GREEN ACTION
グリーン・アクション

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NGO briefing to media organizations covering the Japanese Nuclear Industry's International Symposium on Nuclear Power Plant Seismic Safety, February 26th-27th (Kashiwazaki City, Niigata Prefecture, Japan)

Japanese Nuclear Power Industry Covers Up Its Dirty Laundry: Will the International Community Have Wool Pulled Over its Eyes?

This briefing has been compiled from publicly available documents issued in English and Japanese by scientists and engineers, Kashiwazaki and Kariwa residents and legislators, and NGOs in Japan calling for closure of the Kashiwazaki-Kariwa Nuclear Power Plant.

On February 26th–27th in Kashiwazaki City, Niigata Prefecture, the Japan Industrial Atomic Forum (JAIF) is co-hosting "The International Symposium on Seismic Safety of Nuclear Power Plants and Lessons Learned from the Niigataken Chuetsu-oki Earthquake."

(See http://www.jaif.or.jp/english/news/2007/aseismicity_symposium.html)

Fifty-five nuclear power plants operate in seismically active Japan. The Japanese nuclear industry is eager to make it appear as though "business as usual" can continue at Japanese nuclear power plants in spite of the 16 July 2007 Chuetsu-oki Earthquake (6.8 on the Richter scale) that rocked Tokyo Electric's Kashiwazaki-Kariwa Nuclear Power Plant in Niigata, Japan.

It is doubtful that the Japanese nuclear industry will be forthright about crucial issues concerning the Kashiwazaki-Kariwa nuclear power plant complex and Japanese nuclear power plants' seismic safety.

On the pages that follow are some of the facts the hosts of the international symposium may not reveal to the international community.

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Kashiwazaki-Kariwa Nuclear Power Plant Violates Requirement of Japanese Government's Seismic Guide

The Japanese government's "Regulatory Guide for Reviewing Seismic Design of Nuclear Power Reactor Facilities (Seismic Guide)" revised in September 2006 states as a basic policy that all buildings and structures at nuclear power plants must be installed on ground having sufficient support performance. (See "Revision of Japanese 'Examination Guide for Seismic Design of Nuclear Power Reactor Facilities,'" Shigeki Nagura, Yosuke Maeda, Hideki Mizuma and Hiroyuki Aoyama, Proceedings of the 12th Japan Earthquake Engineering Symposium, CD-ROM, 43-49, 2006 for a clear explanation that "all buildings and structures" are included in the Japanese government's Seismic Guide policy.) [1]

The "Group of Concerned Scientists and Engineers Calling for the Closure of the Kashiwazaki-Kariwa Nuclear Power Plant" (hereafter: "KK Scientists") in a letter sent to IAEA Director General Mohamed ElBaradei on 14 September 2007 state, "Damage to many structures at the plant as a result of large-scale, wide-spread ground deformations and failures caused by the Chuetsu-Oki earthquake proved that the ground of the site of the Kashiwazaki-Kariwa Nuclear Power Plant does not fulfill this [Seismic Guide] requirement." [1]

In its Appeal issued on 21 August 2007, the KK Scientists point out that, "in the light of the 'Regulatory Guide for Reviewing Seismic Design of Nuclear Power Reactor Facilities (Seismic Guide),' which was revised in September last year, it is clearly inconceivable to continue to operate a nuclear power plant at the Kashiwazaki-Kariwa site. The reason for this is that the basic policy stated in the revised Seismic Guide is that all buildings and structures must be installed on ground having enough support performance. **There can be no doubt now that the ground of the site of the Kashiwazaki-Kariwa Nuclear Power Plant does not fulfill this requirement. This was proved by the damage to many structures at the plant as a result of large-scale, wide-spread ground deformations and failures caused by the Chuetsu-Oki earthquake.**" (Emphasis added.) [1]

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In the 24 February 2008 leaflet the KK Scientists issued, it states, "No one can argue that this plant is on safe and stable ground. The plant is in clear violation of the fundamental guideline stated above. **Even by the standards of the nuclear power industry itself, the Kashiwazaki-Kariwa nuclear power plant must not be allowed to continue to operate.**" (Emphasis added.) [2]

The Japanese nuclear industry will no doubt argue that since the geological survey including active fault identification under and in the vicinity of nuclear power plants are still "undergoing scientific study and evaluation," that the verdict is not yet in for the Kashiwazaki-Kariwa nuclear power plant complex. It is important to note that this is incorrect.

