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E.O. 11652: GDS  
TAGS: TECH, MNUC, TW  
SUBJ: CURRENT STATUS OF NUCLEAR R AND D IN THE REPUBLIC OF CHINA

REF: (A) TAIPEI 5003, (B) STATE 188617, (C)

1.4(C)

1. SUMMARY: GOVERNMENT OF REPUBLIC OF CHINA (GROC) HAS  
EMBARKED ON AMBITIOUS NUCLEAR POWER PROGRAM WHICH IS  
EXPECTED TO RENDER IT ABOUT 50 PERCENT DEPENDENT ON  
NUCLEAR POWER BY MID-1980'S. PROFESSING TO HAVE A  
LONG-RUN CONCERN ABOUT AN ADEQUATE NUCLEAR FUEL SUPPLY  
GROC HAS ENDEAVORED TO ACQUIRE NUCLEAR (SPENT) FUEL  
REPROCESSING CAPABILITY; OFFICIALS EXPLAIN THIS INTEREST  
ALSO AS BEING RELATED TO ROLE THEY WISH TO PLAY IN POSSIBLE  
FUTURE NUCLEAR REGIONAL COOPERATION SCHEME. WE ARE  
CONCERNED LEST GROC ALSO MEANS TO USE  
ITS NUCLEAR POWER PROGRAM AS A BASE FOR PUTTING THEMSELVES  
IN A POSITION TO PRODUCE A SIMPLE NUCLEAR DEVICE. (OUR  
APPREHENSIONS OVER INDICATIONS OF ROC'S INTEREST IN  
OBTAINING INDEPENDENT MEANS OF FISSILE MATERIAL PRODUCTION,  
CRITICAL TO PRODUCING ITS OWN NUCLEAR DEVICE, IS  
INCREASED BY KNOWLEDGE OF ITS RESEARCH ALSO INTO MIXED  
OXIDE POWER FABRICATION TECHNOLOGY.) ALTHOUGH WE

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UNITED STATES DEPARTMENT OF STATE  
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HAVE KNOWLEDGE OF THE GROC BEING ACTIVELY ENGAGED IN NEGOTIATIONS WITH A DUTCH FIRM TO ACQUIRE A NUCLEAR POWER REPROCESSING FACILITY WE CONSIDER THAT OUR WARNINGS IN THIS REGARD MAY HAVE BEEN EFFECTIVE AND DO NOT BELIEVE FURTHER U.S. GOVERNMENT REPRESENTATIONS ARE OPPORTUNE AT THIS TIME; ROC ACTIVITIES IN THIS AREA, HOWEVER, SHOULD BE CLOSELY MONITORED AND SHOULD IT APPEAR THAT EFFORTS (E.G. AS DEMONSTRATED BY AN ACTUAL VISIT OF THE COMPRIMO TECHNICIANS) TO ACHIEVE DOMESTIC REPROCESSING CAPABILITY ARE CONTINUING IT MAY BE NECESSARY AGAIN TO MAKE OUR OBJECTIONS KNOWN IN STRONG TERMS. END SUMMARY.

2. INTRODUCTION: DEVELOPMENTS IN THE REPUBLIC OF CHINA (ROC) DURING THE PAST SEVERAL MONTHS INDICATE THAT THE GROC PROBABLY CONTINUES TO PURSUE A POLICY OF DEVELOPING THE CAPABILITY TO PRODUCE NUCLEAR WEAPONS AND OF RESERVING THE OPTION TO EXERCISE THIS CAPABILITY. THIS POLICY IS IN MANY RESPECTS SUPPORTED BY A VERY AMBITIOUS NUCLEAR POWER PROGRAM IN THE ROC, INCLUDING RESEARCH AND DEVELOPMENT IN THE NUCLEAR FUEL CYCLE, WHICH HAS AN APPLICATION TO NUCLEAR WEAPONS PRODUCTION AS WELL AS NUCLEAR POWER PRODUCTION. IN ADDITION, THE ROC HAS RECENTLY EVINCED AN INTEREST IN DEVELOPING NUCLEAR FUEL FABRICATION TECHNOLOGY TO A POINT THAT IT WOULD BE COMMERCIALY PROFITABLE TO EXPORT THAT TECHNOLOGY TO OTHER NATIONS. THE DEVELOPMENT OF SUCH TECHNOLOGY COULD ALSO BE USED TO COVER PROGRAMS WHICH HAVE A NUCLEAR WEAPONS APPLICATION.

