

# Nuclear Disaster in Taiwan: An Ignored Factor in the US-China Relationship

Written by Shang-su Wu

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SHANG-SU WU, SEP 4 2012

A nuclear power plant catastrophe in Taiwan has the potential to impact the status quo in the balance of power between the US and China. The environmental, economic and social effects of the serious disasters such as Chernobyl and Fukushima are well known, but the political effects of a similar accident in Taiwan have not been sufficiently examined. Since the start of the Cold War, Taiwan, an international hot spot due to its strategic location and uncertain sovereignty, has presented important issues in East Asia, especially within the US-China relationship. The unusual regime in Taiwan, formally named the Republic of China (ROC), has worked as a buffer zone between the US and China.

The ROC regime's title and history acts as a symbol for nationalism and potential expansion to Beijing, whilst the Taiwan Relations Act (TRA) and various other measures offer Washington considerable influence. In addition to several events which shaped the situation, the basic framework for trilateral relations between Taipei, Beijing and Washington has endured since 1950, more than 60 years.[1] However, the current status quo could be severely challenged in the event of a serious accident at either one of the nuclear power plants near Taiwan's capital, Taipei, due to the fact that the ROC regime is unprepared for such an event and thus incapable of coping with such a disaster. This article will examine the connection between the risk of nuclear power plant failure in Taiwan and its potential influence on the political situation in East Asia.

### Nuclear Peril

Any major incident at any nuclear power plant in Taiwan could quite possibly paralyse the ROC regime and lead to its downfall. The first nuclear power plant was introduced in Taiwan in 1972 with two subsequent power plants containing four reactors built along the northern coast, only 18 miles from Taipei. Another plant is currently under construction.[2] Despite a series of ridges no higher than 1200m above sea level separating urban areas from reactors, the chance of any radiation release reaching Taipei is not insignificant, especially during winter when seasonal northeast winds prevail.[3] Furthermore, economic development in Taiwan has been highly concentrated in northern regions, particularly surrounding Taipei, placing more than five million people living in the potential impact area.[4] The ROC regime thus faces a dilemma in risk management. On the one hand, if the government takes its lessons from well-known incidents such as Chernobyl to prepare for nuclear disasters, a large-scale risk management plan would be required. However, such a plan is unlikely to be put in place, because it could lead to the further weakening of public confidence in nuclear power plants. In addition, this could attract further criticism from the anti-nuclear movement.

On the other hand, without comprehensive plans for a nuclear emergency being put into place, in addition to the implementation of large-scale emergency exercises in the affected zones, an actual nuclear event would be likely to end in chaos, causing extensive and irreparable damage. The ROC regime has left itself exposed by taking a risky approach in holding very limited emergency exercises and playing down potential nuclear threats. After the Fukushima disaster in Japan, however, the exercises were slightly expanded. All existing emergency exercises are limited to a radius of 10km. No official documentation covering a more extensive area is available at present.[5] The general inadequacy of safety measures was brought to light in media reports on defects that began to appear in the

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reactors.

In 2012, cracked anchor bolts found in the first reactor in the second nuclear power plant close to Taipei demonstrated the clear possibility of a nuclear hazard. In order to secure the bottom of the reactor to the concrete substrate, the anchor bolts in nuclear reactors cannot be defective, making this case in Taiwan unprecedented. In the case of higher levels of vibration such as with an earthquake, damaged anchor bolts may throw the reactor off imbalance or even dislodge it altogether.

In addition to the anchor bolts, cracks up to 30cm in length were found in the core shroud of the reactor, indicating significant problems in the foundation of the reactors. However, in June of this year, the owner of the power plants, the Taiwan Power Company, was eventually granted governmental permission to resume operation after replacing the damaged parts. This was, however, without adequate investigation into the causes of the damage or further potential risk.[6] Furthermore, since the very beginning of the operation of the nuclear power plants in Taiwan, highly radioactive spent fuel rods have been stored in the chambers close to the reactors. This presents the added risk of serious contamination in case of a nuclear accident.[7] This indicates that both the extent of a nuclear accident in northern Taiwan could be much greater than in other countries.

Taiwan also presents specific conditions that would exacerbate the effects of a potential nuclear disaster in comparison to other countries. These include the geographic conditions, the limited response capabilities and the country's sovereignty issues. Within a narrow territory of 36,000 square kilometres and with a population of 23 million, withdrawal and relocation of evacuees in addition to other measures needed after a nuclear disaster would be extremely expensive and unmanageable. These costs would be even higher because of the concentration of government and private enterprises in or near the impacted areas. Since 1949, when the ROC regime placed itself in exile in Taiwan, most governmental departments, infrastructure and headquarters of major companies became concentrated in Taipei and adjacent areas.[8]

According to the conditions mentioned above, a nuclear incident such as the one in Fukushima, which affected a zone 30km from the plant, would, in northern Taiwan, involve the forced evacuation of millions of people from Taipei and adjacent areas.[9] This certainly includes most governmental departments and private companies. The experience of Chernobyl, where moving around 300,000 evacuees mainly into Ukraine presented major challenges, sheds new light on the situation in Taiwan. Here, in contrast to the Soviet Union, several million would be affected in a country with tiny territory.[10] The unprecedented scale of such an incident is compounded by the government's inadequate preparation for it, the panic that would ensue and the potential chaos that could easily lead to political and economic collapse. Without an efficient plan, including timely alerts for evacuation, the issue of contamination would further compound any disaster management plans.