Since 1974, Niigata Citizens and Japanese Scientific Experts Have Warned the Kashiwazaki-Kariwa Site is Not Seismically Sound for a Nuclear Power Plant

In a letter dated 6 August 2007 sent to Director General Mohamed ElBaradei and the IAEA Team of international experts investigating the effects of the earthquake on the Kashiwazaki-Kariwa nuclear power plant, Citizens' Nuclear Information Center (Tokyo), Green Action (Kyoto), and Greenpeace Japan wrote:

> For over three decades since 1974, local (Kashiwazaki and Kariwa) residents organizations and scientific experts have been warning that there are active faults concentrated in the region where Tokyo Electric's Kashiwazaki-Kariwa Nuclear Power Station is sited, even active fault lines existing in very close proximity and directly underneath the nuclear power plants. They have also argued that the geology of the ground on which the plants are built is of very poor quality, and that this region has entered a seismically active period. They have continually warned, therefore, that the occurrence of an earthquake having serious, perhaps even devastating effects on the nuclear power station, is far from unlikely. [3]

The letter continues,

> Tokyo Electric ignored these warnings, refusing to admit that there were active fault lines in close proximity or directly underneath the nuclear power station site. Instead, in their analysis, they broke up the fault lines and considered only sections, thereby enabling them to underestimate the effects of any potential earthquake, and as a result,

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> make it appear that any seismic activity would be limited in scale. Moreover, they stated publicly that the nuclear power station was not located above an active fault. Tokyo Electric's home page continues to make these assertions even today. [3]

In July 2007, immediately following the earthquake, the "Three Organizations Opposed to the Kashiwazaki-Kariwa Nuclear Power Plants" (members include Kashiwazaki legislators/citizens raising concerns since 1974) (hereafter, the "Three Organizations") met with Hirohiko Izumida, governor of Niigata Prefecture and stated their concerns:

> It has now been proven with the Chuetsu Oki Earthquake that the seismic estimations on which the license of the Kashiwazaki-Kariwa Nuclear Power Plant are premised are erroneous, thus making the license meaningless.
>
> Our assertions have now been proven correct. There is nothing 'unpredictable' about this. The simple fact is it is only Tokyo Electric and the national government that made the overly optimistic assertions, and this was done in order to reduce construction costs of the plants. [4]
>
> The (Japanese government's) Earthquake Research Committee is warning about a massive earthquake that could occur along the Nagaoka Heiya-Seien Fault Zone. The citizens of this prefecture, having now experienced both the Chuetsu Earthquake and Chuetsu Oki Earthquake, view this state of affairs with the deepest concern. The effects of the Chuetsu Oki Earthquake upon the Kashiwazaki-Kariwa Nuclear Power Station go well beyond the strong ground motion which far exceeded the design limits of the plant. We have been drawing attention concerning the possibility of reactivation of the numerous faults which occur directly beneath the plant that cut the Yasuda Formation as well as the bed rock of Nishiyama Formation. [4]

On 24 February 2008, Niigata Prefecture citizens and organizations including the "Three Organizations" called for permanent closure of the Kashiwazaki-Kariwa nuclear power plant complex at a Niigata Prefectural Citizens meeting/rally held in Kashiwazaki, just prior to the International Symposium on Nuclear Power Plant Seismic Safety. [5]

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In the leaflet issued (in Japanese) on 24 February 2008, the KK Scientists explain that Kashiwazaki-Kariwa was never a suitable place to build a nuclear power plant. They state:

> The Kashiwazaki-Kariwa nuclear power plant is located in the middle of an earthquake belt that stretches from the Japan Sea through to the Hokuriku area of Japan. It was known long before the plant was built here that Niigata Prefecture had undergone numerous highly destructive earthquakes. Major magnitude 7 quakes are recorded from 1502, 1666, 1670, 1751, 1762, 1802, 1828, 1847 and 1964. Furthermore, the plant is right on an active fold*1 known as the U-etsu Fold Zone, which contains evidence of numerous major earthquakes in recent geological time. Thus ample reason existed to assume a risk of a major earthquake in the Kashiwazaki area.
>
> But in 1977, ignoring warnings from specialists in the field and the regulatory guidelines for determining site suitability, the government gave permission for the No. 1 Kashiwazaki-Kariwa power plant to begin construction. [2]

The KK Scientists point out that the fact a major nuclear accident did not occur in 2007 was the result of "miraculous luck in regard to the way the earthquake occurred." In its 21 August 2007 Appeal the KK Scientists state, "If the source region of the Chuetsu-Oki earthquake had been just a little to the southwest and the magnitude had been in the order of 7.5 like the 1964 Niigata earthquake, the nuclear power plant would have been shaken even more violently. [1]

