Nepal Earthquake: Afterthoughts

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NEPAL, AS OF NOW

Sitting at the base of Mount Langtang, a 7000m high mountain in the Nepalese Himalayas, there's a small village of the same name. On April 25, 2015 right when the sun was high up in the Langtang valley, the little village of 200 people was destroyed completely. The avalanche that followed the notorious Nepal earthquake had completely wiped the little village off the face of the earth.

Now, almost two weeks after the incident, the death toll in Nepal has risen to over 7000, and the number of injured are twice that many. The pungent grey-white smoke above the crematory pyres of the Pashupatinath Temple is getting thicker and thicker each day.

UNDERSTANDING EARTHQUAKES

As we all know, the outer crust of the earth is very thin compared to its core. This outer crust is basically composed of several continental plates. So what happens is this: these plates try to move relative to each other over longer periods of time. The adjoining line of two consecutive plates is called a "fault line". When the plates try to move, there are slips along the fault lines which disturb the surrounding surface areas. Lands may go up, valleys may be formed or rivers may change courses. Most of the Himalayas were puffed up high in the skies from underneath the ocean in a series of earthquakes ages ago. Earthquake, basically a mechanism to release the accumulated energy over thousands of years, is a very natural process to keep the earth's crust functioning – but has potentials to pose severe threats to human habitats.

HOW BAD IS AN EARTHQUAKE, REALLY?

There have been a lot of misconceptions as to what basically underscores a "big" or "bad" earthquake. The most common of these is trying to comprehend the negative impacts of an earthquake based on magnitude, i.e. the Richter scale values. We familiarise with a particular earthquake event by a number like 6 or 7 magnitudes. In case of the Nepal earthquake, we all know it was a 7.8, right? The question remains, is this the right way to estimate the deadliness of earthquakes?

To understand this better, there are three critical parameters – magnitude, intensity and shaking. Shaking is quantified by the acceleration of the earthquake waves and it's the primary determinant of the havoc and damage. Larger ground accelerations lead to more intense earthquakes – ultimately resulting in earthquakes of massive magnitudes.

But ultimately the thing that's most critical in determining the "badness" is the intensity of an earthquake at a particular location. An earthquake only has one single magnitude, but it has different intensities based on location, distance from the source (epicentre) and duration of the shaking. There's a scale of intensity of earthquakes ranging from I-XII. Intensities over VII imply severe damages and property losses. The intensity of the Nepal earthquake was IX, categorised as "violent".

SUGGESTIONS FOR SURVIVAL

Though there are no active fault lines within Bangladesh territory, there are some surrounding its perimeter. And so, we should better prepare for a major event occurring any day.

What to do in the event of an earthquake? We all know that it's utter pandemonium. People rattling and shouting down the staircase – sound familiar? Well, the most verified course of action is to "Drop, Cover and Hold on." It has proven more effective when it comes down to saving lives than other techniques out there like the "Triangle of Life." Drop on all fours immediately if there is vigorous shaking. Take cover under a sturdy desk/low lying furniture. If there aren't any, take cover against an interior wall (NEVER exterior walls!). Hold on to your shelter or try covering your head and neck with hands.

WHAT NOT TO DO:

- Move randomly during the earthquake.
- Stand under exterior walls or walls with window and door panels.

Most injuries that happen during earthquakes are through getting hit by flying and falling objects. Taking proper cover eliminates that risk to a certain amount. And trying to get downstairs while there's still shaking adds to the risk. When you're on the street, try to reach an open space.

THE JAPANESE QUAKE "GRAB BAG"

