Synthesis/Regeneration

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We invite responses, submissions, letters, art work, comments, proposals for topic issues, and financial support. S/R can use help in electronic layout and proofreading.

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The Lesson of Fukushima

Nuclear Means Catastrophe

by Daniel Tanuro

We are once again faced with evidence that nuclear technology can never be 100% secure.

The risks are so frightening that the conclusion is obvious: it is imperative to abandon nuclear energy, and to do so as quickly as possible. This is the first lesson of the unfolding crisis at the Fukushima Daiichi nuclear power plant, one that raises absolutely fundamental social and political questions, requiring a real debate throughout society about an alternative to the capitalist model of infinite growth.

A dangerous technology

Windscale in 1957, Three Mile Island in 1979, Chernobyl in 1986, Tokai Mura in 2000 and now Fukushima. The list of accidents at nuclear power plants continues to grow. It simply could not be otherwise, and it is not necessary to be a doctor of nuclear physics to understand why.

...it is imperative to abandon nuclear energy, and to do so as quickly as possible.

A nuclear plant works in a similar way to a kettle, with the element in a kettle corresponding to the fuel rods in a nuclear plant. If there is no water in the kettle and the elements heat up, there is a problem, and in much the same way the central fuel rods must be continuously submerged in water. The steam produced by the resulting boiling water turns the turbines that generate electricity. The plant consumes large quantities of water, the circulation of which is ensured by pumps.

If the pumps fail, the water runs out and the overheated rods start to deteriorate. If water is not added quickly, the heat produced by the reaction is such that the rods melt and

...the central fuel rods must be continuously submerged in water

fall to the bottom of the tank (which corresponds to the chamber of a kettle). This tank is in turn enclosed in a double ring of security. We all recognize the outer silhouette of the reactor. If this does not withstand the intense heat of molten rods and cracks, radioactivity is released into the environment, with fatal consequences.

A fragile technology

The reaction that occurs in a power plant is a chain reaction: uranium nuclei are bombarded with neutrons, and when it absorbs a neutron, a uranium nucleus splits in two and releases a large amount of energy (nuclear fission) while also releasing more neutrons, and each of these can cause the fission of another uranium nucleus. (cont. p. 19)