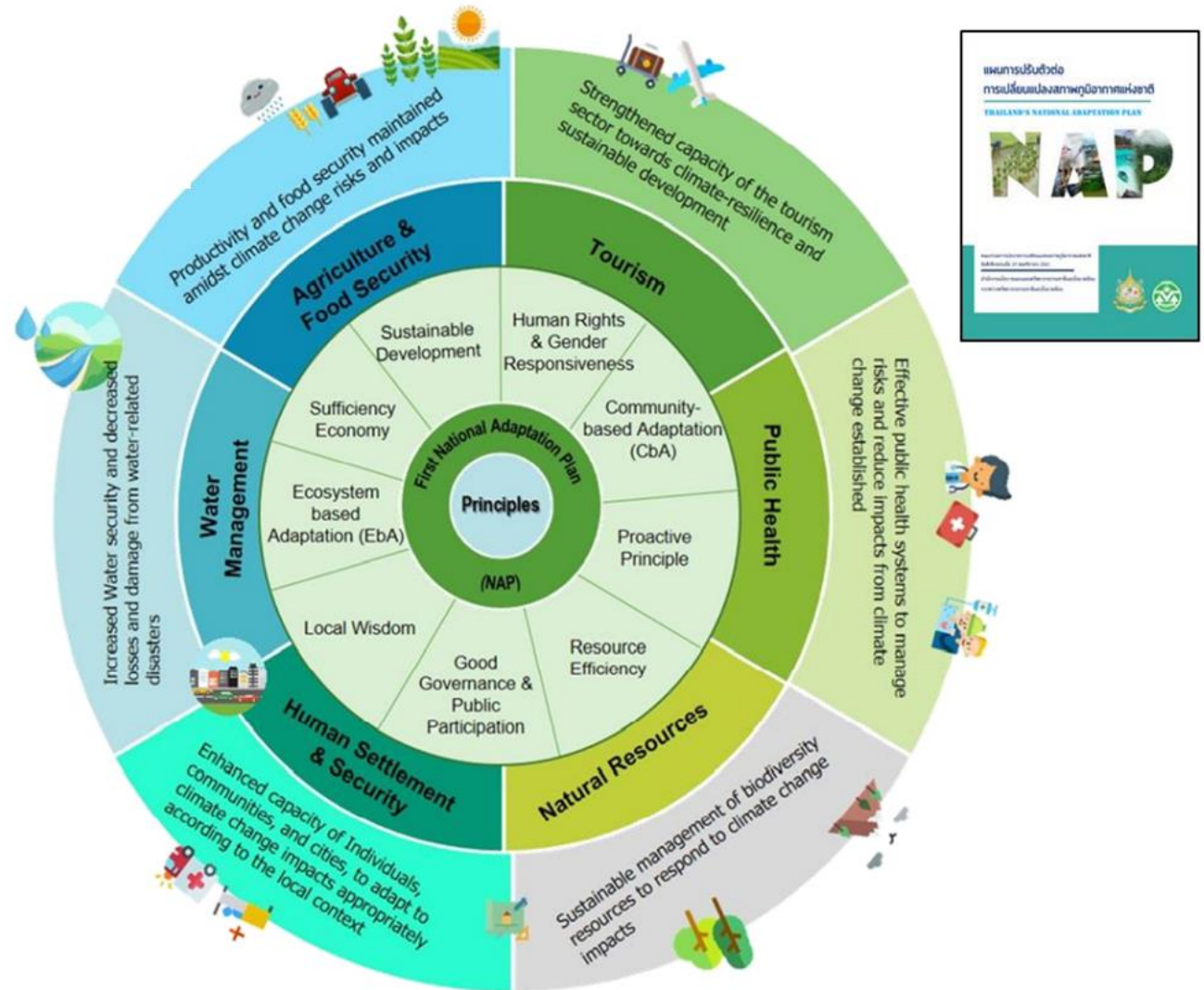
Thailand's National Adaptation Plan (NAP)

Vision

“Thailand is resilient with adaptive capacity to climate change impacts, and moves towards sustainable development”

