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## Japan's Tragedy ? Tohoku Earthquake and Fukushima Nuclear Plants Japanese are not informed of the truth

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### Introduction

The ten nuclear power reactors of the Fukushima Daiichi Nuclear Plant are falling into serious problems after one another. We Japanese are not informed why such accidents are happening. Neither are we informed of the real tragedy to come. Even now the power company, the government, experts on nuclear power energy and the media are hiding the truth from the Japanese people, continuing deceiving us.

#### 1. Weakness of Fukushima Daiichi Nuclear Plant

There are two types of nuclear reactors, the pressure type (PWR) and boiling type (BWR), and the Fukushima Daiichi nuclear reactors are the latter. There are two weaknesses in the BWR. One is that the control rods, which should function as a break, are inserted from the bottom. Control rods are in the shape of a bamboo spear, and hang under a pressure vessel. They are pushed up by water pressure, but this is difficult during an earthquake when the control rods are shaking. In Fukushima during the recent earthquake, the rods were 'fortunately' inserted and the nuclear reactor stopped. The Japanese people were not informed of this fact. The second weakness of BWR lies in its circulation pump, which circulates the water inside a pressure vessel. In the BWR structure, the circulation pump is hanging outside the pressure vessel. For this reason BWR is extremely vulnerable to vibration caused by an earthquake. A circulation pump has the important function of cooling down the nuclear fuel rods. The reason they failed to cool down the nuclear fuel rods in Fukushima lies in this structural weakness of the circulation pump. We Japanese people were not informed of this fact.

#### 2. Emergency generator taken away by Tsunami

In a normal situation, nuclear reactors are run by power generated by the nuclear power plant itself. When a nuclear power plant stops at the time of an earthquake, this internal

power runs out first. When the internal power is exhausted, power is supposed to be supplied through power cables connected to external power sources. However, due to the earthquake this failed. In the case of a such a failure, an emergency diesel generator is supposed to be switched on. But the huge Tsunami had taken away the building where the generator was stored. Tokyo Electric Power Co. hid this important fact simply because the generator did not function. The battery ran out shortly, halting power, and thus the Fukushima Daiichi Nuclear Power Plant stopped functioning, leading to a total power failure. A similar serious incident of a power failure had already happened on the 17 June in 2010 in Fukushima Daiichi reactor No.2. They left it as it was without taking any measures.

### 3. Why massive leakage of radioactive substance?

We are not informed of what kinds of fuel are used in nuclear plants. One of the fuels used is Uranium fuel and today a high 4.8% concentration level of Uranium is used. It is called high reaction fuel. When you burn the high reaction fuel, the level of radioactivity of radioactive fallout increases. Furthermore, spent high reaction fuel produces more decay heat than low burn up fuel. Fukushima Daiichi No.3 nuclear reactor uses high reaction fuel of Uranium together with Plutonium fuel. Plutonium burns harder than Uranium and, therefore, the level of radioactivity of radioactive fallout is high, and so is the temperature of decay heat from spent fuel. Massive radioactive substance was emitted when the reactor containment exploded, and hydrogen was produced because the used fuel contained a high quantity of radioactive fallout. A high level of 400 mSv was measured around the Fukushima Daiichi reactor No.3, because high reaction Uranium fuel and Plutonium were used. Japanese people were not informed of this fact. The devastating risk of the radioactive fallout was hidden.

### 4. Spent nuclear fuel exploded

Hydrogen was produced from the spent nuclear fuel stored in a pool at the Fukushima Daiichi reactor No.4, and three of them exploded. Why it did explode? Another truth was hidden about this explosion. Nuclear plants produced massive amounts of radioactive fallout. In Japan storage of such spent nuclear fuel has become a big problem. Due to the absence of storage facilities, when the earthquake happened, the pools were packed with radioactive fallout. Thus the amount of decay heat released from spent nuclear fuel was much higher. Because of the power failure, it was no longer possible to circulate the water in the pool. As a result, the water in the pool gradually evaporated, spent

nuclear fuel was exposed above water level, and hydrogen was produced from the decay heat and exploded. In other words radioactive fallout was packed in the pool beyond its storage capacity, and this led to a greater damage. They hid information of this fact from Japanese people.

#### 5. The difference between internal and external exposure

Hydrogen explosions happened several times, and radioactive fallout is falling in Fukushima region, which is gradually reaching Tokyo. But experts on nuclear power, the government and the media are repeating that there is no risk to human health. In their explanation they continue deceiving the people by stressing that the level of radioactivity released in the air is much lower than the exposure received from X-rays. Exposure from outside, such as from x-rays, is called external exposure. What is a greater concern for health is internal exposure, because in internal exposure we inhale radioactive substances and are exposed inside the body. Both the government and experts are deliberately treating internal and external exposures are the same, deceiving Japanese people by saying that there is no harm to human health.

#### 6. The risk of internal exposure

External exposure is a momentary exposure. If the amount of radioactivity is high, the risk of cancer gets higher. On the other hand in case of internal exposure the radioactive substance is gradually accumulated in the body over a long period of time. In this process immune cells are destroyed and genetic cells are harmed. Therefore, even a small quantity of radioactivity can affect health. In case of internal exposure cancer develops 10 or 20 years after exposure. What is scary with internal exposure is that if we inhale tiny dust which is invisible, the risk of developing cancer grows without us knowing about it. The government, experts and the media have not informed the people of this risk.

#### From Japan's tragedy to the global tragedy

Many people are exposed to radioactive substances without knowing it. Children are at higher risk. The genetic damage to children affected by internal exposure will harm their health 10 or 20 years later. Our tragedy has just started. It has started but people in Japan have not been informed of these potential risks. Japanese people are not able to save their own people. Many people in Japan are appealing to the government on the tragedy. But the government does not tell us the truth. The tragedy of Fukushima

Daiichi Nuclear Power Plant is already developing to a global disaster. I am appealing to the people in the world. I sincerely appeal to the world that all the nuclear power plants should be closed down.

Note:

Takeichi Saito was born in 1953 in Iwanai, Hokkaido, Japan. He is the representative of "Iwanai Nuclear Power Plant Study Group". He has been measuring the temperature of sea water near the Tomari Nuclear Power Plant in Iwanai every day in order to study the impact of the Tomari Nuclear Power Plant on the sea. On the 28 March 2011, we will celebrate the 33th anniversary of his activity on water measurement. He is a self learnt barefoot scientist who published articles and books on nuclear power plant, its impact on the nature and people's lives. He is trained and has worked as a nursery teacher. Today he runs a small private tutoring school in Iwanai.

(This article was translated into English by the temporality named 'Citizen's Support Network Hokkaido' which was set up on the 16 March 2011 in Sapporo ? a group of people who are concerned over the devastating situation in the areas recently hit by the earthquake in Japan).