> Thanks to a happy combination of chance and circumstance, this recent earthquake miraculously let us off the hook, but it could well have been a very different story. If the earthquake had been a magnitude 7 (instead of 6.8), or had there been a large aftershock immediately following, or had all 7 of the reactors been in operation at the time, we might instead have been faced with a fatal accident in which massive amounts of radioactive material were released, making uninhabitable not only the Kashiwazaki and Kariwa environs but a wide area of Niigata Prefecture. [2]

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The Chuetsu-oki Earthquake: A Final Warning for Nuclear Power Plants in Japan?

Professor Katsuhiko Ishibashi, who was a member of the expert panel that developed the new seismic design guidelines but resigned during the final stage of the work in August 2006 to protest the panel's stance on the issue, wrote several weeks after the Chuetsu-oki Earthquake on 11 August 2007 in an Op-Ed, "Point of View" titled "Nuclear Plants at Grave Risk of Quake Damage" published by the Asahi Shimbun (English: International Herald Tribune — Asahi), "What happened to the Kashiwazaki-Kariwa Nuclear Plant should not be described as 'unexpected.'" [6]

Professor Ishibashi continues in his Op-Ed,

> What happened there could have been much worse. If the focus of the quake had been a little farther southwest, toward the plant site, and the magnitude had been 7.5--the size of a quake that hit Niigata Prefecture in 1964--and if all seven reactors at the plant had been operating, genpatsu-shinsai, a combination of an earthquake and a nuclear meltdown, could have occurred. [6]

Ishibashi states, "That would have been a catastrophic event where the damaging effects of the quake itself and radiation leaked from the plant reinforced each other." [6]

> The period of high-level seismic activity will continue for another 40 years or more. Unless radical steps are taken now to reduce the vulnerability of nuclear power plants to earthquakes, Japan could experience a true nuclear catastrophe in the near future. [6]

Professor Ishibashi calls this phenomena "Genpatsu Shinsai." *Genpatsu* is "nuclear power plant" in Japanese," and *shinsai* is the Japanese word for a disaster caused by an earthquake.

The KK Scientists stated in their 21 August Appeal for closure of the Kashiwazaki-Kariwa plant,

> First, the possibility of occurrence of another huge earthquake near the Kashiwazaki-Kariwa Nuclear Power Plant cannot be ruled out. This region is right in the middle of the Uetsu-Shinetsu fold zone, an area of particularly high crustal activity in the Japan Sea Eastern Margin Mobile Belt and has many active faults. Until the occurrence of the predicted Great Nankai (south sea) earthquake around the middle of this century,

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> there is a high probability that a period of high earthquake activity will continue from the Japan Sea Eastern Margin Mobile Belt to central / southwest Japan. It is therefore impossible to say that large earthquakes in this region ended with the 2004 Chuetsu earthquake and the recent Chuetsu-Oki earthquake. [1]

The KK Scientists state that they cannot ignore the possibility that, even several to ten years from now, large earthquakes could occur as aftershocks of the Chuetsu-Oki earthquake. The KK Scientists note that, "The IAEA points to the importance of investigation of active faults, but it must not be forgotten that huge earthquakes, which are not related to active faults observed near the surface, could occur." [1]

Niigata's "Three Organizations" point out:

> According to the seismic resistance design specifications of the Kashiwazaki-Kariwa Nuclear Power Plant, the basic earthquake ground motion S1 is 300 Gal* / 15.6 kine**, and the basic earthquake ground motion S2 is 450 Gal/22.0 kine. The plant is designed to be undamaged by the occurrence of up to 300 Gal, and from 300 Gal to 450 Gal, even though plastic deformations would occur, there should be no rupture or leakage. In other words, the plant was licensed on the premise that it could not be used again but should be scrapped when it suffered earthquake ground motion beyond 300 Gal, while it would be still reusable for earthquake ground motion less than 300 Gal.
>
> Due to the Chuetsu Oki Earthquake a maximum horizontal ground motion of 680 Gal was observed, which was much larger than the assumed S2. [4]

The KK Scientists' 24 February leaflet states that the Japanese government is violating its own rules and that the danger of another large earthquake remains:

