

The Fuel Pools of Fukushima: THE GREATEST SHORT-TERM THREAT TO HUMANITY

By [Washington's Blog](#)

Global Research, April 09, 2012

[Washington's Blog](#) 9 April 2012

Region: [Asia](#)

Theme: [Environment](#)

Global Research Editor's Note

This detailed report by our Contributor Washington Blog must be read very carefully.

The World is at a critical crossroads. The Fukushima disaster in Japan has brought to the forefront the dangers of Worldwide nuclear radiation. The crisis in Japan has been described as "a nuclear war without a war".

Nuclear radiation -which threatens life on planet earth- is not front page news in comparison to the most insignificant issues of public concern, including the local level crime scene or the tabloid gossip reports on Hollywood celebrities.

The implications of this report must be understood. Public opinion worldwide must be informed so that meaningful actions can be taken without delay in support of the Japanese teams.

Spread the word. Forward this report far and wide. Post it on Facebook.

It is essential to put pressure at all levels of government, nationally and internationally to take all actions necessary to avert an impending catastrophe, which in a very real sense threatens the future of humanity.

Michel Chossudovsky, April 9, 2012

For further background analysis, see

GLOBAL RESEARCH'S ONLINE I BOOK ON FUKUSHIMA



[Fukushima: A Nuclear War without a War: The Unspoken Crisis of Worldwide Nuclear Radiation](#)

- by Prof. Michel Chossudovsky - 2012-01-25

GR ONLINE READER. The dumping of highly radioactive water into the Pacific Ocean constitutes a potential trigger to a process of global radioactive contamination... Eventually all major regions of the World will be affected.

"Based on U.S. Energy Department data, assuming a total of 11,138 spent fuel assemblies are being stored at the Dai-Ichi site, nearly all, which is in pools. They contain roughly 336 million curies (~1.2 E+19 Bq) of long-lived radioactivity. About 134 million curies is

Cesium-137 — roughly 85 times the amount of Cs-137 released at the Chernobyl accident as estimated by the U.S. National Council on Radiation Protection (NCRP). The total spent reactor fuel inventory at the Fukushima-Daichi site contains nearly half of the total amount of Cs-137 estimated by the NCRP to have been released by all atmospheric nuclear weapons testing, Chernobyl, and world-wide reprocessing plants (~270 million curies or ~9.9 E+18 Becquerel). It is important for the public to understand that reactors that have been operating for decades, such as those at the Fukushima-Dai-Ichi site have generated some of the largest concentrations of radioactivity on the planet.” (Robert Alvarez, former Senior Policy Adviser to the Secretary and Deputy Assistant Secretary for National Security and the Environment at the U.S. Department of Energy)

The Greatest Single Threat to Humanity: Fuel Pool Number 4

We noted days after the Japanese earthquake that the biggest threat was from the spent fuel rods in the fuel pool at Fukushima unit number 4, and not from the reactors themselves. See [this](#) and [this](#). We [noted](#) in February:

Scientists say that there is a [70% chance](#) of a magnitude 7.0 earthquake hitting Fukushima this year, and a 98% chance within the next 3 years.

Given that nuclear expert Arnie Gunderson says that an earthquake of [7.0 or larger](#) could cause the entire fuel pool structure collapse, it is urgent that everything humanly possible is done to stabilize the structure housing the fuel pools at reactor number 4.

Tepco is doing some construction at the building ... it is a race against time under very difficult circumstances, and hopefully Tepco will win.

As AP [points out](#):

The structural integrity of the damaged Unit 4 reactor building has long been a major concern among experts because a collapse of its spent fuel cooling pool could cause a disaster worse than the three reactor meltdowns.

Gunderson (who used to build spent fuel pools) explains that there is no protection surrounding the radioactive fuel in the pools. He warns that - if the fuel pools at reactor 4 collapse due to an earthquake - people should get out of Japan, and residents of the West Coast of America and Canada should shut all of their windows and stay inside for a while.

The fuel pool number 4 is apparently [not in great shape](#), and there have already been [countless earthquakes near the Fukushima region](#) since the 9.0 earthquake last March.

Germany's ZDF tv quotes nuclear engineer Yukitero Naka as [saying](#):

If another earthquake occurs then the building [number 4] could collapse and another chain reaction could very likely occur.

(Unit 4 [contains plutonium](#) as well as other radioactive wastes.)

Mainichi [reported](#) on Monday:

The storage pool in the No. 4 reactor building has a total of 1,535 fuel rods, or 460 tons of nuclear fuel, in it. The 7-story building itself has suffered great damage, with the storage pool barely intact on the building's third and fourth floors. The roof has been blown away. If the storage pool breaks and runs dry, the nuclear fuel inside will overheat and explode, causing a massive amount of radioactive substances to spread over a wide area. Both the U.S. Nuclear Regulatory Commission (NRC) and French nuclear energy company Areva have warned about this risk.