Mission

- Establish the climate resilience into the national development
- Enhance capacities and awareness at all level
- Develop database, research, knowledge, and technology



Source: <https://www.thai-german-cooperation.info/th/city-climate-adaptation-planning-through-the-lens-of-udon-thani-province/>



Risk-based National Adaptation Plan Project (Risk-NAP)

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

4 Pilot Areas

National Level

Integrating risk-based adaptation planning into national policy and budgeting processes in Thailand

Identify and prioritize in a participatory manner key climate risks in Thailand

Support the development of Thailand's NAP

Integrate climate risks into sectoral plans, especially in the health, tourism, and human settlement sectors

Foster regional and international cooperation on climate change adaptation



Provide guidance for mainstreaming of adaptation at sectoral and sub-national level

Sub-National Level

Integrating climate risks into development and spatial planning in 4 pilot areas in Thailand

Develop area-based climate change and socio-economic scenarios and assess future climate risks

Provide training on utilizing climate change data in planning and budgeting processes

Integrate climate risks into development policies and actions



Chiang Rai Province

Robust tourism strategy for tourism industry

CC & Health Impact Assessment

Udonthani City

Resilience spatial planning and institutional arrangement to support CCA

Upper Chao Phraya Basin

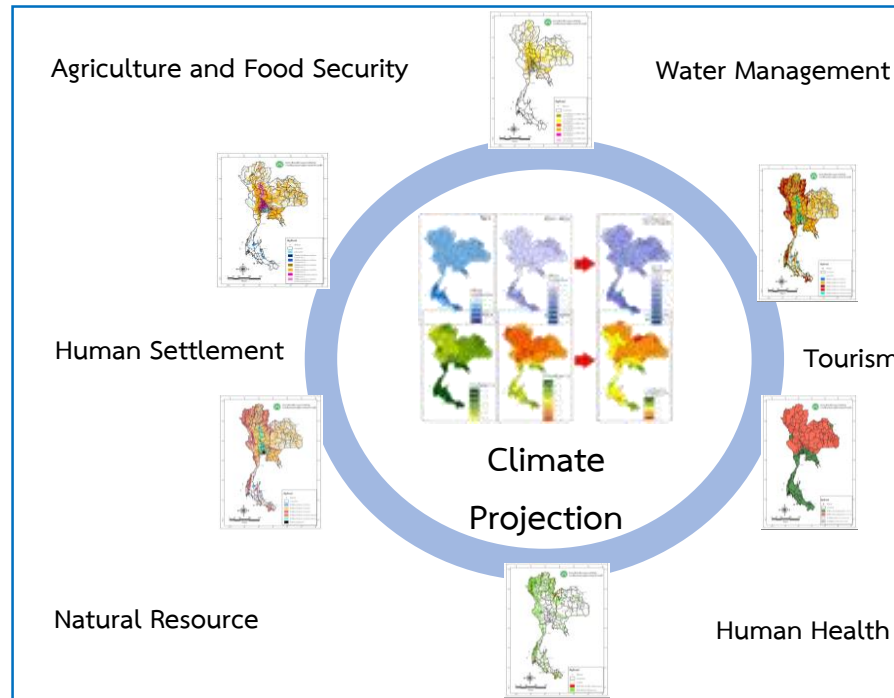
Robust agriculture system for rice-based agriculture system

Andaman Coastal Area

Robust Development Planning

Climate risk database

Risk Map



- Risk Assessment in NAP
- Global Climate Model

2015

- Sectoral risk map
- Identify risk at national level & regional level
- Advantage for National adaptation planning (NAP)

Next step in 2021

- Individual risk map in sector
- Identify risk at provincial level
- Advantage for planning at site level



“Develop and disseminate information related to the risk, adaptation and impacts of climate change in Thailand and the Southeast Asia”

Primary aims of climate change adaptation for Thailand

Adaptation

enhancing adaptive capacity

reducing vulnerabilities

strengthening resilience



- Protecting people and human settlements.
- Ensuring food security and development.
- Enhancing resilience of infrastructure and ecosystems.

Issues of more attention

- Global warming of 1.5 °C/2 °C and its effects
- Slow Onset Events and their long-term loss & damage