

Fukushima and Chernobyl: The Hubris of the Technocrats

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Chernobyl and Fukushima: Technical Factors

Chernobyl

- Positive Void Coefficient
- Reactor instability at low power levels
- Control rod design

Fukushima

- Flooding of safety equipment
- Loss of on-site and off-site power
- Loss of heat sink

Chernobyl and Fukushima: Human Factors

Chernobyl

- *Weaknesses in plant design were ignored*
- ‘Safety culture’ deficiencies, operation procedures
- Improvisation of operators in testing program

Fukushima

- *Weaknesses in plant design were ignored*
- Lack of preparation for accident management

Technocratic Hubris

THIS WAS A 'ROOT CAUSE' OF BOTH ACCIDENTS

- Chernobyl: Reactor operators recklessly improvised a turbine experiment; critics of RBMK design in Soviet nuclear system were overruled by academicians who claimed design met international standards
- Fukushima: 'Nuclear community' downplayed outsiders' warnings of tsunami threat; owners and regulators *never believed a severe accident could happen*

The Aftermath

- Japan: Population ‘betrayed’ by Japan’s technocratic elites, translates into severe pressure to end nuclear power generation
- Germany: Accident exposes political leadership’s lack of confidence in nuclear community; leaders quickly and negatively reassesses political risk of nuclear power
- Newcomers: Technocrats in charge of nuclear programs confronted by non-empowered/ignored constituencies

The Challenge

'INDEPENDENT REGULATORS' WILL NOT SUFFICE

- Engage civil society and politicians in formulation of nuclear energy policy
- Create transparency in both process and substance
- Nuclear community must explain residual risk
- Public will demand evidence that accident management will cope with residual risk
- Nuclear community must search for good practices to identify and combat ingrown technological arrogance

Two Warnings

- Chernobyl: 1986 accident was a prime ingredient in cocktail including perestroika and glasnost which challenged and brought down the USSR
- Fukushima: Japanese 'nuclear community' today is once again counting on lifestyle inertia and economics to wear down domestic opponents and critics