> The 2007 earthquake was preceded by one in the same region in 2004, pointing to a build-up of seismic energy in the area. Both were relatively small, magnitude 6.8, but there are numerous active faults both in the seabed and on land, and it is impossible to dismiss the likelihood of further major earthquakes. The next severe quake may be caused by major shifts in the Madogasaka and Jorakuji faults, thought to have perhaps undergone slight movement in the recent quake. It is also impossible to rule out a late aftershock of up to magnitude 6.5 occurring some years down the track directly under or in the immediate vicinity of the nuclear power plant. The possibility that this plant will be restarted is of grave concern indeed, given the extreme danger of the site, and the high possibility that it still carries considerable undetected damage from the recent quake. [2]

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Japanese Electric Utilities' and Government's Sloppy Assessment and Cover Up of Recognized Earthquake Faults

The KK Scientists note in their leaflet of 24 February 2008 that Tokyo Electric's Assessment off Faults was Sloppy and that a 30 km-long active submarine fault was ignored:

> In the safety report for reactors No. 6 and 7, which received construction permits in 1991, both the government and TEPCO claimed that there was no active submarine fault in the area to threaten power plant safety. They acknowledged the presence of the 7-8 km long F-B fault in the F-B area… but stated that it was inactive. However, when we examined the records of seismic profiling included in the application for construction permission, it was easy to identify a number of large active submarine faults… [2]

It goes on to say,

> There are 4 main ones, on either edge of the Sado Basin, a depression separating Sado Island from mainland Kashiwazaki.

In June 2003, Tokyo Electric submitted a report to the Nuclear and Industrial Safety Agency (NISA) revising their estimate of the F-B fault to that of an active fault 20km in length. **However, neither TEPCO nor the government made this new estimate public**. [2]

The leaflet states,

> TEPCO stressed that this was 'recent information' and wasn't known at the time of the construction application. This is incorrect. We checked the data that TEPCO used in its original application and, **on the basis of criteria which were already authorized back in 1980, we were able to establish the existence of active faults at that location. It was a perfectly straightforward exercise, requiring no particular specialist training.** [2]

Only finally in December 2007, after the Chuetsu-oki Earthquake, was it publicly announced that there was an active fault 23km in length.

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The KK Scientists point out,

> Tokyo Electric's evaluation of the active fault is mistaken as to both position and length. In fact, the most important active submarine fault is not the F-B fault, but the fault along the eastern margin of the Sado Basin. This fault is over 30km long, and capable of generating a major earthquake of magnitude 7.3–7.7.[2]

The KK Scientists criticize Tokyo Electric's study of active faults in the Kashiwazaki-Kariwa power plant area, stating, it is "at best a very slipshod piece of work."[2]

The KK Scientists continue,

> A major earthquake of magnitude 7 or greater could and should have been anticipated at the application stage. It must be a matter of grave concern that Tokyo Electric claims it 'did not realize' this.[2]

The KK Scientists conclude,

> Both Tokyo Electric and the government are refusing to admit their responsibility, and are bent on starting up production at the plant again as soon as possible. Given this attitude, the same thing or worse could happen (in the future if the plant operates again).[2]

It is worthy to remember that local Kashiwazaki and Kariwa residents have warned since 1974 that the Kashiwazaki-Kariwa area was an oil field and has active folds and active faults and is therefore unsuitable for a nuclear power plant. They have criticized TEPCO saying that the company's survey for the construction of the plant ignored inconvenient facts which were discovered during oil field surveys.[4]

The Japanese government and electric utilities have been party to cover-up of recognized faults. During the safety review for Hokkaido Electric's planned Tomari Unit 3 reactor, a submarine fold was assessed to be a fault. Following this assessment, in June of 2002, NISA ordered all Japanese electric utilities to undertake reassessments of submarine active faults for all their nuclear power plants.[2]

The KK Scientists point out that on 29 August 2002 (just 2 months after this requirement for reassessment was announced), TEPCO admitted it had passed period inspections of its nuclear power plants by altering inspection data and concealing cracks resulting in suspension of operation of all 17 of TEPCO nuclear, and that the reassess-

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ment of submarine active faults was being carried out by TEPCO in the middle of this data falsification scandal.

