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## Shock and Awe

The tsunami hit us all with sudden ferocity.

It has impacted all of us – those who directly bore the brunt of it, as well as those afar, albeit in different ways. Will this make for a better world?

There was an outpouring of grief, horror and compassion. People led the way in ‘giving’, sometimes even shaming governments into more potent action or provision of aid. There was also the usual politicking and jostling for space, agencies putting their *chhapa*, in much the same way as we occupy seats in buses and trains at crowded stations; governments using the occasion to pull off geo-political coups, and sometimes refusing help, out of false pride.

But beyond the apparent chaos and pettiness, people and institutions, volunteers and professionals worked tirelessly to ease the pain – physical, emotional and spiritual.

*Sainath* takes us to the next point – we may not be able to battle and subdue tsunamis. They will shock and awe us. But do we need to pursue policies and practices that make us more vulnerable to such unpredictable calamities?

Can societies take responsibility, and can the better-off put their ingenuity to use to make the lives of the more unfortunate less of a gamble?



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**More than a million Hiroshimas**, P. Sainath, *The Hindu*, Jan 01, 2005  
<http://www.hindu.com/2005/01/01/stories/2005010100981000.htm>  
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## More than a million Hiroshimas

*P. Sainath*

THE EARTHQUAKE that produced the tsunami unleashed energy millions of times greater than the Hiroshima bomb. True, comparisons across different physical processes are not straightforward. Yet it is quite common to restate the magnitude of earthquakes in terms that are more familiar. Typically, this is done by asking how much of the common explosive *Trinitrotoluene* (TNT) would have to be detonated to obtain the same release of energy as the earthquake.

A table produced by the Nevada Seismological Laboratory suggests that a quake of 9.0 on the Richter scale has a seismic energy yield roughly equalling 32 billion tons of TNT.

Compare that with the bomb that decimated Hiroshima, whose yield was similar to that from exploding 15,000 tons of TNT. The Indonesian quake last week, like the Chilean quake of 1960, unleashed 2.13 million times more energy than the perversely named "Little Boy" did over Hiroshima.

As geophysicist and climatologist Ashwin Mahesh points out, "Such a look across different processes is tricky. This cannot be a straight comparison but simply a useful indicator of power that ordinary people can relate to.

Also, Hiroshima was an 'atmospheric' blast, not on the ground. Then there is radiation damage, which occurs with nukes but not with quakes. Finally, there is the impact — nearly all the energy from an atomic bomb is released locally, but energy from an earthquake is distributed by seismic action and more widely dispersed. This is why something that happened in Indonesia still packs a punch thousands of miles away from the epicentre."

Dr. Mahesh is, of course, quite right. Yet, the comparative numbers do convey a sense of the sheer magnitude of the quake's power. And apart from the physical and character differences of the two processes, the quake in this case also triggered the devastation that spilt across 12 countries and two continents. It will be ages before we fully measure the damage.

### Could they have been warned ?

There has been much agonising over “those vital three hours” (now spoken of as 90 minutes) in which the Government “could have done something.” Sure, it is always useful to be forewarned of disaster. Every human life saved is worth the effort. Yet, there was little scope for a major response, even if India had been part of the tsunami warning system. (Of course this did not stop sections of the media from identifying the villains and the good guys within six hours of the event.)



Without a network of local alarm systems in place along the coast, membership in the warning system club would have meant little. Those networks would have to be of a kind that do not depend wholly on human agency. That is, they should not need someone to switch them on or off. The coastal disaster struck in the early hours of the morning, when all offices and institutions were closed. 'Local administration,' such as there was, was also crippled by the event. Policemen, municipal workers, clerks, low-level officials, engineers, medical personnel, and many others, died in the disaster. Roads were inaccessible, vehicles washed away, electricity shut down. A highly-skilled, ready-round-the-clock entity like the Indian Air Force had a base wrecked (it took a beating during the Gujarat earthquake, too). Many of those we assume

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could have done a lot in those 90 minutes were themselves victims of the catastrophe.

The nuclear site at Kalpakkam was hampered by more than the direct impact. A design engineer employed by the facility was swept away by the waves while praying in Church. Other employees died as well. The apocalyptic scale of disaster ensured a chaos on the ground that paralysed most systems.

### **The blame game, unfolding by whom?**

The blame game, unfolding within hours of the tragedy, is mystifying given that few explain what they would have done in those 90 minutes had they got the warning. Warnings without practised, in-place response strategies and drills might have meant little. Certainly at that hour. (Incidentally, one channel announced that Besant Nagar in Chennai was "under water," leading to panic — outside that locality.)

We may not have been able to do much in those 90 minutes. But every little thing we do now matters enormously. What is needed is urgency on the relief and rehabilitation front and a rational long-term response to disaster.