A report released in February by the Independent Investigation Commission on the Fukushima Daiichi Nuclear Accident stated that the storage pool of the plant's No. 4 reactor has clearly been shown to be "the weakest link" in the parallel, chain-reaction crises of the nuclear disaster. The worse-case scenario drawn up by the government includes not only the collapse of the No. 4 reactor pool, but the disintegration of spent fuel rods from all the plant's other reactors. If this were to happen, residents in the Tokyo metropolitan area would be forced to evacuate.

Former Minister of Land, Infrastructure, Transport and Tourism Sumio Mabuchi, who was appointed to the post of then Prime Minister Naoto Kan's advisor on the nuclear disaster immediately after its outbreak, proposed the injection of concrete from below the No. 4 reactor to the bottom of the storage pool, Chernobyl-style.

"Because sea water was being pumped into the reactor, the soundness of the structure (concrete corrosion and deterioration) was questionable. There also were doubts about the calculations made on earthquake resistance as well," said one government source familiar with what took place at the time. "[F]uel rod removal will take three years. Will the structure remain standing for that long?"

Asahi noted last month that - if Unit 4 pool gets a crack from an earthquake and leaks, it would [be the end for Tokyo](#).

Kevin Kamps said last month:

Unit 4 storage pool... The entire building is listing including the pool. What they have is steel jacks underneath the pool to try to keep the floor from falling out or the pool from flipping over.

If that cooling water supply is lost, it will be just a few hours at most before that waste is on fire. 135 tons outside of any radioactive containment. They would be direct releases into the environment. 100% of cesium-137 could be released to the environment.

Former U.N. adviser Akio Matsumura - whose [praises have been sung by](#) Mikhail Gorbachev, U.S. Ambassadors Stephen Bosworth and Glenn Olds, and former U.S. Deputy Secretary of State and Goldman Sachs co-chair John C. Whitehead - [notes](#):

The unit suffered enormous damage during the tsunami—a hydrogen explosion

blew the roof off, leaving the highly radioactive fuel pool exposed to the open air. If another high level earthquake hits the area, the building will certainly collapse. Japanese and American meteorologists have predicted that such a strong earthquake is indeed likely to hit this year.

The meltdown and unprecedented release of radiation that would ensue is the worst case scenario that then-Prime Minister Kan and other former officials have discussed in the past months. He warned during his speech at the World Economic Forum in Davos that such an accident would force the evacuation of the 35 million people in Tokyo, close half of Japan and compromise the nation's sovereignty. Such a humanitarian and environmental catastrophe is unimaginable. Hiroshi Tasaka, a nuclear engineer and special adviser to Prime Minister Kan immediately following the crisis, said the crisis "just opened Pandora's Box."

The current Japanese government has not yet mentioned the looming disaster, ostensibly to not incite panic in the public. Nevertheless, action must be taken quickly. This website over the last year has published a running commentary from scientists explaining why Reactor 4 must be stabilized immediately, who might be able to accomplish such a task, and why the situation has largely gone unnoticed. We believe an independent, international team of structural engineers and other advisers must be assembled and deployed immediately. Mounting public pressure would force the Japanese government to take action. We hope these resources are helpful in educating the public about the crisis that we face.

As the eminent German physicist Dr. Hans-Peter Durr said ten months ago, if the spent fuel pool spills, we will be in a situation where science never imagined we could be.

Matsumura was told that if the fuel pool at unit 4 collapses or the water spills out, so much radiation will spew out for 50 years that no one will be able to approach Fukushima:

Even more dramatically, Matsumura [writes](#):

Japan's former Ambassador to Switzerland, Mr. Mitsuhei Murata, was invited to speak at the Public Hearing of the Budgetary Committee of the House of Councilors on March 22, 2012, on the Fukushima nuclear power plants accident. Before the Committee, Ambassador Murata strongly stated that if the crippled building of reactor unit 4—with 1,535 fuel rods in the spent fuel pool 100 feet (30 meters) above the ground—collapses, not only will it cause a shutdown of all six reactors but will also affect the common spent fuel pool containing 6,375 fuel rods, located some 50 meters from reactor 4. In both cases the radioactive rods are not protected by a containment vessel; dangerously, they are open to the air. This would certainly cause a global catastrophe like we have never before experienced. He stressed that the responsibility of Japan to the rest of the world is immeasurable. Such a catastrophe would affect us all for centuries. Ambassador Murata informed us that the total numbers of the spent fuel rods at the Fukushima Daiichi site excluding the rods in the pressure vessel is 11,421 (396+615+566+1,535+994+940+6375).

I asked top spent-fuel pools expert Mr. Robert Alvarez, former Senior Policy Adviser to the Secretary and Deputy Assistant Secretary for National Security and the Environment at the U.S. Department of Energy, for an explanation of the potential impact of the 11,421 rods.