In the face of such an extreme challenge, Taiwan's response capabilities are severely limited. Apart from the restricted capacities of the Taiwan Power Company and the related governmental departments, the three chemical, biological, radiological and nuclear (CBRN) groups of the ROC army would be the final reserve for all emergency contingencies.[11] Each group is comprised of three battalions, one of which has no professional training in nuclear accident responses, while the remaining two are responsible only for nuclear reconnaissance and aid deployment. Hence, the Taiwanese military capacity for dealing with nuclear accident is insufficient to decontaminate large areas unlike those implemented by Soviet armed forces in the aftermath of Chernobyl.[12]

Moreover, the already-small number of 2000 soldiers in the three CBRN groups was reduced by 20% in 2011.[13] During the Chernobyl and Fukushima incidents, Soviet and Japanese armed forces played an important role when the civil sectors were unable to contribute. It is highly unlikely that the ROC regime's armed forces would be able to serve the same function. Overall, it is quite possible that Taiwan's geographically-confined territory, its economic and political concentration in a small space, and inadequate governmental disaster planning would leave Taiwan incapable of resolving the crisis on its own, forcing it to call on external assistance.

## **The Tricky Sovereignty of Taiwan**

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The uncertain sovereignty of Taiwan would present a particularly difficult issue in the event of a nuclear accident. The occurrence of a disaster under normal sovereignty conditions does not present a problem. However, various potential explanations of Taiwan's sovereignty are likely to act as an obstruction to a comprehensive response in the international community. For China, Taiwan is seen as part of its sovereign territory but temporarily recognised as a rebellious province occupied by the ROC regime.[14] The ROC regime asserts that it took over the sovereignty of Taiwan from Japan after the Second World War. Although this regime lost most of its Chinese territory, it still maintains effective control over Taiwan, with the possibility of future unification with China.

For the US, the sovereignty of Taiwan has remained opaque. Irrespective of the establishment of any formal relations between Washington and Taipei, no definitive official statement has been made. However, the US has intervened in various crises in the Taiwan Strait by providing Taiwan with assistance in order to balance threats from China.[15] In brief, China has declared a clear intention to annex Taiwan, and the US also has its own preference on Taiwan's situation.

The survival level of the ROC regime will be a crucial factor in a post-accident situation. Assuming that the regime were to maintain basic governance, Taiwan could still provide a buffer zone, but its ailing economy and potential inability to decontaminate its territory in the event of nuclear disaster leave a space for China and the US to compete for influence over Taiwan. Given that the ROC regime is likely to lose its substantial control, leading in a worst-case scenario to a failed state, China and the US would be able to expand their power more freely in the ensuing political vacuum.

In a US-China confrontation, outcomes in Taiwan after a nuclear accident have two major implications, firstly on sovereignty and secondly on substantial control.

In terms of sovereignty, the resolutions or other responses of the major international organisations such as the International Atomic Energy Agency (IAEA) would be meaningful. A definition of the status of Taiwan set down in any such resolutions could provide powerful influence on sovereignty. Thus, these international organisations could become a metaphorical battlefield, on which the US and China fight it out.

Apart from the matter of sovereignty, China and the US might succeed in unilaterally projecting their power over Taiwan, thus providing them with the potential to gain substantial control, in a balance of power process. For Beijing, substantial control over Taiwan could represent a precursor to annexing Taiwan based on its sovereign claim. The purpose of US substantial control could be to prevent China's expansion and to provide humanitarian relief. However, this might require Washington to reveal its attitude on Taiwan's sovereignty.

A similar scenario took place during Typhoon Morakot, when the US projected its military capability to Taiwan, whereas China in fact took no such action. It must be noted, however, that a nuclear situation is more complicated than that of a natural disaster. Involvement in a nuclear accident would be both extensive and expensive. Furthermore, the fluctuating balance of power between Washington and Beijing would be a decisive factor in the event of an open seizure of control by either power.

In conclusion, the extensive consequences of a potential nuclear accident in Taiwan would significantly affect US-China relations. It is advisable, however, that further examination of all relevant scenarios be conducted in order to provide an effective and comprehensive analysis of the potential effects of such an incident in Taiwan.