It is also a little mystifying that the India Meteorological Department is seen as having a major role in the present mess. Tsunami are not weather phenomena. If anything, monitoring events that might trigger

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them could be the task of the Geological Survey of India (GSI). But that is another story. Where indeed Governments must be blasted is for the quality and tardiness of relief efforts. Not for failing to predict the impact of tsunami.

It is also another matter, as John Schwartz points out in *The New York Times*, that 75 per cent of tsunami warnings in 56 years have been wrong. He quotes a NASA website devoted to tsunami as saying "Three out of four tsunami warnings issued since 1948 have been false. And the cost of the false alarms can be high." Already, the panic over the "high wave alert" is an embarrassment for a defensive Government trying to cope with the media charge that it did not respond the last time.

The January 17, 1995, Kobe earthquake in Japan took 5,500 lives, injured 26,000 and inflicted damage in excess of \$ 200 billion. That in a country where seismic activity is massively monitored with advanced technologies. The quake lasted some 20 seconds and measured around 7.0 on the Richter scale. Structures designed for such seismic zones were torn apart like paper. Last week's quake measured 9.0. Which means it was, near Indonesia at least, 1,000 times more powerful than Kobe (The Richter scale is a logarithmic one, not a linear scale.)

The question is not so much whether India should have been a paid-up member of the tsunami warning system. Until last week, elite wisdom would have viewed that as so much money saved. The question is whether Governments in India today will ever spend the modest sums required along the coast to protect the millions of poorer Indians dependent on the seas. And whether we need a disaster this scale to rethink some of our priorities.

### **The Development Squeeze**

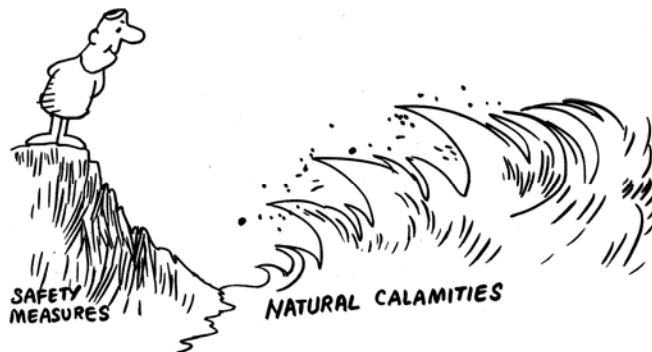
The surprise expressed by many (arriving from Delhi) over the poor medical facilities in these regions is misplaced. The capital city may have such facilities. But we have spent the better part of 12 years gutting public health care, privatising hospitals, and charging user fees in Government facilities from people who cannot pay. Fracturing an

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already inadequate and fragile system. Now, when there is a deadly danger of epidemics, there is little to fight them with. It is odd that we allow Governments to get away with atrocities against the poor, but sternly hold them to blame for an unprecedented natural disaster.

Hundreds of fishing villages have been squeezed into narrower, tighter settlements as `development' Indian-style sets in. Many have moved into unsafe terrain, pushed by resorts, hotels, and construction of highways. Mangrove forests that have always acted as a brake — however limited — against tidal waves, have increasingly vanished. So have another natural barrier — sand dunes, looted by the construction industry. We have put a lot of effort into making the coastline increasingly unsafe.

And not just the coastline. There seems to be no concern over the fact that the many small dams in the western part of the country might be responsible for what is known as 'reservoir-induced seismicity.' Our planners still aim to turn every river into a chain of lakes.



Growing seismic activity in Maharashtra has not led to a rethink on the ever-higher skyscrapers being planned especially in Mumbai city. Nor has the harrowing experience of the Gujarat earthquake had any impact on Mumbai's mighty builder lobby. We could perhaps have done very little in "those crucial 90 minutes," but there is much we can do on other fronts – if we wish – to make people safer.

It would not be too much of a challenge to India's much-celebrated IT and software genius to make the lives of traditional fishermen along India's coastline a lot better. A PCO type box, modified for at-sea use, could do plenty. It could act as a weather alert and SOS mechanism. It could work as a GPS device. It could even be used to help fishermen in shoal tracking — a huge advantage that predatory big boats and trawlers have over them. All in all, it might be possible to install these in the vessels of traditional fishermen at maybe less than Rs.2,000 a boat. It is a small thing that may have little to do with tsunamis. But it could make a big difference in many life-threatening situations.

That it has never happened on a major scale means it is just not a priority. When advanced technological systems do come in, they will likely be installed with an eye on tourists rather than fisherfolk. The latter, right now, do not even have boats on which to install any safety device. Thousands of boats, catamarans and fishing nets were simply destroyed in the calamity.

Maybe we can never fully and correctly predict a tsunami or, more importantly, its likely impact. On the other hand, it is easy to predict that our priorities, our ways of thinking and living, render us vulnerable to disasters of our own making.▶

## NOTES

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