

## Safety of nuclear plant not guaranteed

Written by Lai Cheng-i 賴成毅

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The Ministry of economic Affairs announced on Wednesday that Reactor No. 1 of the Fourth Nuclear Power Plant in New Taipei City's Gongliao District (公寮), also known as the Longmen (龍門) Nuclear Power Plant, had passed safety inspections and tests. Minister of Economic Affairs Chang Chia-juch (張家祝) and members of the ministry's safety evaluation group said that they would feel quite confident about the plant should it go into operation.

However, assessments of a nuclear plant's safety should take into account its entire life cycle.

A plant that is up to standard before it starts operating provides no guarantees to assuage people's worries about the plant's safety once in operation, not to mention the disposal of spent fuel from the plant when it is eventually decommissioned.

Is the Longmen plant really safe?

Apart from risks arising from deliberate or accidental human actions, any qualified civil engineer has full confidence in the safety of a nuclear power plant or waste disposal facility that they have designed based upon the conditions and safety factors on which the engineer relied during production. There is plenty of data to show that the natural and social conditions of today will change in time, and Taiwan is an especially changeable environment.

Natural threats like typhoons, earthquakes and landslides, as well as human factors such as overdevelopment, make Taiwan's steep and mountainous terrain very unstable. Also, in recent years the greenhouse effect has had a noticeable impact in the form of climate change. Super-powerful typhoons and super-heavy rainstorms can cause sudden changes in the surface terrain, and they also bring about gradual changes in the subterranean geological and hydrological environment.

When the environment in which nuclear power stations or fuel disposal facilities are located changes to the extent that it no longer matches the conditions under which the structures were originally designed, they will no longer comply with safety factors, creating a high risk of nuclear disasters.

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Experience teaches that nothing is absolutely safe and no environment will remain unchanged forever. No technology is completely fail-safe and everyone makes mistakes. If weather experts are still unable to precisely predict the track that a typhoon will follow, what guarantee can nuclear power experts give for safety in an industry that involves very long-term, complex and changeable factors?

All worldwide nuclear accidents have fallen outside experts' predictions. Luckily for Taiwan, it has thus far not suffered a destructive or deadly nuclear accident, but government officials and nuclear experts cannot deny or overlook the possibility of such an accident occurring in the future.

Safety evaluation group members who took part in the recent inspection emphasize that nuclear safety is a very specialized, complex and rigorous field. What they should admit, however, is that an assessment of the safety of a nuclear power plant throughout its life cycle goes beyond expertise and complexity. It is difficult, indeed impossible, to account for every eventuality.

Thousands of Taiwanese school students are suffering the consequences of education reforms that were not planned with sufficient thought, but at least those mistakes can be rectified. However, when it comes to nuclear power, it can never be guaranteed to be 100 percent safe, and if anything goes wrong it could wreck the lives of millions of people for countless generations. How can we gamble away people's lives and livelihoods just to save a few dollars on our monthly electricity bills?

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Translated by Julian Clegg

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