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[1] Right after the outbreak of the Korean War, the seventh fleet of the US Navy was assigned to

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patrol the Taiwan Strait, thus establishing the basic framework for the political situation in Taiwan. David Shambaugh, "Taiwan's Security: Maintaining Deterrence amid Political Accountability", *The China Quarterly*, No. 148, Special Issue: Contemporary Taiwan (Dec., 1996), p. 1284.

[2] "Nuclear Power in Taiwan", World Nuclear Association ([http://www.world-nuclear.org/info/inf115\\_taiwan.html](http://www.world-nuclear.org/info/inf115_taiwan.html); accessed 20120801).

[3] "Origins", 'Park Resource', Yangmingshan National Park ([http://english.ymsnp.gov.tw/index.php?option=com\\_content&view=article&id=516&gp=0&Itemid=581](http://english.ymsnp.gov.tw/index.php?option=com_content&view=article&id=516&gp=0&Itemid=581); accessed 20120801); "The Climate of Taiwan", Geography of Taiwan (<http://twgeog.geo.ntnu.edu.tw/english/climatology/climatology.htm>; accessed 20120801).

[4] Andrew Jacobs, "Vote Holds Fate of Nuclear Power in Taiwan", *the New York Times*, January 12, 2012 ([http://www.nytimes.com/2012/01/13/world/asia/nuclear-power-emerges-as-election-issue-in-taiwan.html?\\_r=2](http://www.nytimes.com/2012/01/13/world/asia/nuclear-power-emerges-as-election-issue-in-taiwan.html?_r=2); accessed 20120801).

[5] The zone of the exercise in 2011 was expanded from 5km to a 10km radius, for which only 1600 people were mobilised to attend. However, compared to the reality of a situation like Fukushima, both the range and number of people involved are insufficient. The Atomic Energy Council, *The 17th Taiwan Nuclear Emergency Exercise* (Taipei: The Atomic Energy Council, 2011), pp. 14-15.

[6] Chris Wang, "DPP Slams AEC's Nuclear-Power-for-Project Decision", *Taipei Times*, July 5, 2012 (<http://ns2.taipeitimes.net/News/taiwan/print/2012/07/05/2003537016>; accessed 20120802); Lucas W Hixson, "Taipower facing more questioning after damaged reactor anchor bolts revealed at Guosheng Nuclear Power Plant", *Enformable Nuclear News*, April 18, 2012 (<http://enformable.com/2012/04/taipower-facing-more-questioning-after-damaged-reactor-anchor-bolts-revealed-at-guosheng-nuclear-power-plant/>; accessed 20120817); Lee I-chia, "Groups Warn on Cracks in Nuclear Reactor", *Taipei Times*, June 19, 2012 (<http://www.taipeitimes.com/News/taiwan/archives/2012/06/19/2003535744/1>; accessed 20120817).

[7] "Spent Fuel Management", Atomic Energy Council (<http://www.aec.gov.tw/www/english/index.html>; accessed 20120802).

[8] Jeffery Hou, "From Dual Disparities to Dual Squeeze: the Emerging Patterns of Regional Development in Taiwan", *Berkeley Planning Journal*, No. 14 (2000), pp. 5-7, 13.

[9] The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission, *the Official Report of Fukushima Nuclear Accident Independent Investigation Commission* (Tokyo: The National Diet of Japan, 2012), pp. 38-39.

[10] A number of evacuees were moved to Belarus and Russia as well. R F Mould,

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*Chernobyl Record: the Definitive History of the Chernobyl Catastrophe* (London: Institute of Physics Publishing, 2000), pp. 103-104, 110-111.

[11] The International Institute for Strategic Studies (IISS), *Military Balance*, Vol. 112, Issue 1 (2012), p. 283.

[12] The decontamination was difficult for the Soviet Union, through it had large scale of CBRN units for nuclear warfare. R F Mould, *Chernobyl Record: the Definitive History of the Chernobyl Catastrophe*, pp. 193-197.

[13] Hsu Hsiao-hsuan and Chen Hui-ping, “Japan Disaster: Army Cuts Could Weak Disaster Response: Critics”, *Taipei Times*, March 19, 2011 (<http://www.taipetimes.com/News/taiwan/archives/2011/03/19/2003498574>; accessed 20120802); Vincent Y. Chao, “Ma Lacks Gear To Protect Against Nuclear Fallout”, *Taipei Times*, March 22, 2011 (<http://www.taipetimes.com/News/front/archives/2011/03/22/2003498787>; accessed 20120802).

[14] “The One China Principle and the Taiwan Issue”, Taiwan Affairs Office of the State Council PRC ([http://www.gwytb.gov.cn/en/Special/WhitePapers/201103/t20110316\\_1789217.htm](http://www.gwytb.gov.cn/en/Special/WhitePapers/201103/t20110316_1789217.htm); accessed 20120802).

[15] Shirley A. Kan, *China/Taiwan: Evolution of the “One China” Policy—Key Statements from Washington, Beijing, and Taipei* (Washington D.C.: Congressional Research Service, 2012), pp. 7-9, 54.