

**Strategic Thinking Exercise:
Minimize the Impact of a Projected Asteroid Strike¹
Senior Security Studies Course
18 November 2019
Exercise Scenario**

History

An asteroid about 50 meters in diameter was discovered two weeks ago by astronomers in the U.S. and Japan. The first estimate of the probability of the asteroid hitting earth was low. But today, as more tracking data was analyzed, astronomers are predicting the asteroid will **definitely** hit earth. It is predicted the impact will affect Thailand and neighboring countries, two weeks from today. This news has broken and is being reported by the national and international news media.

The precise impacts of the meteor strike are impossible to predict. In the worst case, scientists estimate that a 50 meter diameter asteroid will impact with an energy equivalent to a 10 Megaton explosion. They predict the event will cause total destruction over a radius of five kilometers from the impact point. All wood-frame buildings within 10 km of the event will collapse. Wind, over pressure and thermal radiation will cause human casualties as well. If the asteroid impact is at sea, scientists project that a tsunami up to 15 meters high will impact a large area and flood many coastal areas.

The projected location of the possible impact point extends from west of Dawei, Myanmar, across Ratchaburi and Phetchaburi provinces, and across the Bay of Bangkok to the Gulf of Thailand (see map below).

Tasking

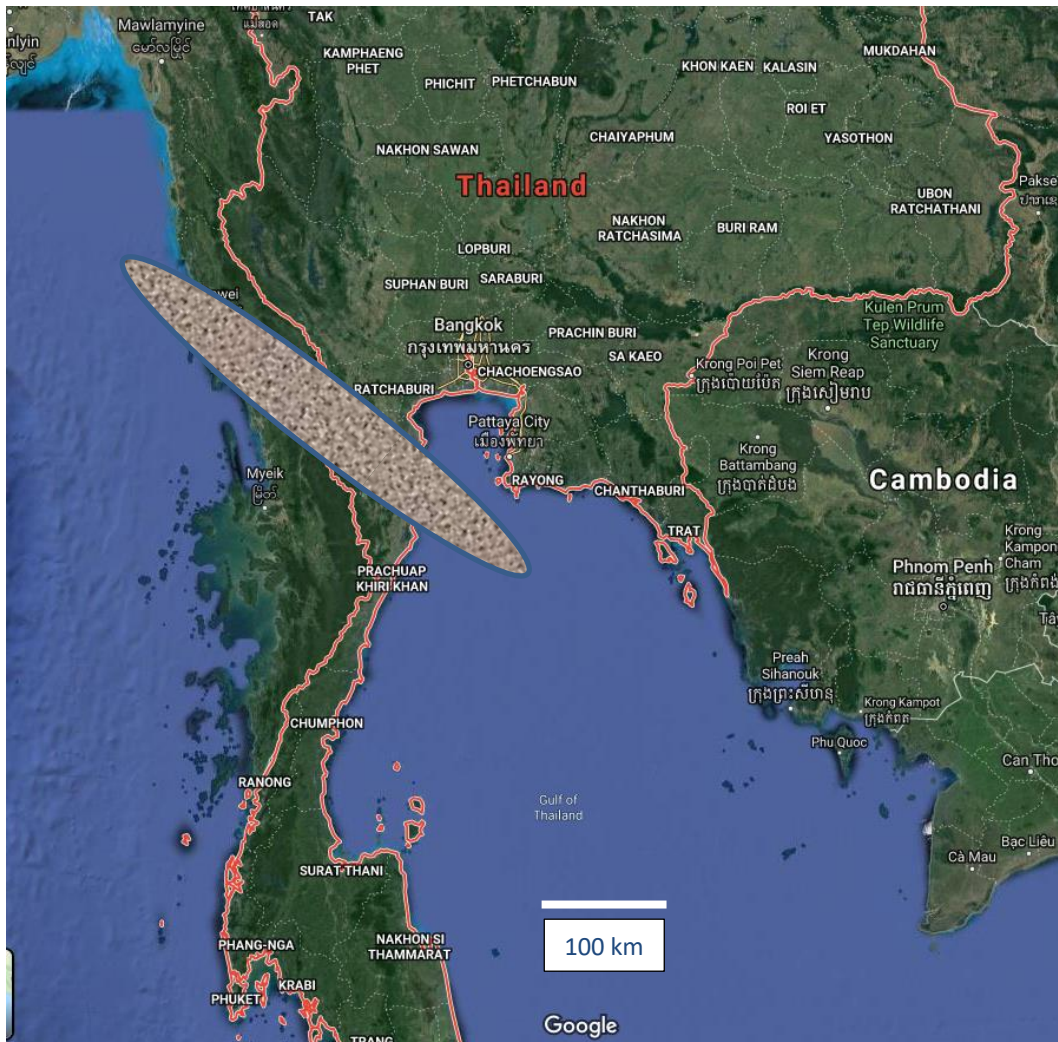
Based on the latest information, the Prime Minister has called for an emergency task force (ETF) to convene at 13:00 hours. The mission of the ETF is to provide initial advice to the Prime Minister. Specifically, the ETF has been tasked to answer three questions:

- What should be the **goals** of a strategic plan to respond to the threat?
- **Who** (what agencies, ministries and stakeholders) should be part of the Task Force?
- **Which** agency should be the **communications** lead and how will they share information?

The Prime Minister has asked for your answers to these questions by 15:00, this afternoon. He has also requested the ETF to provide a draft press statement regarding the situation for public release.

¹ This exercise scenario was adapted and abridged from NASA JPL Center for Near Earth Object Studies. 2013. "Tabletop Exercise for Short Term Warning Near Earth Object Impact Event." Report available online at: <https://cneos.jpl.nasa.gov/pd/cs/ttx13/>. Also informed by C. Rumpf et al. 2017. "Asteroid impact effects and their immediate hazards for human populations," in *Geophysical Research Letters*, 44,3433-3449.

Figure: Possible Impact Locations – Two Weeks Out



Recommended Timeline for the Emergency Task Force

- 1300 – 1315 Exercise and scenario introduction.
- 1315 – 1345 Identify the problem and select a systems’ approach for its assessment.
(Note: Domain mapping or actor-network diagrams can provide an accessible approach)
- 1345 – 1415 Discuss 2 or 3 possible scenarios for the system over time through impact + 1 week.
- 1415 – 1445 Assess opportunities and select a scenario to manage the system to achieve your intended outcome.
- 1445 – 1515 Based on your assessment, develop answers to the P.M’s questions.
Select a task force member to brief the P.M. and another to draft the press statement.
- 1515 – 1530 Prepare a briefing of your findings for the Prime Minister that addresses his 3 questions.
Prepare a draft press statement. (Keep your briefing to 5 minutes).
- 1530 – 1600 Breakout groups brief the P.M. and present their press statement.
Q & A, and discussion.

