After Fukushima: Massive global expansion of nuclear industry under way

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A report from the Economist Intelligence Unit predicts a massive worldwide growth in nuclear energy production over the next decade. The impact of the Fukushima disaster, now being described as the worst industrial accident in history, is expected to be minimal.

Germany's decision to close its nuclear power stations will be more than made up for by an expansion of nuclear production in other countries, according to the report. *The Future of Nuclear Energy* suggests a 27 percent growth in output by 2020. The reactors that are planned for China, India and Russia will add five times the nuclear capacity that the German decision will remove from world nuclear output.

It takes 15 years to build a nuclear power station, so the projected increase reflects the estimated output of facilities that are already under construction. Sixteen new reactors were started in 2010. Ten of them are in China and the others are in Russia, India and Brazil. Even Japan has resumed construction work at a new nuclear plant, after further anti-earthquake measures were put in place. By 2015 one new nuclear reactor is expected to be coming online every month somewhere in the world.

This massive expansion in the nuclear industry is taking place despite the fact that none of the safety issues inherent in the production of nuclear energy have been addressed. Only this week there was an explosion at a French nuclear power station. The Tricastin power station was recently criticized by the French national nuclear safety authority, the Autorité de Sûreté Nucléaire (ASN), which demanded 32 safety measures be put into operation. EDF, which runs the facility, insisted that the explosion had taken place in a non-nuclear part of the plant and posed no danger of a radiation leak. The experience of Fukushima has shown that the failure of non-nuclear functions such as a loss of power supply poses a danger to the nuclear reactor. Nuclear power plants are complex engineering systems and no part of them can be so lightly regarded as non-critical.

All France's nuclear power plants are supposed to have undergone an inspection following the Fukushima disaster. For one of them to experience an explosion so soon afterwards, and for EDF to dismiss the incident as "only a fire," suggests that the industry has learned no lessons from Fukushima.

The expansion of nuclear power is an international phenomenon, and the impact of any accident would be international. Yet there are still no internationally agreed and enforceable safety standards for the industry. Instead, as the Fukushima disaster has highlighted, national governments and the nuclear industry collaborate in a secretive manner and connive to cover up safety issues.

The *Guardian* recently released emails detailing the collusion between the UK government and the nuclear industry in the aftermath of the Fukushima disaster. Two days after the earthquake, British government officials emailed EDF, Areva, Westinghouse and the industry body, the Nuclear Industry Association, to warn that Fukushima situation could damage public confidence in nuclear power. It was not as bad as the television pictures suggested, the officials stressed:

"Radiation released has been controlled—the reactor has been protected. It is all part of the safety systems to control and manage a situation like this."

They invited the industry to send their comments so that they could be included in government statements: "We need to all be working from the same material to get the message through to the media and the public."

A concerted propaganda campaign was being planned, with no regard for the truth or public safety. The nuclear industry and the British government were working together to suppress the extent of the disaster that was unfolding in Japan and its potential impact on the rest of the world.

"Anti-nuclear people across Europe have wasted no time blurring this all into Chernobyl and the works. We need to quash any stories trying to compare this to Chernobyl," one email said.

Within weeks Japanese officials were forced to raise the level of the Fukushima accident from a level 4 to a 7, the same as Chernobyl.

British officials clearly saw themselves as fighting a media battle to defend the nuclear industry, as ministers prepared to announce the government's plans for new nuclear reactors in the UK.

"This has the potential to set the nuclear industry back globally," one of the 80 emails released says, "We need to ensure the anti-nuclear chaps and chapesses do not gain ground on this. We need to occupy the territory and hold it. We really

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need to show the safety of nuclear."

A former nuclear inspector told the *Guardian* that the level of collusion revealed by the emails was "truly shocking."

This collusion is not confined to Britain. In Japan, the extent of the Fukushima disaster has been consistently downplayed from the beginning. According to former Minister for Internal Affairs Haraguchi Kazuhiro, the figures from radiation monitoring stations in Japan are up to three decimal places higher than those that have been made public.

