

Thailand

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Introduction

Thailand is one of the wealthiest and most developed countries in southeast Asia with a GDP per capita of \$16,800. However, its tropical location and the influence of seasonal monsoon rains and local topography make it prone to floods. In extreme rainfall years, the flooding may spread to the Chao Phraya river basin towards Bangkok, the country's capital. The Chao Phraya river basin is home to about 20 million people (30% of the total population) and to much of Thailand's manufacturing industry. Climate change threatens all three important sectors of Thailand's economy: agriculture, tourism, and trade. Thailand experiences the remnants of northwest Pacific tropical cyclones, which bring additional heavy rainfall that can also increase flooding during the monsoon season from May to November. Bangkok, Thailand's capital city and home to over 10 million people, has been sinking 10 centimeters annually. The land subsidence, coupled with rising sea levels due to climate change, puts the city at risk of inundation.¹

In recent years, Thailand has suffered weather extremes including droughts and heatwaves as well as floods.² As shown in figures one through five, Thailand, relative to the rest of the region, has an effective government (notwithstanding recent challenges) (see figure 5), but high population density (see figure 3) combined with high climate related disaster exposure including floods, droughts, and wildfires (see figure 2) create significant sources of vulnerability.³ Calculations under the CEPASA program indicate that approximately 72% (i.e., 48 million people) of the country's population faces above average exposure (relative the 11 country region-wide mean). Further, roughly 36% (i.e., 24 million) and 17% (i.e., 11.6 million) face exposure levels 1 and 2 standard deviation above the regional mean, respectively.⁴

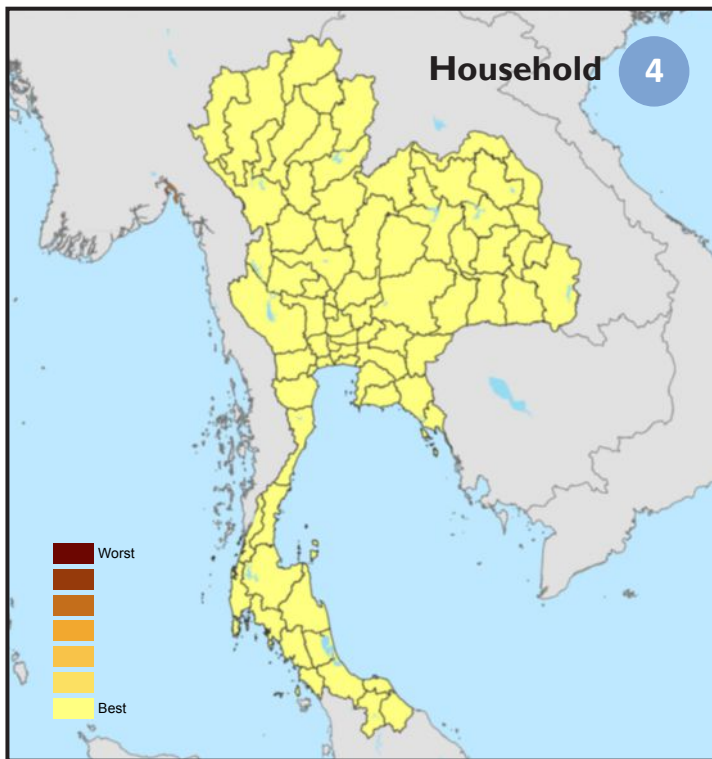
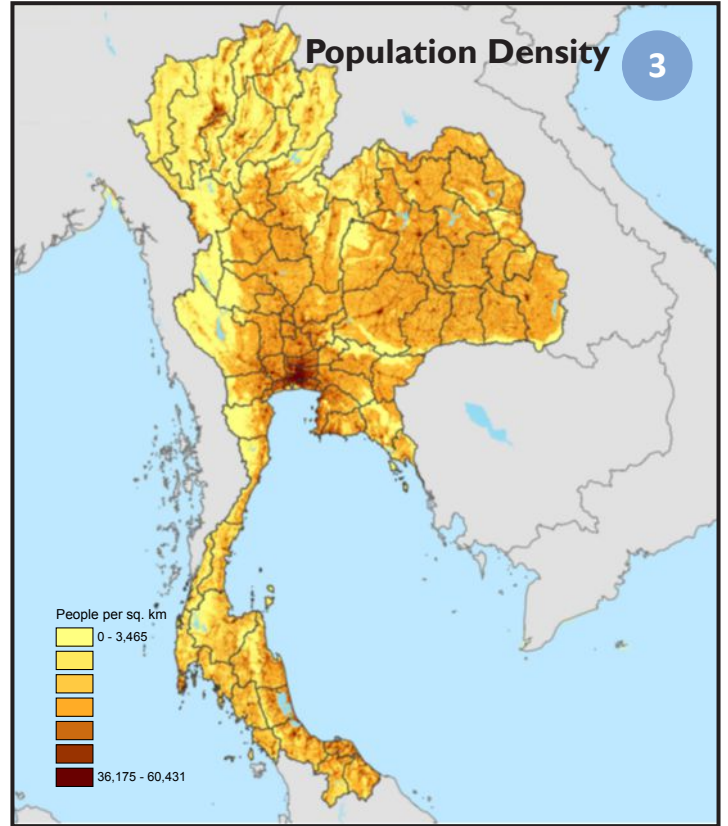
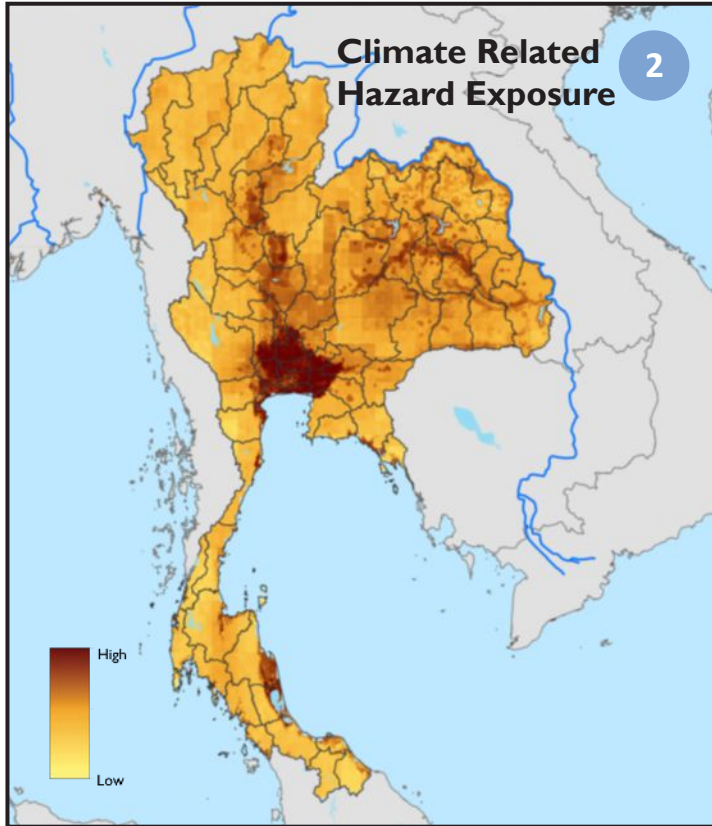
Natural Disasters and Climate Change Vulnerability