The KK Scientists explain,

> As a result of the reassessments required by the government, active faults were reported on 25 May 2003 for Hokuriku Electric's Shika nuclear power plant, on 16 June for TEPCO's Kashiwazaki-Kariwa plant and in July for Chubu Electric's Hamaoka plant. Active faults were also reported for Japan Atomic Power Company's Tsuruga plant, Kansai Electric's Mihama, Ohi and Takahama plants and for Chugoku Electric's Shimane plant. **In the case of Kashiwazaki-Kariwa, Shika, Tsuruga and Mihama, it was recognized that if these submarine active faults caused an earthquake, it could give rise to an earthquake ground motion exceeding the S1 earthquake ground motion assumed when the licenses for these nuclear reactors was approved.** However, this was concealed from the public on the grounds that the earthquake ground motion would not exceed the S2 earthquake ground motion.[2]

The KK Scientists' 24 February 2008 leaflet states,

> The power companies and the government were afraid that a public announcement concerning these active faults would only increase public distrust towards them and it would become difficult to restart the nuclear power plants. Thus electric power supply was prioritized over safety. At the time, TEPCO was running a PR campaign claiming that it would enforce corporate ethics, put safety first and disclose information.[2]

The KK Scientists point out that,

> **…TEPCO's announcement on 5 December 2007 of submarine fault F-B was not spontaneous. Immediately after the Chuetsu-Oki Earthquake, a group of geologists had pointed out that the Chuetsu-Oki Earthquake was caused by a submarine fault and questioned why this obvious submarine active fault had not been discovered. In the face of this professional challenge, TEPCO belatedly confessed that it was aware of the submarine active fault since 2003 and had reported it then to the government.**[2]

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NISA Subcommittee and Subcommittee Chairman Severely Criticized for Handling of Investigation on the Kashiwazaki-Kariwa Nuclear Power Plant

The Nuclear and Industrial Safety Agency (NISA) of the Ministry of Economy, Trade and Industry (METI) established the "Subcommittee for Investigation and Response to the Nuclear Facilities affected by the Chuetsu-oki Earthquake." The subcommittee is chaired by Haruki Madarame of Tokyo University. NISA ordered TEPCO to check equipment and carry out seismic response analysis.

Immediately following establishment of the Subcommittee and appointment of Professor Haruki Madarame as its chairman, Japanese scientists and experts, residents and legislators in Niigata, and NGOs criticized the stance of the subcommittee, and NGOs petitioned the government to remove the chairman.

The KK Scientists criticized the chairman of the subcommittee stating in their 21 August 2007 Appeal,

> … Haruki Madarame, chairman of the investigation committee established by the Japanese government's Agency for Natural Resources and Energy, by stating that it will take at least 1 to 2 years before the plant can be restarted, lost no time in proclaiming that all 7 units will be restarted eventually. In this way, the belief that the Kashiwazaki-Kariwa Nuclear Power Plant is sure to be restarted is being implanted in the Japanese public consciousness. We find this state of affairs deeply concerning from a straightforward scientific and technical perspective.[1]

On 31 July 2007, the Citizens' Nuclear Information Center based in Tokyo petitioned NISA Director-General Yasuhisa Komoda demanding removal of Haruki Madarame from chairing the committee to study the impact of the Chuetsu-oki Earthquake on the Kashiwazaki-Kariwa Nuclear Power Plant. In the petition CNIC stated that it was outrageous that the chairman of the Committee has pronounced the plant safe before the investigation even began. CNIC stated Professor Madarame is unsuitable to chair the Committee and demanded that he be replaced. CNIC noted that Professor Madarame has a history of inappropriate comments and that examples of such comments are available in Japanese upon request.[7]

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The 6 August NGO letter to the IAEA points out that Dr. Haruki Madarame stated repeatedly immediately after he was appointed chairman, that, "It's only natural that about this amount of oscillation (2000 gal) would be recorded. That possibility had already been incorporated into the seismic design." The letter states, "After being criticized for these remarks, he simply gave excuses, then stated, 'I'll be more careful when making comments in the future.'"[3]

On 24 February 2008, the KK Scientists again criticized Madarame's committee in the leaflet they issued stating, "Unfortunately, these investigations are not objective scientific and technical investigations since they are being carried out based on the premise that the plant will be restarted in the near future."[2]

The government's subcommittee is ignoring basic issues. The KK Scientists stated in their 21 August 2007 Appeal,

> …the ground motion due to the earthquake which hit the Kashiwazaki-Kariwa Nuclear Power Plant far exceeded the basic design earthquake ground motion S2 that was assumed when the plant was designed. There is virtually no doubt that the force applied exceeded the elasticity limit of the materials of equipment and facilities categorized as of seismic importance level A (important) or As (most important), including the reactor pressure vessel, the reactor internals, piping, the containment vessel, etc.[1]

The KK Scientists go on to state in their Appeal,

> The key problem is that it is impossible to demonstrably determine whether or not dangerous strain remains. All that is possible is to make a guesstimate by inputting the observed earthquake ground motion into numerical simulations, which use assumptions built on top of more assumptions. In other words, nobody can objectively claim that the 7 units are sound.[1]