Experts are becoming increasingly concerned about the implications of Fukushima for public health. Nishio Masamichi, a radiation treatment specialist and director of the Hokkaido Cancer Center, expressed his "grave concern" in the business journal *Toyo Keizai*. In an article entitled,

"The Problem of Radiation Exposure Countermeasures for the Fukushima Nuclear Accident: Concerns for the Present Situation," he gave a detailed breakdown of the health risks to workers at the plant and to residents in the surrounding area.

The health official had initially joined in calls for "calm," but now he has accused the Tokyo Electrical Company (TEPCO) of hiding the truth of the disaster and putting the survival of the company before public health. He condemned the government for raising the legal radiation exposure limit for nuclear workers from 100 millisieverts to 250 millisieverts per year. The workers at the plant are "not even being treated like human beings," he wrote.

Workers are forced to sleep and eat on the wrecked site, increasing their risk of inhaling or ingesting contaminated material, when only half an hour away there are empty hotels where they would face a reduced risk of exposure. The emphasis of the company, he stated, is on preventing the workers from running away, not on protecting their health.

The company has given workers broken radiation monitors, he claimed. It is not using whole-body monitoring to assess the level of internal radiation exposure. Nor have different types of radiation, such as alpha rays from plutonium and beta rays from strontium, been measured. No special measures have been taken to protect workers from the MOX (Mixed Oxide fuel) at the number 3 reactor. Iodine is being given to the workers, but they should also be taking Radiogardase (Prussian blue insoluble capsules), according to Nishio.

Nishio criticized the measures that the Japanese government has taken to protect the local population. A 30-kilometer radius has been evacuated, but he pointed out that the danger of contamination is not even and depends on topography and weather. Some areas outside this zone have produced high radiation readings.

Some contamination readings were suppressed, he wrote: "It is only conceivable that the high rate of radiation released was not reported because of fears of a panic."

The legally permitted level of radiation exposure in Japan is 1 millisieverts a year for people who do not work in the nuclear industry. But the Japanese government has raised this to 20 millisieverts following the Fukushima disaster. Nishio stated that this amounts to "taking the lives of the people lightly." He warned that this is too high for children and called for special measures to monitor strontium levels, which can affect children because their bones are still developing.

Japanese citizens have no means of measuring their personal level of exposure. Nishio particularly stressed the danger of internal exposure to long term high levels of radiation. Comparisons cannot be made with external exposure in a controlled medical environment, he warned. The health effects of internal and long term exposure are unpredictable and largely unknown.

Fukushima city is home to 300,000 people and is outside the evacuation area. Residents are resorting to measures such as digging up their gardens and scrubbing their roofs with soap and water in an effort to remove contamination, after areas of high radiation were detected.

"Everything and everyone here is paralyzed, and we feel left on our own, unsure whether it's actually safe for us to stay in the city," one mother told Reuters.

The authorities are removing top soil from school grounds, but there is no general plan to remove contaminated material from parks, open land or private gardens. Nor is there anywhere safe to dump it once it is removed. There is no precedent for the scale of the decontamination effort that will have to be made to make the area affected by the Fukushima disaster safe.

The global implications of the Fukushima disaster are only just becoming apparent and are still not the subject of official comment. In June TEPCO revised its estimate of the amount of radiation that was emitted in the first week of the disaster. They admitted that it was double their previous estimate for amount emitted in the entire accident.

Most of the additional radiation was in the form of "hot particles" —tiny particles of cesium, plutonium, uranium, cobalt60 and other radioactive materials. Individual hot particles are too small to be detected by a Geiger counter. But they pose a serious risk of cancer because they can become lodged in the lungs or gastrointestinal tract, where they bombard a localized area of tissue over a long period of time.

Independent scientists who have inspected air filters removed from vehicles in Japan suggest that residents of Tokyo were breathing in approximately 10 hot particles per day during April, immediately after the crisis began. In the area around the plant, the levels would have been 30 to 40 times higher and across the Pacific in Seattle levels equivalent to 5 per day have been detected.

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