Thailand has experienced a wide range of climate related disasters with high risk of flooding in the Chao Phraya river basin, wildfires in the mountainous Mae Hong Sorn province due to the dry weather in the winter season, as well as risk of drought in the northeast. Since 2000, Thailand has experienced 46 different flooding events and 6 droughts.⁵

In 2011, heavy monsoon rains drenched Southeast Asia causing mudslides and widespread flooding along the Mekong River. Parts of Thailand experienced the worst floods in half a century, as water inundated villages, historic temples, farms, and factories. About 8.2 million people in 60 of Thailand's 77 provinces were affected by the flooding, and economic losses were estimated to top \$2 billion.⁶ Land subsidence in the Bangkok area, resulting from the depletion of the water, has amplified the effects of the flooding in the region, affecting



Data Sources: KOF Index of Globalization; World Bank World Governance Indicators; Political Instability Task Force (PITF); Polity IV Project; World Bank World Development Indicators; USAID Demographic and Health Surveys; UNICEF Multiple Indicator Cluster Surveys; Center for International Earth Science Information Network; UNEP/GRID-Europe; Viewfinder Panoramas; LandScan; Princeton University Terrestrial Hydrology Research Group



30% of the total Thai population. While some parts of Thailand struggle with flooding, other regions have undergone severe drought events. As his country faced severe droughts in 2002, King Bhumibol Adulyadej sought a patent for his “cloud-firing” technique to make artificial rain. The process involves firing silver iodide particles into clouds so that water vapor will gather around the particles and fall as rain. The technology has been in use for fifty years now, but skeptics continue to question the chemicals’ effect on soil quality and biodiversity. The artificial rain is expensive and no substitute for natural rain; however, it can be instrumental in saving crops that suffer during extreme drought.