3. NUCLEAR WEAPONS: WHEN WE SPEAK OF NUCLEAR WEAPONS IN THE CONTEXT OF ROC CURRENT R AND D ACTIVITY IT IS MORE ACCURATE TO USE THE TERM "NUCLEAR DEVICE". THE USE OF THE TERM "WEAPON" TENDS TO IMPLY COMPLETE SYSTEMS, INCLUDING A STOCKPILE OF WARHEADS AND A VIABLE DELIVERY SYSTEM. NEITHER OF THESE CONDITIONS APPLY TO THE ROC, NOR ARE THEY LIKELY TO APPLY, IN OUR OPINION, WITHIN THE NEXT SEVERAL YEARS. WHILE THE EVIDENCE TO DATE OF GROC INTEREST IN DEVELOPING A NUCLEAR DEVICE CAPABILITY IS DIFFICULT TO EVALUATE, IT SEEMS TO US THAT A DECISION HAS BEEN MADE AT THE HIGHEST EXECUTIVE

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LEVEL TO KEEP THIS OPTION OPEN. THERE IS NO INDICATION OF INTENTION TO DEVELOP A LARGE SCALE NUCLEAR WEAPONS

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SYSTEM AND EVEN LESS INDICATION OF HOW CONDITIONS A DEVICE (OR WEAPON) MIGHT BE USED. IT MAY WELL BE THAT THE ROC WOULD PREFER TO CONVEY THE IMPRESSION OF HAVING A NUCLEAR WEAPONS CAPABILITY WITHOUT EVER DEMONSTRATING THIS CAPABILITY (MUCH IN THE PATTERN OF THE ISRAEL MODEL). IT FOLLOWS, TO A CERTAIN, THAT THE ROC WOULD WANT TO COMPLETE FABRICATION OF AT LEAST ONE, BUT PERHAPS SEVERAL, SIMPLE DEVICES WHICH COULD GIVE SUBSTANCE TO THE IMPRESSION IT WISHES TO CREATE. THERE ARE IDENTIFIABLE DIFFERENCES OF OPINION AMONG GROC AUTHORITIES ON THE ADVISABILITY OF PURSUING DEVELOPMENT OF A DEVICE CAPABILITY. THE WEIGHT OF EVIDENCE TO DATE INDICATES THAT THOSE WHO FAVOR MAINTAINING THE OPTION TO FABRICATE AT LEAST A SIMPLE NUCLEAR DEVICE HAVE HELD SWAY IN THIS DEBATE. THE PROXIMITY (BOTH IN A PHYSICAL SENSE AND IN THE COMPLEMENTARY NATURE OF SOME RESEARCH PROJECTS AND THE SHARING OF RESEARCH FACILITIES) BETWEEN THE ROC'S PRINCIPLE NUCLEAR RESEARCH CENTER (THE INSTITUTE OF NUCLEAR ENERGY RESEARCH/INER/) AND THE MILITARY WEAPONS DEVELOPMENT FACILITY (CHUNG SHAN INSTITUTE OF SCIENCE AND TECHNOLOGY/CIST/);

1.4(C), 1.4(D)

[REDACTED]

AND CONTINUED APPARENT INTEREST IN ACQUISITION OF SPENT FUEL REPROCESSING TECHNOLOGY ARE ALL VIEWED AS STRONG INDICATIONS THAT THE GROC INTENDS TO MAINTAIN THE OPTION TO DEVELOP A NUCLEAR DEVICE CAPABILITY AS A PART OF ITS OVERALL NATIONAL DEFENSE POLICY.

4. DOMESTIC NUCLEAR POWER PROGRAM: THE ROC IS ENGAGED IN DEVELOPMENT OF AN AMBITIOUS DOMESTIC NUCLEAR POWER PROGRAM AND IS AT THE SAME TIME INVOLVED IN BROAD-SPECTRUM RESEARCH AND DEVELOPMENT IN ALL PHASES OF THE NUCLEAR FUEL CYCLE. THE NUCLEAR POWER PROGRAM CALLS FOR APPROXIMATELY 50 PERCENT OF THE ROC'S ELECTRICAL ENERGY TO BE GENERATED BY NUCLEAR POWER PLANTS BY THE YEAR 1985. THERE ARE

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SIX NUCLEAR REACTORS PLANNED FOR OPERATION BY THE DATE. THE FIRST TWO, TALLING APPROXIMATELY 1300 MEGAWATTS ELECTRICAL POWER, ARE EXPECTED TO BE IN OPERATION BY THE END OF 1977. ALL REACTORS ARE LIGHT WATER REACTORS SUPPLIED BY U.S. FIRMS AND ARE

