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Taipei's Capabilities and Intentions Regarding Nuclear Weapons Development

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TAIPEI'S CAPABILITIES AND INTENTIONS REGARDING NUCLEAR WEAPONS DEVELOPMENT

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NOTE

[redacted]

THE ESTIMATE

BACKGROUND

1. Late in the 1960s, the Government of the Republic of China (GRC) initiated an ambitious program for the procurement and operation of nuclear power facilities on Taiwan. Foreign sources have extended over half a billion dollars in loans and guarantees for this power program, and two reactors are now under construction on the island.

2. The evidence suggests that the generation of electric power is not the only serious interest that the GRC has in the nuclear field. Most of this evidence involves activities at the Chung-shan Science Institute (CSSI), established by order of Chiang Kai-shek shortly after the People's Republic of China (PRC) detonated its first nuclear device in October 1964.

I. ACTIVITIES AT THE CHUNG-SHAN SCIENCE INSTITUTE

3. [redacted] the Institute's charter called for military research in nuclear, electronics, chemical, and missile areas. The Institute is funded largely by the military, but there are ties to the government's Committee for Science Development, to its Atomic Energy Council, and to Tsing-hua University. From the beginning, there has been a careful effort at CSSI to maintain security and secrecy, to the degree that our information on activities there is far from complete. [redacted] experimental projects at the Institute have applications to a nuclear weapons program.

4. In 1969, the GRC signed an agreement with the Canadian Government for the purchase of a 40 megawatt (MW) research reactor. This Taiwan Research Reactor was placed under the control of the CSSI where its installation is nearly complete, and it should become operational in early 1973. Similar in design to the CIRUS reactor supplied earlier to India, it is heavy water-moderated and fueled with natural uranium.

5. The significance of a heavy water reactor is, of course, its particular suitability for the production of plutonium, using natural uranium as the fuel. As a result, and in view of the other evidence available, we interpret the GRC's procurement of this CIRUS-type

reactor as an indication that its interests extend beyond nuclear power and other peaceful-use applications.

6. The Taiwan Research Reactor can probably produce about 10 kilograms of plutonium a year once it becomes operational. The reactor is still nominally subject to safeguard inspections by the International Atomic Energy Agency (IAEA), an agency of the UN. But the future of such inspections is in doubt because Peking has already demanded that the IAEA sever all ties to Taiwan,* and the Canadians do not have a bilateral safeguards agreement with the GRC to serve as a fallback. Since Canada no longer officially recognizes the GRC, the chances that a bilateral safeguards agreement will be negotiated are essentially nil. Thus, assuming that unsafeguarded supplies of natural uranium and heavy water can be purchased from foreign sources, the GRC may be able to operate this reactor entirely free of safeguard restrictions.

7. The GRC has purchased sufficient fuel from Canada to operate the reactor for peaceful research purposes for about four years. It has also received some 12 tons of natural uranium (or the equivalent in uranium concentrate) from South Africa, which would provide fuel for another year or so. If the reactor were operated for the production of weapons-grade plutonium, the fuel presently available would last only for about 18 months. But it seems likely that the GRC will have access to additional supplies of natural uranium—either safeguarded or unsafeguarded—particularly so long as it does not actually detonate a nuclear device. The GRC could even build its own plants to process uranium ore, thus avoiding all problems of safeguards on uranium metal. The same judgments apply to the heavy water needed to moderate the reactor.

8. To extract the plutonium from the irradiated fuel of its research reactor, the GRC would need a chemical separation plant. Taipei will probably not encounter great difficulty in purchasing, without safeguard restrictions, the necessary facilities and technology from foreign sources to build at least a small plant. Chemical separation plants are normal components of any nuclear power program, and the technology is openly available. Negotiations between the GRC and a French firm for such a plant are in an advanced stage. If these are not successful, other possibilities include West Germany, Belgium and the UK.

9. *Timing.* Assuming the GRC is bent on fabricating a nuclear device, it is still some years away from the attainment of this objective. While the Canadian-built 40 MW reactor will be producing plutonium next year, it may require as long as three or four years to build a plant that can successfully extract the plutonium from the spent fuel of the reactor. Assuming that design work on a nuclear device proceeds during construction of the chemical separation plant, it might be possible for the GRC to fabricate a nuclear device as early as 1976. Testing and weaponization could require another two or three years. Thus, we see little prospect that the GRC could achieve a weaponized nuclear device earlier than 1978. Foreign technical assistance might facilitate the achievement of results on the illustrative timetable outlined above, but there seems to be practically no chance that the GRC could get the kind of restricted information that would be necessary to compress this timetable. Indeed, these dates are quite optimistic considering all the problems that remain to be solved.

*We note that IAEA did make an inspection of this reactor in October 1972 and that IAEA has made a unique arrangement to provide for inspections in another non-member state, East Germany.

10. *Size of the Program.* Taiwan is now in the process of negotiating for additional power reactors. It appears that military authorities have been applying pressure on Taiwan's commercial power company to procure reactors which are optimal for the production of plutonium from natural uranium. These pressures appear not to have prevailed in the case of negotiations for the purchase of Taiwan's third and fourth power reactors during this past year. There are plans for procurement of two more reactors; if the decision once more goes against the heavy water type, it would suggest that the GRC is interested at most in a small weapons program; i.e., about two weapons a year based on the output of the Taiwan Research Reactor.

