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To : The Secretary
Through: S/S
From : INR - Thomas L. Hughes

Subject: Republic of China's Interest in Nuclear Energy and Weapons

Recent intelligence reports indicate that the Republic of China is studying the feasibility of future nuclear weapons manufacture, apparently in connection with its plan to construct a nuclear power plant by 1970-1972. This paper assesses the prospects for such a project.

ABSTRACT

The Republic of China, a signatory of the Nuclear Test Ban Treaty, recognizes that it is not politically practical to launch a serious weapons program at the present time; in any event Taiwan now does not have the resources or the facilities to produce nuclear weapons. It is unlikely to be able to procure unsafeguarded uranium, reactors, and related equipment for some years to come.

However, following the first nuclear explosion by the Chinese Communists in October 1964, President Chiang reportedly ordered a study of the feasibility of nuclear development. This study has been conducted in conjunction with plans to construct a nuclear power station in Taiwan. Reactors and related equipment for that plant would be made available only with IAEA safeguards against utilization for military purposes. The government appears to have in mind a situation some years hence when, for example, efforts to halt the proliferation of nuclear

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weapons had failed and several other Asian powers had acquired such arms. The Republic of China would then want to be in a position to develop similar weapons in as short a time as possible. The government therefore may attempt to expand its nuclear research including perhaps small-scale weapons-research and to have a nuclear power program adaptable to a contingent military use.

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A Start on Nuclear Research

The Republic of China has carried out a nuclear research program since 1955. An Atoms for Peace Agreement concluded that year with the United States provided a one megawatt open-pool reactor, designed by General Electric and subsequently constructed near Taipei at the Institute of Nuclear Research within National Tsing Hua University. The announced purpose of this Institute was to provide opportunities for research and study and to promote the use of atomic energy for the economic development of Taiwan. On October 29, 1965 a trilateral agreement came into force whereby the Republic of China agreed with the U.S. to turn over to the International Atomic Energy Agency (IAEA) responsibility for applying safeguards which would insure that equipment at the Institute would be used for peaceful purposes only.

Nuclear Power and Early Prospect

The Chinese Ministry of Economic Affairs and the Taiwan Power Company (which operates under the aegis of the Ministry) have been increasingly interested in the construction of a nuclear power plant. Electric power requirements have increased at a rate of 14.1 percent annually over the past twelve years, and even with completion of the power projects now scheduled or under way the supply will again be insufficient after 1968. It is argued that, although a nuclear power plant would require higher initial investment than a thermal or hydro plant, the power-unit generation cost for Taiwan would be lower than hydro power; moreover, recoverable coal deposits will be depleted within about thirty years. In addition to economic considerations, the government would expect to benefit politically from the early development of a nuclear power plant, particularly if this could be accomplished ahead of the Chinese Communists.

For these reasons the Taiwan Power Company is now actively planning a nuclear power plant. In September 1965, Company President L.K. Chen began preliminary negotiations with the IBRD for a loan of \$30 million as the foreign exchange component of a \$50 million, 300 mw pressurized water reactor to be located in Southern Taiwan. According to both Chen and S.Y. Dao, Secretary General of the Commission for International Economic Development (CIECD), the IBRD was interested in the project, and a consulting engineering firm has been hired to make a specific study.

An American scientist who visited the Chinese Atomic Energy Council in Taiwan during the spring of 1965 was told by Chinese scientists that they expected to have their first power reactor by 1972 and that they would add a similar reactor every two years thereafter for an indefinite period. The Chinese reportedly felt that Taiwan might eventually require its own fuel reprocessing plant and that training classes should be initiated at once to provide a fund of knowledge in this field.

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Interest in Weapons

Despite, forewarning, the first Chinese Communist nuclear explosion in 1964 apparently came as a shock to President Chiang Kai-shek. Shortly thereafter, Chiang appointed as Vice Minister of National Defense for Research and Development General T'ang Chun-po, a member of the Chinese Atomic Energy Commission, whose military field was logistics and ordnance. Chiang also ordered the formation of the Chung Shan Institute of Science, to be headed by T'ang, reportedly to investigate the feasibility and advisability of research and development leading to the manufacture of nuclear weapons in Taiwan. The Institute is said to be divided into three sections: nuclear engineering, electronics, and missiles.

General T'ang, Defense Minister Chiang Ching-kuo, Dr. Wang Shih-Chieh, President of the Academia Sinica, and others reportedly were asked to serve on a special committee, apparently connected with the Chung Shan Institute, and to report their findings to the President. According to a reliable source, differences of opinion developed as to the feasibility of weapons production. However, in the summer of 1965 President Chiang accepted the argument that it would be futile for Taiwan to try to enter the "atomic club" in view of its lack of resources, and that the country should for the present concentrate its efforts on the development of nuclear energy for peaceful purposes.

At the same time several overseas Chinese nuclear scientists visited Taiwan where they were received by the President and Chiang Ching-kuo; reportedly only the question of nuclear energy for peaceful purposes was discussed.

Between June 21 and July 20, 1965 General T'ang and another reported member of the Chung Shan Institute, made a special trip to the United States, Canada, and West Germany, in order to "familiarize themselves with various phases of the peaceful uses of atomic energy." Upon his return to Taiwan, T'ang reportedly stated that the Chung Shan Institute would negotiate with General Electric of Canada for procurement of a 50 megawatt-heavy-water moderated and cooled reactor. The reactor in which T'ang showed interest while in Canada is designed for electric power generation. Recent reports indicate that a US or perhaps a West German reactor is now favored. In any case, IAEA safeguards would apply.

Future Try for Atomic Club Entry Contingent on World Developments

Studies of the feasibility of manufacturing nuclear weapons appear to be long-range, directed ten or more years into the future. Although there are a number of US educated Nationalist Chinese scientists with a high degree of competence in the nuclear field, Taiwan is unlikely to have the facilities to manufacture a nuclear weapon or the unsafeguarded uranium to support even a token weapons program, in less than a decade.

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Nationalist officials are aware that any nuclear reactor, components, or fuel they are able to obtain for nuclear power purposes would be placed under strict IAEA controls, similar to those applied to its present research reactor, to prevent diversion to military purposes. In addition, the Republic of China in the fall of 1963 signed the Nuclear Test Ban Treaty. Although a small nuclear weapons research program could be carried out covertly in the laboratory, no nuclear test program could be undertaken without the early knowledge of at least the United States. Development of a delivery system would also pose immense problems. What the government appears to be thinking of is the possibility of profound changes in the international scene which might make both feasible and desirable a nuclear weapons program of its own. If, for example, the effort to halt the proliferation of nuclear weapons should fail and several other Asian powers should acquire such weapons, the Republic of China would want to be in a position to develop a nuclear capability in as short a time as possible. With this in mind, President Chiang may try to have a nuclear power program which is most adaptable to the production of plutonium for weapons production.

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