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EXPECTED TO PRODUCE A TOTAL OF 4200 ELECTRICAL POWER UPON COMPLETION. FUEL SUPPLY CONTRACTS EXIST BETWEEN THE ROC AND U.S., SOUTH AFRICAN AND CANADIAN SUPPLIERS. AN EARLIER PRELIMINARY AGREEMENT WITH BRITISH NUCLEAR FUELS, LTD., FOR REPROCESSING SERVICES WAS CANCELLED IN EARLY 1975. THERE IS NO KNOWN AGREEMENT FOR REPROCESSING OF SPENT FUEL FROM THE SIX PROGRAMMED POWER REACTORS. GROC OFFICIALS HAVE EXPRESSED CONCERN OVER THE CURRENT LACK OF REPROCESSING AGREEMENTS AND HAVE INDICATED THEIR BELIEF THAT DOMESTIC OR REGIONAL REPROCESSING WILL BE NECESSARY IF AGREEMENTS WITH FOREIGN SUPPLIERS CANNOT BE OBTAINED.

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5. RESEARCH ON ALL ASPECTS OF THE NUCLEAR FUEL CYCLE IS CONDUCTED AT INER. LIMITED RESEARCH FACILITIES ARE ALSO AVAILABLE AT THE NATIONAL TSING HUA UNIVERSITY CAMPUS (NTHU) IN HSIN CHU. THE INER HAS CONSTRUCTED A SMALL-SCALE SPENT FUEL REPROCESSING LABORATORY AT INER AND IS CURRENTLY RUNNING COLD

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TESTS AT THIS FACILITY. THE INER HAS SAID THAT IT INTENDS TO CONDUCT CHEMICAL SEPARATION REPROCESSING EXPERIMENTS USING THE 20 PERCENT ENRICHED FUEL ELEMENT PLATES FROM THE TSING HUA OPEN POOL REACTOR (THOR) AS FEED FOR THESE EXPERIMENTS.

1.4(C), 1.4(D)

6. THE CRITICAL QUESTION IN CONSIDERATION OF ROC ATTEMPTS TO ACQUIRE A NUCLEAR DEVICE CAPABILITY REMAINS ACCESS TO THE NECESSARY FISSILE MATERIAL TO FABRICATE SUCH DEVICES. THE USG HAS TAKEN THE POSITION AND MAINTAINS THAT ESTABLISHMENT OF ANY DOMESTIC SPENT FUEL REPROCESSING WOULD CREATE

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AN UNACCEPTABLE RISK THAT SUCH ACCESS WOULD THEN BE PROVIDED. WE ARE INFORMED THAT ELEMENTS OF THE ROC BELIEVE THAT THEIR INABILITY TO ACQUIRE REPROCESSING SERVICES ABROAD (THE U.S. HAS STATED DEFINITELY THAT IT CANNOT PROVIDE THESE SERVICES) MAKES IT NECESSARY TO ESTABLISH ITS OWN CAPABILITY IN SUPPORT OF THE POWER PROGRAM. THE ARGUMENT IS, OF COURSE, CONTINGENT UPON EVENTUAL ACCEPTANCE OF PLUTONIUM RECYCLE, BUT THE ROC BELIEVES (AS DO MOST COUNTRIES WITH SUBSTANTIAL COMMITMENTS TO NUCLEAR POWER), THAT THIS ACCEPTANCE IS A FOREGONE CONCLUSION.

7. IN 1973 THE USG INTERVENED TO STOP ROC ACQUISITION OF A REPROCESSING FACILITY FROM A GERMAN SUPPLIER.

1.4(C), 1.4(D)

EVALUATION OF THIS ROC DETERMINATION IN THE FACE OF STRONG USG OBJECTIONS MUST CONCLUDE THAT THE RATIONALE IS BASED ON MORE THAN THE ECONOMIC-NEED ARGUMENT. THE MISSION BELIEVES THAT THE ANSWER IS AT LEAST IN PART THAT THE ROC SEES A DOMESTIC SPENT FUEL REPROCESSING FACILITY ALSO AS A POTENTIAL SOURCE OF FISSILE MATERIAL FOR NUCLEAR DEVICE PRODUCTION. THE WEB OF COMMERCIALY ORIENTED RESEARCH RELATING TO POTENTIAL NUCLEAR DEVICE PRODUCTION IS FURTHER

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STRENGTHENED BY RELATIVELY RECENT INTEREST IN UNCLASSIFIED AT INER IN DEVELOPMENT OF MIXED-OXIDE FUEL FABRICATION TECHNOLOGY. ONCE AGAIN THIS IS A DISCIPLINE DEPENDENT UPON THE ACCEPTABILITY OF PLUTONIUM RECYCLE, BUT IT PROVIDES THE ROC WITH ANOTHER FORCEFUL ARGUMENT FOR ESTABLISHMENT OF A DOMESTIC SPENT FUEL REPROCESSING FACILITY.