11. *Delivery Capabilities.* At this stage, there is no evidence of GRC efforts to develop a nuclear delivery system which would pose a credible threat to mainland targets. The GRC has purchased a short-range, surface-to-surface missile (the Israeli Gabriel Mark II), but this program would have little application to the development of a strategic missile. Jet fighter-bombers on Taiwan could reach the mainland with bombs weighing up to 2,000 pounds, but it is uncertain that the GRC could achieve a weapon this small in the early stages of a weapons program. Payload constraints might also rule out arming the NIKEs on Taiwan with nuclear warheads for use as a surface-to-surface weapon against invasion forces in the Taiwan Strait. (This missile has a surface range of about 110 miles with a 1,000-pound warhead.) There are a few Boeing 707s and 727s in commercial use on Taiwan which might conceivably be used to deliver nuclear weapons. These aircraft would naturally be vulnerable to the PRC's air defense system.

II. INTENTIONS

12. We have no reliable information on the military and political calculations behind the GRC's activities in the nuclear field. What we do know points to a relatively ambitious nuclear power program and a smaller effort to develop a capability to design and produce nuclear weapons. There is no evidence that Taipei has a firm scenario on how to use such a nuclear weapons option, assuming it can be developed. We can only speculate about how Taipei expects to use any such capability.

13. *What Taipei May Hope to Achieve.* Chiang Kai-shek's initial reaction to the PRC's nuclear test in 1964 may have been only an expression of his determination not to be left behind by Peking's technological achievement. He may also have felt an urgent need to counter the new potential for nuclear blackmail from Peking. Perhaps he also felt a need to demonstrate—if only for his military leaders—a determination to resist the communists independently if necessary.

14. Certainly, in the eight years since the Gimo made his decision, Taipei's concern over standing alone has grown. While the nuclear umbrella of the US is still implied by the Mutual Defense Treaty, some on Taiwan may be questioning how long they can count on all-out US support. In this perspective, a nuclear weapons option may be seen by the GRC as one of the few feasible deterrents to communist attack in an uncertain future.

15. It seems doubtful, however, that Taipei has worked out any detailed plan on how such an option might be exercised. More likely, Chiang Kai-shek's initial stimulus has probably gathered momentum as the military-scientific bureaucracy expanded to meet his request, and it is unlikely anyone would sug-

gest cutting back what now looks like a feasible enterprise. Moreover, the cost for the kind of modest program now underway is readily manageable.

16. *Arguments Against Fabricating and Testing Nuclear Weapons.* While we know of no opposition within the GRC to developing a capability for producing nuclear weapons, we believe there is an awareness in Taipei of the risks involved in moving on to actual tests, which could not be concealed from world-wide attention. This attitude is indicated in part by the GRC's continuing care to preserve secrecy, in the first instance to deny information to the PRC. Taipei can not help being concerned over Peking's reactions to a weapons test. In its propaganda, Peking would no doubt treat such evidence of a nuclear weapons capability on Taiwan as a threat to peace, not only in East Asia but in global terms. The GRC's eviction from the UN has reduced its opportunities to answer any such charges effectively, or to muster any substantial support from its few remaining friends. It could anticipate further alienation from them, a particularly serious development in the case of Japan.

17. Taipei's secrecy is also rooted in concern regarding US reactions. Almost certainly there is fear that exercising a nuclear weapons option might endanger the further support of the US. Taiwan's security is so heavily dependent on the continued adherence of the US to the Mutual Defense Treaty, that any move on Taipei's part which might imperil that relationship would not likely be taken without long and careful study.

18. Moreover, before Taipei actually decided to test a nuclear device it would have to consider the almost certain consequence that disclosure of this fact would lead to world-wide pressure to cut off fuel supplies and technical support for its nuclear power program which, the GRC is acutely aware, cannot be pursued with its own resources.

19. Perhaps most important, Taipei would have to consider whether the existence of a small number of nuclear weapons would really serve to deter Peking, rather than provoke it to action. Moreover, the GRC can be under no illusions about the cost of developing an effective delivery system for nuclear weapons. It clearly lacks the resources to compete with Peking in the area of nuclear weapons.

III. CONCLUSIONS

20. We estimate that the GRC will continue to work toward the capability to design and produce nuclear weapons. At this point, Taipei may see such a capability as a potentially useful hedge for the unknown exigencies of the future, when Taiwan may be alone and facing great risks. We believe, however, that Taipei will take pains to conceal its intentions, and will cover activities which are necessarily overt by associating them with research in the generation of nuclear power for peaceful uses.

21. We believe Taipei's present intention is to develop the capability to fabricate and test a nuclear device. This capability could be attained by 1976; two or three years later is a more likely timeframe. The GRC is likely to establish this foundation in order to be able to proceed with the fabrication and stockpiling of nuclear weapons should that seem advisable. In particular, further decisions would depend on such considerations as the state of relations with the US, the posture of the PRC, and conditions on Taiwan itself. So far, Taipei's prudent and cautious response to its series of international upsets over the past few years suggests no intent to risk provoking Peking or alienating the US and Japan. Thus, from our present perspective, Taipei does seem determined to keep its weapons option open, but we would doubt that a decision would be made to proceed with testing or with the fabrication and stockpiling of untested devices.

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