

# Fukushima: The Tsunami Myth

## A disaster caused by safety deficits and earthquakes

**O**n March 11 2011 a nuclear catastrophe occurred at the Fukushima Dai-ichi nuclear power plant due to severe safety deficits and an earthquake.

All over the world countless (relatively vulnerable) nuclear power plants are situated in earthquake-prone regions. Another nuclear disaster could be caused by an earthquake anywhere in the world – in Asia, America or in Europe.

### The tsunami myth

The nuclear industry dreads losing billions of dollars worth of profit because of worldwide efforts to shut down nuclear power plants. For this reason, it has created the myth that it was not the earthquake but the tsunami that was the decisive factor for the catastrophic turn of events that followed. An image of a unique “monster wave”, 14 metres high, was painted for the public eye, the like of which would never be seen again. However, a closer look at official governmental reports shows that the main wave that hit the nuclear power plant at 15.41 JST was estimated to be about 8 metres high. Moreover, no documented evidence has been produced to date that supports that the damage was caused by the tsunami.

### On the one hand: severe safety shortcomings

The failure of safety systems in Fukushima had various causes resulting from systematic infringement of the basic tenets of reactor safety. Safety systems were both insufficiently physically and systematically set apart from one another. There was a lack of back-up systems, both in number and technical variety (i.e. too little redundancy and diversity). Units 2 and 3 only had the sea as a possible exit point where decay heat from the reactor could be released via an „Isolation Condenser“ into the environment.

### On the other hand: earthquakes

The earthquake on March 11th at 14:46 JST was followed by strong aftershocks at 15.08, 15.15 and 15.25 that could have influenced the accident's course of events. At their headquarters in Tokyo, Tepco first began surveys of the earthquake damage at 15.06 with a view to initiating countermeasures.

According to official reports, the principal earthquake shock caused the following: reactors in Units 1 to 3 automatically shut down; offsite electric power failed; emergency shutdown of the turbines and; a blockage of the normal residual heat removal via steam pipes and the primary cooling water system (steam pipe valve termination incident).

### Unit 1: Rapid meltdown

According to the operating company Tepco, the high pressure coolant injection system (HPCI) failed in Unit 1 due to the tsunami. However, this incident should have been managed the emergency cooling system „Isolation Condenser“ (IC). However, the IC apparently had to be switched back off again at 15.03 after only 11 minutes operation because of overrapid cooling. Shortly before 15.17 the pressure inside the reactor rose sharply. It is uncertain what then occurred because Tepco has not published all the relevant data. In any case, it all happened very rapidly in Unit 1: since emergency measures were no longer feasible, a meltdown immediately followed and the nuclear disaster was set into motion.

### Unit 2: No longer functioning

The high pressure coolant injection system (HPCI) in Unit 2 was already inoperable due to a short-circuit at 15.31 on March 11th, before the tsunami hit the plant. On March 14th, the reactor core isolation condenser (RCIC) was „no longer functioning“. Emergency measures failed because they were not undertaken until the core was already exposed. Nuclear disaster was inevitable.

### Unit 3: Loss of steam pressure

The reactor core isolation cooling system (RCIC) in Unit 3 “unexpectedly” failed at 11.36 on March 12th. At 2.42 on March 13th, the high pressure coolant injection system (HPCI) made itself inoperable by reducing the steam pressure to below 10 bar through cooling the core. Emergency measures with fire extinguisher pumps failed because the pressure had already reached about 40 bar by the time they began operation. A nuclear disaster took place.

### Lesson to learn

There are many nuclear power plants around the world that have safety systems that are susceptible – in one way or another – to the effects of earthquakes that, in areas of seismic activity, are only to be expected.

„Safety reserves“ are almost always in short supply in presently-operating nuclear power plants. Too little coolant, deficient power supplies, lack of a variety in, and passive, safety equipment, and inadequate physical distance between them (redundancy and diversity).

The lesson to be learnt from the nuclear catastrophes of Chernobyl and Fukushima is this: All nuclear power plants worldwide should be shut down.

**More Information:** [www.fukushima-disaster.de](http://www.fukushima-disaster.de)

An information from the IPPNW in cooperation with: DNR, EUROSOLAR, IALANA, INES, NatWiss

**Imprint:** Editors: Henrik Paulitz (V.i.S.d.P.), Reiner Braun, Ewald Feige, Helmut Röscheisen, Reinhold Thiel, Angelika Wilmen, Lucas Wirl  
 Publisher: IPPNW – International Physicians for the Prevention of Nuclear War/Physicians in Social Responsibility e.V., German Affiliate  
 Körtestraße 10 | 10967 Berlin | kontakt@ippnw.de | www.ippnw.de