During 2016, while facing its worst drought in 20 years, Thailand sought various solutions to bring water to the deprived regions such as pumping water from the Mekong River into Thai waterways. This solution has sparked concern from downstream countries such as Vietnam, which was suffering its worst drought in almost a century. The Agriculture Ministry also asked farmers to delay planting rice crops usually planted in June or July until August. This delay could cost farmers in Thailand’s central plains \$1.8 billion according to the Office of Agricultural Economics. As one of the world’s top producers of rice, the drought could also negatively affect African countries that depend on rice imports from Thailand.⁷

External Assistance


An upper middle-income country, Thailand does not receive as much aid as other countries in the same region. Still, Thailand received about \$12.9 billion in aid between 2000-2013, with \$174.6 million going towards climate change adaptation and disaster risk reduction projects.⁸ The U.S. government gave a total of \$4.23 million to Thailand in 2016. U.S. assistance works to promote peace and security, good governance, and humanitarian assistance for displaced persons and control of the HIV/AIDS epidemic and other infectious diseases.⁹ Thailand serves as a major non-NATO ally for the U.S. conducting over 40 joint military exercises together each year. However, the country has been subject to seven military coups since the 1930s, which have led to suspensions of military aid while humanitarian development aid continued.¹⁰

Regional Issues

Located on the Mekong River Delta, Thailand coordinates water resources with its neighbors Cambodia, Laos, and Vietnam through the Mekong River Commission (MRC) (see articles on Cambodia, Laos and Vietnam). As the most wealthy member of the MRC, Thailand also has the most resource needs.¹¹ In 2012 Thailand, and Laos decided to move forward with construction of the Xayaburi Dam despite opposition from downstream members Cambodia and Vietnam.¹²

Governance

Thailand’s constitutional monarchy government has been heavily influenced by the monarchy and military. Although the government is relatively effective, it is not very stable. Thailand’s military has a history of intervening in politics and has seized power 12 times since the end of the absolute monarchy in 1932. In early May 2014, the prime minister Yingluck Shinawatra was removed from office by the Constitutional Court, and in late May 2014, the Royal Thai Army staged a coup against the government. The interim



military government created several temporary institutions to promote reform and draft a new constitution. Elections were tentatively set for mid-2017 but were delayed longer after the death of beloved King Bhumibol Adulyadej in October 2016.¹³ Despite this governmental instability, Thailand's climate change and natural disaster mitigation and adaptation efforts have been well coordinated making it one of the least vulnerable countries in the region.

Endnotes

- ¹ Royal Meteorological Society (2013). The 2011 Thailand flood: climate causes and return periods. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/wea.2133/full>
- ² CIA. World Factbook. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/th.html>
- ³ Further explanation of our approach can be found in Busby et al. (2016)'s Climate Security Vulnerability in Asia v1.0. Available at: <https://www.strausscenter.org/cepsa-research-briefs?download=627:climate-security-vulnerability-in-asia-1-0>
- ⁴ These estimates were calculated using LandScan (2014) and our overall exposure layer.
- ⁵ CRED (2017). EM-DAT The International Disaster Database. Available at: http://www.emdat.be/advanced_search/index.html
- ⁶ The Atlantic (2011). The worst flooding in decades swamps Thailand. Available at: <https://www.theatlantic.com/photo/2011/10/worst-flooding-in-decades-swamps-thailand/100168/>
- ⁷ Al Jazeera (2016). Thailand hit by its worst drought in decades. Available at: <http://www.aljazeera.com/news/2016/03/thailand-hit-worst-drought-decades-160330102123735.html>
- ⁸ Aiddata. Available at: <http://aiddata.org/dashboard#/advanced/project-list>
- ⁹ US Foreign Aid. Available at: <http://us-foreign-aid.insidegov.com/q/174/1590/How-much-money-does-the-U-S-give-to-Thailand>
- ¹⁰ Business Insider (2014). That military coup in Thailand could get awkward for the US. Available at: <http://www.businessinsider.com/us-military-aid-to-thailand-2014-5>
- ¹¹ BBC (2015). Climate change: Mekong Delta heads for troubled waters. Available at: <http://www.bbc.com/news/science-environment-34407061>
- ¹² International Rivers (2013). The Mekong Dams Dispute: Four Trends to Watch. Available at: <https://www.internationalrivers.org/blogs/267/the-mekong-dams-dispute-four-trends-to-watch>
- ¹³ CIA. World Factbook. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/th.html>

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