English Brief: 2 Conceptual Innovations against Tsunamis

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in 8 minutes

English BRIEF:

- **Conceptual Innovations**: understood as the solutions presented as theories, in which we already understand feasible methodologies, allowing the future development of real versions;
- Here we have theorized possible solutions to reduce the impact of tsunamis, with the placement in the marine coastal area, overseas, of some type of Material Barrier.

Introduction

This is just a conceptual idea, not a ready project, second because it is a matter to save lives and not mercantilize on collectives of lives. But do not forget that the concept is in Creative Commons!

If you want to protect your country from Tsunamis, which can be generated by hurricanes, earthquakes, asteroid falls and nuclear explosions, you will have to search on the Japan Anti-Tsunami Wall which basically deals with the following sub-concepts:

- Physical distancing of urban buildings on land: that is, urbanization must already be far away, so the place of construction of this wall are beaches;
- It is post-impact, it works only after the formation of the tsunami already reaches the coast, and therefore there have accumulated a lot of energy for impact;
- It is rigid, and just like any rigid material or technology has a material fatigue point, from which it can break, which is expected to break immediately and abruptly, unless it is a multilayer technology with some flexible polymer technology intermingling to absorb impact.

Flexible Polymer Wall

My first concept:

- Columns such as Towers or Stations (Petroleum Station Technology with deep foundations), the ideal would be to be flexible with oil plungers or also polymer, but trapped in great depth;
- Extremely flexible shock-absorbing polymer screen that oscillates enough to promote energy loss from waves;
- Fauna openings: they must be tubular and submarine, where the energy of the waves will be smaller, and in case of passage of secondary tsunami, there will be loss of energy of the waves in a flexible tunnel;
- Without rigid structures beyond the columns, ideal would also be flexible columns ;
- The structure has to be submarine but also with an external part, the tsunami is not 100% external, it is just submarine, the net can not be all external, must necessarily be predominantly underwater, but an external part exposed to the air is useful for the breaking of waves;
- It's pre-impact.

URL in brazilian portuguese on Creative Commons License: with more arguments: **Flexible Polymer Wall:**
**Belt Breaking Waves**

**Re-Concept Tsunami Protection** of Concept:
This other project within the same general idea of stations in a defensive coastal belt, in which the following changes were made:

- Columns such as Towers or Stations (Petroleum Station Technology with foundations at high depth), ideally be flexible with oil plungers or also polymer, but held in great depth (not changed);
- Instead of the idea of the "Polymer Screen" with oscillation, the stations will have "artificial waves" generators, according to the technologies already in use for the Artificial Surf, but the proportion of these waves must be contrary to the waves of the Tsunamis, and satisfactory for the reduction or reduction of the destructive impact of a tsunami;
- Fauna openings: they can also be tubular and submarine, where the energy of the waves will be smaller, and in case of passage of secondary tsunami, there will be loss of energy of the waves in a flexible tube, but they can be nonexistent since it consists of confronting water against water at a surface level of the water slide and in theory there would be no change in circulation at these underwater levels;
- Without rigid structures beyond the columns, ideal would be also flexible columns (can maintain therefore refers to the resistance of the stations and the generators of artificial waves);
- The artificial wave generators will have to produce the movement of the water until a certain depth, but just as in the areas of sea breaking, there are underwater layers of free transit of fauna and floating flora;
- Also pre-impact, in the sense of having to be activated optimally during the formation of the tsunami, but will operate during, so it can be considered pre-impact technology;
- The most correct position of these stations with "artificial waves" generators should be the result of research for each locality, but I believe that the best point is in the overseas area, outside the natural breakdown, to reduce environmental and geological impacts in this natural event;
- It is recommended that it be able to generate a significant wavebelt in the opposite vector, during enough for significant time to tsunami wave breaking, but be activated only during this conjuncture, and of course be tested at least once a year, mean time of guarantee of parts, for its maintenance, which induces some level of environmental impact annually, but during its operation it generates a supposed smaller impact than the "polymer screen" because it does not hinder the natural transit of the marine species; - Obviously the wave load generated by this belt must be greater than that of the surf waves exemplified;

**URL in brazilian portuguese on Creative Commons License: with more arguments and Youtube examples for Artificial Waves on Surf:** **Belt Breaking Waves:**