The KK Scientists point out,

> As the IAEA has warned, there is a danger that the long-term operation of components could be affected by hidden damage from the earthquake. This does not simply mean that accidents emanating from within the reactor have become more likely. It also means that **a major accident could be caused by earthquake ground motion smaller than that of 16 July 2007.**[1]

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The KK Scientists state in their 24 February leaflet,

> Under NISA's basic policy, the integrity of equipment is deemed to be confirmed as long as no flaws are found and the results of the analysis indicate that elasticity was maintained (i.e. that plastic deformation did not occur). But, as we have explained, **the tests being conducted are incapable of discovering plastic deformation**, so even if the results of the analysis indicate elastic deformation, it is still possible that plastic deformation has occurred. Since this possibility is not considered, any declaration that the integrity of the equipment has been maintained would be based on an unconditional acceptance that an unverifiable theoretical analysis was correct. Hence, it is impossible to escape the conclusion that the assessment methodology is unscientific.[2] (Emphasis added.)

The leaflet continues,

> …if three stages of the assessment all indicate plastic deformation, theoretical analysis will be abandoned and the equipment will be given a rubber stamp of approval as long as it can still carry out its function. If this is their attitude, one wonders why they bother with the theoretical analysis in the first place.[2]

In the 24 February 2008 leaflet, the KK Scientists demand that, "TEPCO publish not only the numerical results of its seismic response analysis, but that it publish its results in such a way that the whole analytical process can be reproduced." The KK Scientists continue, "We also demand that NISA independently crosscheck TEPCO's analysis and that it publish the whole process." It is worthy to note that TEPCO's seismic response analysis assumes that the equipment and machinery are new. [2]

One of the big problems is that TEPCO, the party with a vested interest in resuming operation of the Kashiwazaki-Kariwa plant is a central figure in the investigation. The KK Scientists' 24 February leaflet states, "…here we have TEPCO carrying out analyses and assessments aimed at restarting the Kashiwazaki-Kariwa nuclear power plant….**It appears that TEPCO is attempting to employ inadequately verified methods that designers know should never be used." The KK Scientists ask, "One wonders whether the professors and officials on the working group assessing the integrity of the plant's equipment understand the basics of plant design."** [2]

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Impotence of Japan's Nuclear Safety Commission

After the Chuetsu-oki Earthquake in July 2007, the Japan's Nuclear Safety Commission decided to take a "Don't Do Anything" approach to dealing with the earthquake problem at Japanese nuclear power plants.

Professor Ishibashi points out the problem with the lack of independence of Japan's Nuclear Safety Committee. He states, "A senior agency (Nuclear and Industrial Safety Agency of METI) official recently said there will be no new review of the seismic design guidelines, at least for the time being." He continues,

> But the guidelines are under the jurisdiction of the Nuclear Safety Commission, which is supposed to be an independent and neutral regulatory organization. By saying so, the official overstepped his authority, and his remarks clearly demonstrated how the commission is susceptible to government intervention.[6]

Shortly after the Chuetsu-oki Earthquake, Japan's Nuclear Safety Commission issued its view regarding future action on the earthquake issue. The document is titled, "The NSC view on, and future actions to take for, the impacts due to the Niigata-ken Chuetsu-oki Earthquake in 2007."[8]

This ineffectual document states that the Nuclear Safety Commission will not make a statement nor take any action on whether the new seismic guidelines issued in 2006 need to be reviewed until all Japanese reactors have completed "back-checks" and Tokyo Electric has completed its investigation regarding the effects of the accident on Kashiwazaki-Kariwa. This therefore means that even at the first anniversary of the Chuetsu-oki Earthquake in July 2008, no review will have been undertaken by the Nuclear Safety Commission to examine Japan's "Seismic Guide" in light of the July 2007 Chuetsu-oki Earthquake.