I received an astounding response from Mr. Alvarez [updated 4/5/12]:

In recent times, more information about the spent fuel situation at the Fukushima-Dai-Ichi site has become known. It is my understanding that of the 1,532 spent fuel assemblies in reactor No. 304 assemblies are fresh and unirradiated. This then leaves 1,231 irradiated spent fuel rods in pool No. 4, which contain roughly 37 million curies ($\sim 1.4E+18$ Becquerel) of long-lived radioactivity. The No. 4 pool is about 100 feet above ground, is structurally damaged and is exposed to the open elements. If an earthquake or other event were to cause this pool to drain this could result in a catastrophic radiological fire involving nearly 10 times the amount of Cs-137 released by the Chernobyl accident.

The infrastructure to safely remove this material was destroyed as it was at the other three reactors. Spent reactor fuel cannot be simply lifted into the air by a crane as if it were routine cargo. In order to prevent severe radiation exposures, fires and possible explosions, it must be transferred at all times in water and heavily shielded structures into dry casks.. As this has never been done before, the removal of the spent fuel from the pools at the damaged Fukushima-Dai-Ichi reactors will require a major and time-consuming re-construction effort and will be charting in unknown waters. Despite the enormous destruction cased at the Da-Ichi site, dry casks holding a smaller amount of spent fuel appear to be unscathed.

Based on U.S. Energy Department data, assuming a total of 11,138 spent fuel assemblies are being stored at the Dai-Ichi site, nearly all, which is in pools. They contain roughly 336 million curies ($\sim 1.2 E+19$ Bq) of long-lived radioactivity. About 134 million curies is Cesium-137 — roughly 85 times the amount of Cs-137 released at the Chernobyl accident as estimated by the U.S. National Council on Radiation Protection (NCRP). The total spent reactor fuel inventory at the Fukushima-Daichi site contains nearly half of the total amount of Cs-137 estimated by the NCRP to have been released by all atmospheric nuclear weapons testing, Chernobyl, and world-wide reprocessing plants (~ 270 million curies or $\sim 9.9 E+18$ Becquerel).

It is important for the public to understand that reactors that have been operating for decades, such as those at the Fukushima-Dai-Ichi site have generated some of the largest concentrations of radioactivity on the planet.

Many of our readers might find it difficult to appreciate the actual meaning of the figure, yet we can grasp what 85 times more Cesium-137 than the Chernobyl would mean. It would destroy the world environment and our civilization. This is not rocket science, nor does it connect to the pugilistic debate over nuclear power plants. This is an issue of human survival.

There was a Nuclear Security Summit Conference in Seoul on March 26 and 27, and Ambassador Murata and I made a concerted effort to find someone to inform the participants from 54 nations of the potential global catastrophe of reactor unit 4. We asked several participants to share the idea of an Independent Assessment team comprised of a broad group of international experts to deal with this urgent issue.

I would like to introduce Ambassador Murata's letter to the UN Secretary

General Ban Ki-moon to convey this urgent message and also his [letter to Japan's Prime Minister Yoshihiko Noda](#) for Japanese readers. He emphasized in the statement that we should bring human wisdom to tackle this unprecedented challenge.

Ambassador Murata's letter says:

It is no exaggeration to say that the fate of Japan and the whole world depends on NO.4 reactor. This is confirmed by most reliable experts like Dr. Arnie Gunderson or Dr. Fumiaki Koide.

Anti-nuclear physician Dr. Helen Caldicott says that if fuel pool 4 collapses, she will [evacuate her family from Boston](#) and move them to the Southern Hemisphere. This is an especially dramatic statement given that the West Coast is much more [directly in the path](#) of Fukushima radiation than the East Coast.

Will humanity rise to the occasion, and figure out how to stabilize fuel pool number 4 before catastrophe strikes?

Or will modern civilization win a Darwin award for [failing to pay attention to the real threats](#)?

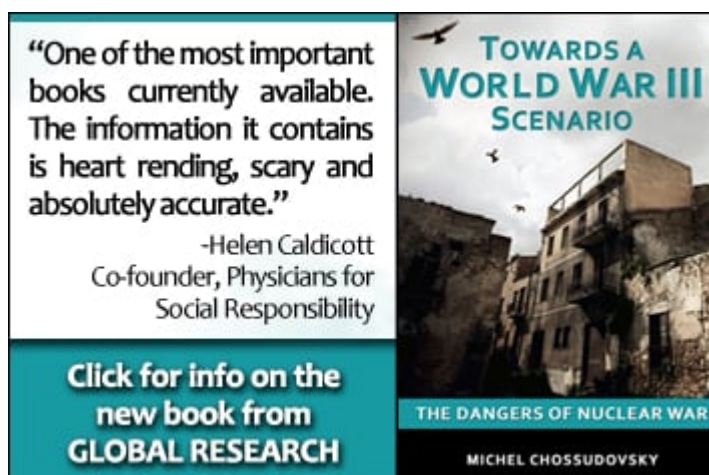
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