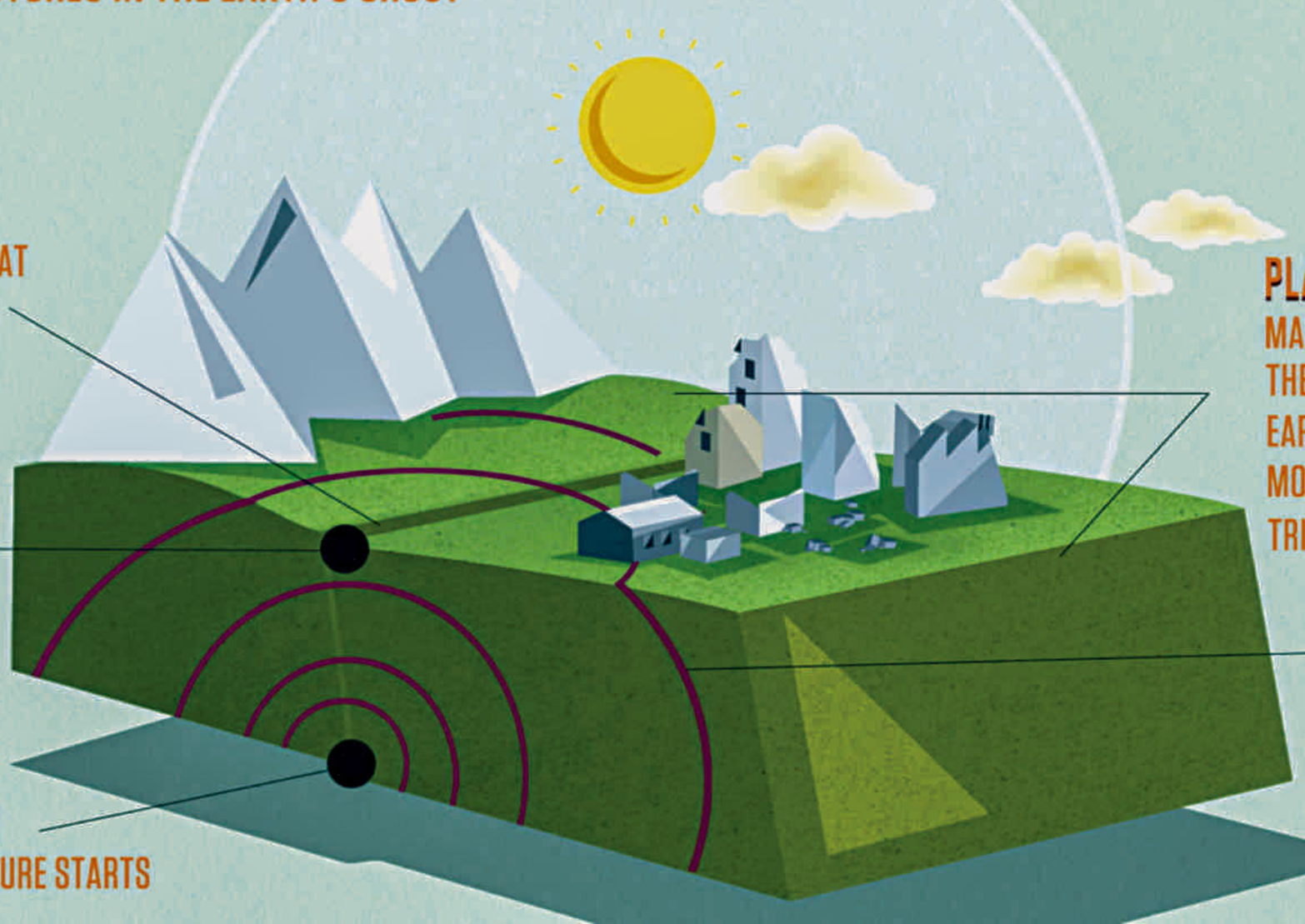
In countries where earthquake is a constant threat, like Japan for instance, the government advises keeping a "grab bag." It has a First Aid kit, water, high-energy sweets, sleeping bag, ground sheet, portable toilet etc. You can follow the Japanese and keep yours ready!

PLANNING FOR THE FUTURE

No matter how much we learn about survival techniques, it won't help without adopting proper structural measures. There's a building code in our country which provides specifications ensuring proper structural safety against earthquakes. Sadly, they are not properly implemented. Most of the buildings in Dhaka will undergo serious damage in the event of a major earthquake. But yet, land-owners, real-estate companies and other concerned authorities remain oblivious to the current aggravated scenario. What's shocking is that, it doesn't cost much to make a structure earthquake-safe – just an extra 4 percent of the total cost. Imagine Dhaka in place of Kathmandu today. Can you? I can't.

ANATOMY OF AN EARTHQUAKE

AN EARTHQUAKE IS THE SHAKING OF THE GROUND CAUSED BY SUDDEN MOTIONS ALONG FAULTS, OR FRACTURES IN THE EARTH'S CRUST



FAULT
A FRACTURE IN THE ROCKS THAT MAKE UP THE EARTH'S CRUST

EPICENTER
THE POINT AT THE SURFACE OF THE EARTH DIRECTLY ABOVE THE FOCUS

FOCUS
THE POINT WITHIN THE EARTH WHERE AN EARTHQUAKE RUPTURE STARTS

PLATES
MASSIVE ROCKS THAT MAKE UP THE OUTER LAYER OF THE EARTH'S SURFACE, AND WHOSE MOVEMENT ALONG FAULTS TRIGGERS EARTHQUAKES

SEISMIC WAVES
WAVES THAT TRANSMIT THE ENERGY RELEASED BY AN EARTHQUAKE