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Conclusion

In "Point of View", Professor Ishibashi states, "…even the new guidelines that took effect last September in the first sweeping revision in 28 years are still seriously flawed because they underestimate design basis earthquake ground motion." Professor Ishibashi states,

> …the guidelines should require that a nuclear power plant, no matter where it is located, should be designed to withstand at least the ground acceleration caused by an earthquake of about a 7.3 magnitude, roughly 1000 gal. In fact, however, the new guidelines require only about 450 gal. [6]

Professor Ishibasi warns,

> The most serious fact is that not only are the new design guidelines defective, but the system to enforce them is in shambles. Much of the blame for the underestimation of the active fault line near the Kashiwazaki-Kariwa plant rests with the shoddy examination of TEPCO's design for the plant that overlooked the problem. [6]

In an Asahi Shimbun column published on 16 September 2006, Professor Ishibashi pointed out that an active fault line had been overlooked in the process of designing the Shimane Nuclear Power Plant in Shimane Prefecture, a serious oversight in the safety inspection. Ishibashi states,

> But no action has been taken to address the problem, demonstrating the irresponsibility of the nuclear safety authorities. The expert who advised the power company and took part in the safety inspection—the person responsible for the underestimation of the fault line—is still in an important position on the panel of the Nuclear and Industrial Safety Agency. [6]

Japanese NGOs point out in their letter to IAEA Director General Mohamed ElBaradei dated 6 August 2007 that "any investigation undertaken by Tokyo Electric cannot be trusted. Any investigation it would undertake would lack any credibility whatsoever, especially to the concerned residents of this region." The letter states that,

> A thorough investigation should be undertaken by an independent entity to find out why the seismic dangers of this area were not taken into consideration by Tokyo Electric. There needs to be a very clear explanation as to why Tokyo Electric ignored the

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> arguments brought forward by local resident organizations and experts and why they sectionalized the fault lines and minimized their seismic potential.[3]

The letter points out,

> The Niigata Nippo (the newspaper of record in the region) also addresses the serious lack of information disclosure to the region's public, including interviews with residents who state, 'This is a long-standing problem with Tokyo Electric.'[3]

The NGO letter states than an "independent investigation needs to be undertaken to investigate why the Japanese government could not and did not address the erroneous judgments of Tokyo Electric" and request that,

> …before concluding a report on the post-earthquake safety-status of the Kashiwazaki-Kariwa nuclear power plant, the IAEA investigation team makes it a priority to investigate and report on the fundamental problems which caused this state of affairs, including an analysis into the causes of the lapses of judgment by TEPCO and the Japanese government in regard to the seismic survey, the design, and the approval for the plant.[3]

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In “Point of View”, Professor Ishibashi concludes,

> The (Japanese) Diet should take a good look into the government’s flawed nuclear safety policy along with the problems caused by the recent earthquake for a radical reform of the government approach to ensuring the safety of nuclear power plants. [6]

Niigata citizens and legislators continue their 34-year-old fight to not have a nuclear power plant operate in the seismically unsafe Kashiwazaki and Kariwa area.

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***The Group of Concerned Scientists and Engineers Calling for the Closure of the Kashiwazaki-Kariwa Nuclear Power Plant (KK Scientists)* issue a leaflet in Japanese titled, "We Demand that the Kashiwazaki-Kariwa Nuclear Power Plant be Closed."**
(24 February 2008) http://kkheisa.blog117.fc2.com/

In the leaflet the "KK Scientists" state:
"The Nuclear and Industrial Safety Agency (NISA) of the Ministry of Economy, Trade and Industry (METI) has established the 'Subcommittee for Investigation and Response to the Nuclear Facilities affected by Chuetsu-oki Earthquake'" chaired by Haruki Madarame a professor of Tokyo University, and ordered Tokyo Electric Power Company (TEPCO) to check equipment and carry out seismic response analysis. However, these investigations are clearly being carried out based on the premise that the plant will be restarted in the near future. It would therefore be difficult to call them objective scientific and technical investigations. In addition, the nuclear industry is trying to lend authority to these investigations being carried out by the government and TEPCO by holding an international symposium in February this year in Kashiwazaki City."

"As scientists and engineers, we believe that it is necessary to condemn and highlight the problems of this type of biased investigation, which is being carried out by the regulatory authorities and TEPCO without the participation of residents."

The "KK Scientists" key arguments elaborated in the leaflet:

- Kashiwazaki-Kariwa was never a suitable place to build a nuclear power plant.
- Sloppy safety assessments ignored a 30 km-long active submarine fault.
- This time was a miraculously lucky escape.
- The government is violating its own seismic design rules. The danger of another large earthquake remains.
- Important safety equipment may have been seriously damaged.
- TEPCO's equipment checks are not capable of identifying all the damage.
- TEPCO's seismic response analysis fails to identify the true situation.
- Struck by the double blow of aging and an earthquake, Kashiwazaki-Kariwa should not be restarted.

