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Disaster prediction and civil preparedness

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A strong earthquake is a natural phenomenon; a disaster is human-induced.

Major earthquake consequences are dominated - in terms of dead, injured, trapped, IDP's and damage to property - by four key elements:

- Microzonation
- Appropriate building-codes, followed by strict building-craft
- Dispersal of people at the moment of EQ-onset; their response within seconds, minutes, hours
- Establishment's action or inaction

Disaster management is all about saving lives, reduce damage to people's health and relieving unbearable suffering.

While the microzonation is likely to be unmanageable, the other three elements of the quartet can be controlled. At present, there is no warning prior to EQ-onset. The problem of timing is one of the principal parameters that determine whether a natural phenomenon emerges as a bearable experience or develops into an awful disaster. Timely and viable prediction, leading to early warning would generate revolutionary merits!

The common philosophy for building codes is aimed to absorb damage, yet allow people to evacuate unharmed to safe havens. A reliable prediction which urges evacuation is corresponding to robust buildings. Such a mechanism would justify the Government of Israel to waive Plan No.38, retrofitting 400,000 buildings at a roughly cost of 25 Billion Euro. Unoccupied buildings would considerably reduce the number of dead,

trapped, injured and IDP's. That would require an undemanding, inexpensive response measures; affordable to many nations. Timely prediction would impose a significant rest on the routine style of life.

Does every **prediction-time-cycle** enfold an operational worth?

A prediction up to 15 seconds offers a next to negligible merit. A prediction of tenth of seconds might be beneficial, however means the epicenter is too distant to cause damage. A prediction, that an EQ would hit due some probability within 50 years results in discourage of preparedness and mitigation; terror activities are more imminent.

In short, disaster-managers would perform the best given a prediction between weeks to several months in advance. Such a window of opportunity would allow:

- Activate national programs aimed at retrofitting buildings and non-structural elements
- Temporarily desert high-risky buildings and move to safer location, e.g., air-raid shelters. Significantly improved safety justifies inconvenience for several weeks
- Advise people to avoid inexpedient gatherings; celebrate out-door, rather than in-door
- Advise residents to stay away from unsafe buildings [feasible in Israel during spring, autumn and part of the summer]
- Reduce the quantity of Hazardous Materials within the disaster prone area, close to inhabitants
- Boost up programs to augment national resilience
- Launch a comprehensive **24 hour course** aimed to increase survival capacity [approved by GOI]
- Urge people to stock food, water, tents, blankets, medicaments, lanterns and cash, etc.
- Improve synchronization of reciprocal assistance programs with 36 countries and, International Agencies and NGO's for instant support in case of emergency

To conclude, such mitigation measures are very effective, but are doable for weeks or several months, **not years**.