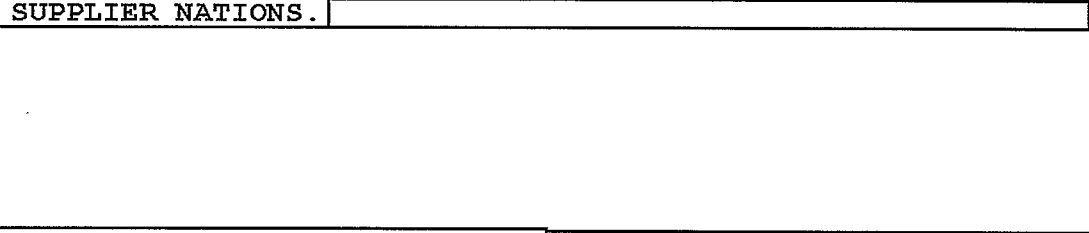
8. SAFEGUARDS: THE FUTURE OF INTERNATIONAL SAFEGUARDS AS THEY MAY APPLY TO THE ROC IS SOMEWHAT UNCERTAIN. THE UNCERTAINTY STEMS FROM THE PECULIAR AND TENUOUS RELATIONSHIP BETWEEN THE ROC AND THE INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA). THE ROC IS NO LONGER A MEMBER OF IAEA BECAUSE OF ITS EXPULSION FROM UN; BUT AT THIS

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TIME ALL KNOWN SPECIAL NUCLEAR MATERIALS AND PRINCIPAL NUCLEAR FACILITIES ON TAIWAN ARE SUBJECT TO SAFEGUARDS INSPECTIONS AND ACCOUNTABILITY PROCEDURES UNDER BI-LATERAL AND TRI-LATERAL AGREEMENTS BETWEEN THE ROC, IAEA AND SUPPLIER NATIONS.

1.4(D)



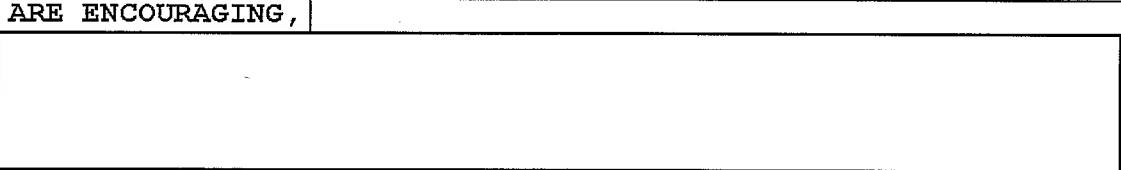
IT IS LIKELY THAT THE ROC VIEWS ITS RELATIONSHIP WITH IAEA AS IMPORTANT TO CONTINUED DEVELOPMENT OF ITS OWN NUCLEAR POWER PROGRAM AND IS ANXIOUS TO MAINTAIN THIS RELATIONSHIP.

1.4(D)



IAEA INSPECTION OF ROC NUCLEAR FACILITIES ARE OBVIOUSLY OF GREAT IMPORTANCE AND SHOULD BE CONTINUED. THE VERY RECENT INCREASES IN SAFEGUARDS REQUIREMENTS ESTABLISHED BETWEEN THE ROC AND IAEA ARE ENCOURAGING,

1.4(D)



9. REGIONAL COOPERATION: THE ROC'S CASE FOR DEVELOPING DOMESTIC PROGRAMS WHICH WOULD PROVIDE INCREASED ACCESS TO FISSILE MATERIAL IS SUPPORTED BY AN INCREASED INTEREST IN REGIONAL OR MULTI-NATIONAL