The Group of Concerned Scientists and Engineers Calling for the Closure of the Kashiwazaki-Kariwa Nuclear Power Plant (KK Scientists) was formed shortly after the Chuetsu-Oki Earthquake.[*1] It was started by four scientists/engineers who, on 21 August 2007, issued the appeal, "Call for Closure of Kashiwazaki-Kariwa Nuclear Power Plant". To date over 200 scientists and engineers have endorsed this appeal.

The "KK Scientists" are actively demanding that objective scientific and technical investigations be carried out "keeping in mind the possibility of permanent closure of the plant".

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Footnotes / Endnotes

[1] "Appeal: "Call for Closure of Kashiwazaki-Kariwa Nuclear Power Plant", Group of Concerned Scientists and Engineers Calling for the Closure of the Kashiwazaki-Kariwa Nuclear Power Plant, 21 August 2007. For Japanese text see: http://kkheisa.blog117.fc2.com/

[2] "We Demand that the Kashiwazaki-Kariwa Nuclear Power Plant be Closed", Japanese leaflet issued by "The Group of Concerned Scientists and Engineers Calling for the Closure of the Kashiwazaki-Kariwa Nuclear Power Plant (KK Scientists)", 24 February 2008. See: http://kkheisa.blog117.fc2.com/
Note that the English translation in this briefing is an informal translation by Green Action from the original Japanese leaflet.

[3] "Letter to the IAEA Concerning Earthquake Damage at the Kashiwazaki-Kariwa Nuclear Power Station", issued by Green Action (Kyoto), Citizens' Nuclear Information (Tokyo), and Greenpeace Japan, 6 August 2007.
PDF download: http://www.greenaction-japan.org/modules/wordpress0/index.php?p=51

[4] Statements made by the "Three Organizations Opposed to the Kashiwazaki-Kariwa Nuclear Power Plants" in meeting with Niigata Governor Izumida, to the media, and in petitions issues during July 2007 immediately after the Chuetsu-oki Earthquake.

[5] Resolution issued (in Japanese, " 'This Can't Be Right! Prefectural Citizens' Meeting and Rally" seeking permanent closure of the Kashiwazaki-Kariwa Nuclear Power Plant, Kashiwazaki City, Niigata Prefecture, 24 February 2008.

[6] Op-Ed, "Point of View": "Nuclear Plants at Grave Risk of Quake Damage", Katsuhiko Ishibashi, Asahi Shimbun (English: International Herald Tribune – Asahi) , 11 August 2007. Katsuhiko is professor of the Research Center for Urban Safety and Security at Kobe University. http://www.asahi.com/english/Herald-asahi/TKY200708110090.html

[7] "Inappropriate person chosen to lead investigation into the impact on the Kashiwazaki-Kariwa nuclear power plant of the Chuetsu Oki Earthquake", Citizens' Nuclear Information Center's protest letter to the Nuclear and Industrial Safety Agency, 31 July 2007.
http://cnic.jp/english/news/newsflash/2007/kkquake31jul07.html

[8] "The NSC view on, and future actions to take for, the impacts due to the Niigata-ken Chuetsu-oki Earthquake in 2007," Nuclear Safety Commission (Japan), 30 July 2007.
PDF download from "VI: Documents and Reports, 3. NSC Decisions:"
http://www.nsc.go.jp/english/english.htm

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Background concerning the Chuetsu-oki Earthquake and the Kashiwazaki-Kariwa Nuclear Power Plant:

At 10:13 am on 16 July 2007, the Chuetsu-oki Earthquake, a magnitude 6.8 earthquake, struck just off the coast of Niigata Prefecture on the Japan Sea side of Honshu, Japan's largest island. As a result of the quake, four reactors (Units 2, 3, 4 & 7) at Tokyo Electric Power Company's (TEPCO) Kashiwazaki-Kariwa nuclear power plant shut down automatically. At the time, Unit 2 was being started up after a periodic inspection, while the other three units (1, 5 & 6) were shut down undergoing periodic inspection.

Explanation of "S1" and "S2" and CLASS A Equipment:

(From CNIC document, footnote 7.)

1. Under Japan's old earthquake resistance guidelines, the design basis for nuclear power plants assumed a "maximum design earthquake" (S1) and an "extreme design earthquake" (S2), where S2 is greater than S1.

2. Equipment and facilities at nuclear power plants are divided into categories depending on their importance for nuclear safety. Class A equipment and facilities are considered to be most important.

3. Nuclear power plants are supposed to be designed so that deformation of safety important equipment and facilities caused by S1 strength shakes is elastic (i.e. they return to their original condition),where as deformation caused be S2 strength shakes may be plastic (i.e. while they might not return to their original condition, they are still able to contain radioactive material).

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