Economics of Climate Adaptation

Climate hazards extend beyond financial impacts. They disrupt access to water, education, healthcare, and mobility, while also affecting GDP and consumption.

The long-term consequences of these disruptions can already be observed in Thailand, and climate impacts will continue to unfold over the coming decades.

Affected people:
1 million
due to the 2017 floods

Financial losses:
45 billion US$
in property losses
due to the 2011 floods

2040

Urban population expected to reach 74.3%, exposing more people to climate-induced water shortages

2050

Large investments will be expected for cooling systems due to rising temperature

2060

The average daily temperature is expected to rise by approximately 1.8°C under high-emission scenario

How can these impacts be quantified and incorporated into

RISK MANAGEMENT STRATEGIES?

How can we assess the benefits of adaptation measures and analyze their

COST-EFFECTIVENESS?

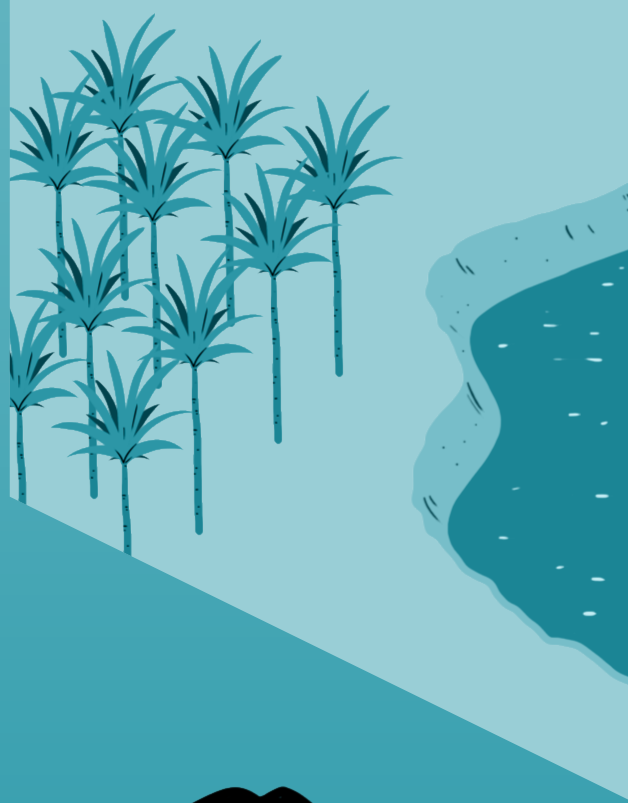
That is where the **Economics of Climate Adaptation** (ECA) framework can play a crucial role, enabling the quantification of risks and analysis of adaptation measures.

Think about how floods lead to an increase in waterborne diseases, posing serious health risks to the people.

Using the CLIMADA modelling platform, ECA can assess the damages to the health sector by estimating the number of people affected by waterborne diseases.

Economics of Climate Adaptation

CLIMADA also compares various adaptation measures based on their costs and effectiveness in reducing the impacts on the health sector.



How do we gather all the

NECESSARY DATA?

ECA prioritizes stakeholder engagement through workshops, to gather information on data availability and sources, formats and quality.

The stakeholders provide some of the data required

The remaining data are supplemented with

Stakeholder engagement is also key for data for the modelling.

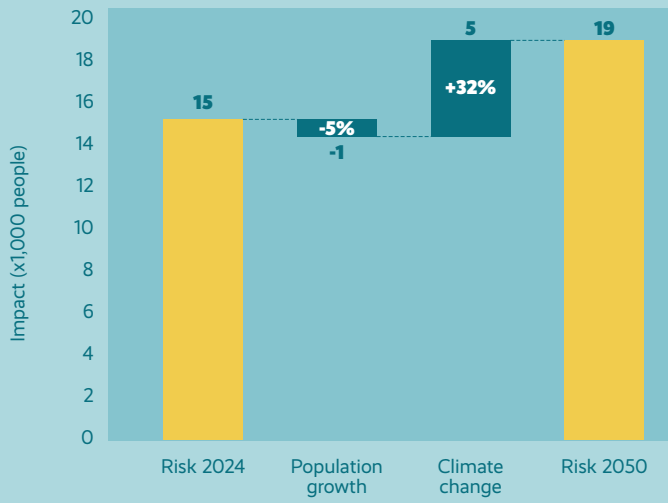
secondary sources and open databases.

validation and exchanges between parties.

