Power to the people

No tsunami warning system could prevent another disaster while so many live without electricity

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Friday January 14, 2005
The Guardian

As relatives grieve for the tsunami dead, questions are being asked about why there was no advanced warning so that people could quickly move to higher ground. There was enough time to warn people but because an adequate global warning system was not in place, as many as 200,000 people died needlessly. According to officials, the earthquake, which struck off the coast of Indonesia, was detected immediately by seismic stations around the globe. Australia, which has a tsunami warning system, issued an alert less than half an hour after the earthquake.

The UN disaster reduction office in Geneva calculated the tsunami took a full hour to reach the Indonesian coast, another two hours before reaching Thailand and Sri Lanka, and almost six hours before reaching Africa. What, then, went wrong? The problem, says John Clague, an expert on earthquakes at Simon Fraser University in Vancouver, Canada, is that "there is no infrastructure to communicate it". Here lies the rub.

While industrialised nations and transnational corporations have been busy connecting the far reaches of the planet into a seamless communication grid to expedite the instantaneous exchange of commercial information, little or no effort has been expended on creating a global communications infrastructure that would warn millions of people about unfolding natural disasters.

The technology exists to install sophisticated sensing devices across the Earth's environs and at the bottom of the oceans to detect volcanos, earthquakes, tsunamis, etc. And in many parts of the world, partial systems are in place. What's missing is the means to communicate immediate unfolding catastrophic events to the hundreds of millions of people in harm's way. Most people are still not connected to the global communications grid. Many have never made a telephone call.

UN officials say that instituting an early warning system will be taken up at a conference on disaster reduction in Kobe, Japan, next week. But what's likely to be left unsaid is how to communicate with millions of individuals if people have no access to electricity. Here's what you won't hear from policy makers meeting in Kobe.

To achieve universal global electrification by 2050 - a goal set by international development agencies - would require bringing electricity to 100 million additional people every year. Providing these additional users with an average per capita electricity consumption equivalent to what US consumers enjoyed in 1950 would require the creation of 10m megawatts of new electricity capacity globally by 2050 - four times today's consumption.

The US Electric Power Research Institute estimates that to reach this goal a new 1,000 megawatt power plant would have to be brought on line every 48 hours for the next 50 years. And, it adds, 50% of the new capacity would need to be carbon-free to comply with global environmental requirements. The job would need a capital commitment of between $100bn and $150bn per year.

Providing enough electricity so that every human being can be connected to a global communication infrastructure will need a big shift in our global energy regime, away from the dependency on fossil fuels and toward a renewable-energy future powered by hydrogen fuel cells. The world is running out of oil and natural gas. With the price of oil in world markets hovering at $50 a barrel, the cost of electricity is out of reach for millions of people in developing nations. The situation is only going to worsen as we reach peak global production of oil between 2010 and 2040.

What we should be talking about is how best to mobilise the world's resources to help make the long-overdue transition to renewable forms of energy and a hydrogen economy. Making the shift to a hydrogen energy regime is the only way, in the long run, to narrow the gap between the connected and the unconnected. As the price of hydrogen-powered fuel cells and accompanying appliances continues to plummet, these products will become far more widely available, as was the case with radios, computers and mobile phones.

The goal ought to be to provide stationary fuel cells for every neighbourhood and village in the developing world. Villages can install renewable energy technologies - photovoltaic, wind, biomass, etc - to produce their own electricity and then use it to separate hydrogen from water and store it for subsequent use in fuel cells. In rural areas, where commercial power lines have not yet been extended because it is too expensive, stand-alone fuel cells can provide energy quickly and cheaply. Mini-energy grids can connect urban neighbourhoods as well as rural villages into expanding energy networks.

I think of the pictures of all the children, their bodies washed up on shore, never to be able to live out the lives they were entitled to. Perhaps it is time to think of the global communications grid as more than just a tool of commerce or entertainment and begin to harness it to secure the wellbeing of the human race.

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