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NUCLEAR FUEL CENTERS. THE REGIONAL APPROACH WHICH IS GAINING POPULARITY AND IN FACT IS ONE WHICH IS ENCOURAGED BY THE USG. THE ROC ARGUES THAT IT IS NECESSARY FOR THEIR SCIENTISTS AND TECHNICIANS TO GAIN EXPERIENCE IN ALL ASPECTS OF THE FUEL CYCLE IN ORDER TO MAKE A MEANINGFUL CONTRIBUTION TO ANY REGIONAL COOPERATIVE EFFORT. IN ADDITION THE CONCEPT OF MIXED-OXIDE FUEL FABRICATION IS VIEWED AS A POTENTIALLY VALUABLE AND MARKETABLE TECHNOLOGY. THE ROC WOULD LIKE TO BECOME A REGIONAL LEADER IN THE FIELD AND ARGUES THAT IT NEEDS SUBSTANTIAL EXPERIENCE

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ON A RELATIVELY LARGE SCALE OPERATION BEFORE THE TECHNOLOGY CAN BE PERFECTED. THERE ARE, OF COURSE, VERY SIGNIFICANT POLITICAL PROBLEMS ATTENDANT TO THE CONCEPT OF REGIONAL COOPERATION ON NUCLEAR PROJECTS. WE BELIEVE THAT THE ROC RECOGNIZES THESE PROBLEMS. THIS DOES NOT PROHIBIT THE ROC, HOWEVER, FROM USING THE REGIONAL APPROACH AS A JUSTIFICATION FOR DEVELOPING DOMESTIC CAPABILITIES (FOR THE REASONS CITED ABOVE) EVEN IF THE ESTABLISHMENT OF REGIONAL PROJECTS ARE DELAYED.

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10. SUGGESTED COURSES OF ACTION: WE BELIEVE THAT THE USG SHOULD BE ABLE, UNDER CURRENT CONDITIONS, TO EXERT ENOUGH INFLUENCE ON THE GROC TO FORESTALL EFFORTS TO ACQUIRE A DOMESTIC SPENT FUEL REPROCESSING FACILITY.

1.4(C), 1.4(D)

SINCE THERE ARE NO FIRM INDICATIONS

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THAT NEGOTIATIONS FOR ACQUISITION OF A REPROCESSING FACILITY FROM CAMPRIMO HAVE BEEN FINALIZED AND SINCE THE USG POSITION HAS ALREADY RECENTLY BEEN MADE CLEAR TO THE GOVERNMENT OF THE NETHERLANDS AND THE GROC, WE DO NOT BELIEVE THAT FURTHER REPRESENTATIONS ON THE MATTER ARE CALLED FOR AT THIS TIME. WE FEEL THAT ROC ACTIVITIES IN THIS AREA SHOULD BE MONITORED AS CLOSELY AS POSSIBLE AND IF IT DEVELOPS THAT THERE IS NO SLOWING TREND OR IF MORE CONCRETE EVIDENCE OF A FIRM AGREEMENT WITH COMPRIMO OR ANY OTHER POTENTIAL SUPPLIER OF SPENT FUEL REPROCESSING TECHNOLOGY IS DISCOVERED, A DEMARCHE DESIGNED TO STOP THE ACQUISITION SHOULD BE MADE IN THE STRONGEST

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TERMS. UNDER THESE CIRCUMSTANCES WE SHOULD UNCLAS SECRET THE  
MOST RELIABLE POSSIBLE EVIDENCE. [REDACTED]

1.4(C), 1.4(D)

[REDACTED] THE USG SHOULD ALSO BEGIN TO CONSIDER  
POSSIBLE MEANS OF ASSURING ROC COMPLIANCE WITH  
INTERNATIONAL SAFEGUARDS ON A BI-LATERAL BASIS IF  
NECESSARY, SHOULD CURRENT IAEA AGREEMENTS  
BE ABROGATED. FINALLY, WE BELIEVE THAT  
PROGRESS TOWARD THE DEVELOPMENT OF THE REGIONAL  
REPROCESSING CONCEPT WOULD HAVE THE EFFECT OF REMOVING  
AT LEAST PART OF THE ROC ARGUMENT FOR ACQUISITION OF  
REPROCESSING TECHNOLOGY/CAPABILITY. THUS, POSITIVE  
DEVELOPMENTS IN ESTABLISHMENT OF A REGIONAL FUEL CENTER  
WOULD APPEAR USEFUL IN DISCOURAGING PROLIFERATION OF  
NATIONAL FACILITIES AT THIS TIME.

1.4(C), 1.4(D)

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[REDACTED] WE WILL CONTINUE TO REPORT  
INFORMATION PERTAINING TO THIS SUBJECT AS IT BECOMES  
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