CLIMADA
Economics of Climate Adaptation

How do ECA and the modelling tools
SUPPORT NATIONAL GOVERNMENT
with evidence-based decision-making for adaptation planning and climate risk financing?

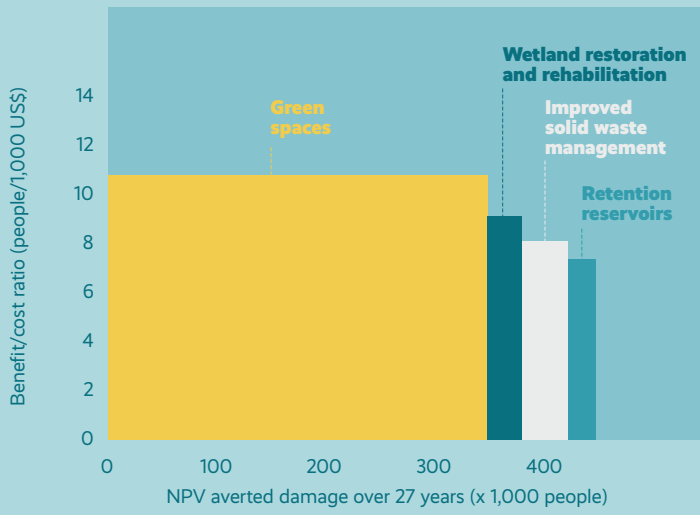
Expected Annual Impact in Thailand



CLIMADA assesses the current and projected number of people affected by waterborne diseases, supporting decision makers in developing adaptation strategies and risk financing plans.

Currently 15,000 people are affected by waterborne diseases in Thailand exacerbated by floods. This number is **expected to increase by 26%** by 2050.

Benefit per cost ratio in Thailand



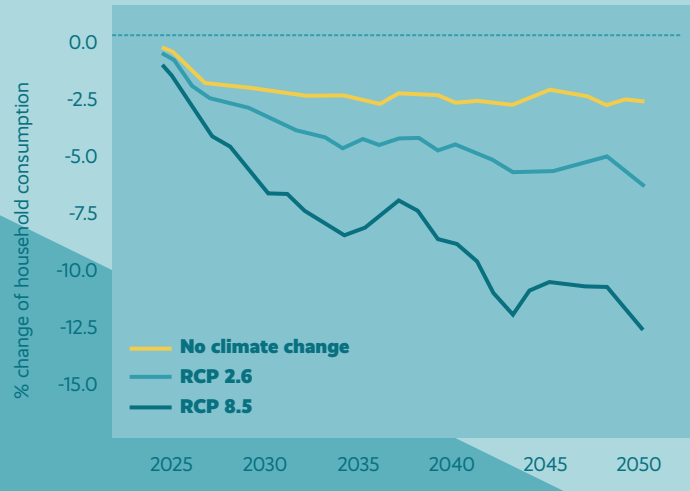
CLIMADA analyses the benefit of adaptation measures compared to the investment required to reduce the impact of floods on those affected by waterborne diseases, facilitating the prioritization of adaptation measures.

Expanding green spaces emerge as the most cost-effective strategy for reducing flood-related health impacts in Thailand.

Can ECA also support with decision-making on the
MACROECONOMIC IMPACTS
of the hazards?

CLIMADA provides localized impact data that the Dynamic General Equilibrium model for Climate Resilient Economic Development (DGE-CRED) uses to estimate the effects on macroeconomic variables such as GDP and household consumption, as well as the potential macroeconomic benefits of adaptation measures.

Current and Future Household Consumption in Thailand



CRED showcases the current and future household consumption using CLIMADA risk data, showcasing the growing impact on Thailand's economy.

By 2050, climate hazards could **reduce consumption by 13%** or 44.5 Billion USD, limiting people´s economic capacity to purchase goods and services in Thailand.

The outcomes help

DECISION MAKERS

support vulnerable populations, through national level strategies and proactive adaptation investments.

- National Adaptation Plans
- Local Adaptation Plans

- International cooperation
- Development banks
- Global funds

ECA, alongside its modeling platform CLIMADA, helps governments and financial institutions make data-driven decisions on adaptation investments and risk financing.

For full report, please see:

UNU EHS

MCII

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Department of Agriculture