

Quake researchers warn of Tokyo's 'Big One'

March 5 2012, by Karyn Poupee

A year on from one of the biggest earthquakes in recorded history, Japanese scientists are warning anew that Tokyo could soon be hit by a quake that will kill thousands and cause untold damage.

Greater Tokyo, home to 35 million tightly packed people, has seen a three-fold increase in tectonic activity since the magnitude 9.0 undersea [quake](#) that unleashed a killer tsunami last March.

Every day, an average of nearly 1.5 quakes are recorded in and around the city, one of the most populated places on earth.

But Tokyoites are so used to being shaken in their beds or at their desks that the majority pass almost without comment.

The city is, without doubt, one of the most earthquake-proofed places in the world. Even the monster quake of March 11 last year that struck just 370 kilometres (230 miles) away caused little structural damage.

Public transport was thrown into temporary disarray, leaving thousands stranded, but no buildings collapsed and there were no large-scale [casualties](#).

The University of Tokyo's Earthquake Research Institute says the city, built at the intersection of four [tectonic plates](#), has a 50 percent chance of suffering a major quake -- anything above a magnitude 7.0 -- in the next four years.

"We must prepare for the earthquake that will happen," says Asahiko Taira, executive director of the government's Japan Agency for Marine-Earth [Science and Technology](#).

A simulation by the agency suggests that if an earthquake with a magnitude of 7.3 occurred in the northern part of Tokyo Bay on a weekday evening, around 6,400 people would die, with 160,000 injured.

Approximately 471,000 homes and buildings would be destroyed, most of them by fires, or because of liquefaction, a process where reclaimed land turns to mush.

Around 96 million tonnes of waste would be instantly generated -- four times the total left behind by the tsunami that hit the northeast coast.

Millions of people would be unable to get home and [emergency shelters](#) would be over-run. More than one million households would be without water, gas, electricity and telephones for several days.

Economically, the cost would be a colossal \$1.45 trillion -- around a third of Japan's GDP.

The impact of a huge quake on the political, economic and cultural centre would be felt nationwide, causing widespread disruption to life throughout the archipelago and beyond, given Japan's influence in global industry.

Japan -- which experiences a fifth of the largest earthquakes on Earth every year -- lost its capital to the power of nature once before, when the Great Kanto earthquake of 1923 levelled the city.

That 7.9 magnitude quake and the ensuing fires killed an estimated 142,800 people, according to the US Geological Survey, and left an

institutional memory of what it means for a country to be effectively decapitated.

The suggestion of a back-up capital has long been considered. Osaka, 550 kilometres (345 miles) further west, is suggested as an appropriate destination.

So far, the vast costs of establishing government-in-duplicate have put off any serious moves by politicians of any stripe, who are already battling a huge mountain of debt and a sluggish economy.

However, scientists caution, something must be done to mitigate the risk.

"It is extremely difficult to predict exactly when an [earthquake](#) will strike, but we can understand what might happen and from there we have to develop strategies to minimize the consequences," said Taira.

But some experts fear Japanese seismologists are so consumed with thinking about Tokyo's "Big One" that they have become blinkered to risks elsewhere.

Expert Robert Geller said that in a country with 54 nuclear reactors, the risk of a large quake striking anywhere in the archipelago should not be ignored in favour of concentrating on Tokyo.

"The government's estimate that the risk in (this area) is greater than elsewhere is based on a flawed methodology and is completely meaningless," Geller, a professor in the Department of Earth and Planetary Sciences at the University of Tokyo, told AFP.

"The incorrectness of this methodology should be obvious, since the same methodology was used by the government before last March 11 to say that the risk in the Tohoku (tsunami-hit) area was very low."

(c) 2012 AFP

Citation: Quake researchers warn of Tokyo's 'Big One' (2012, March 5) retrieved 2 May 2024 from <https://phys.org/news/2012-03-quake-tokyo-big.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.