JAPAN'S PLUTONIUM PROGRAM: A PROLIFERATION THREAT?

by Motoya Kitamura

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The Japanese plutonium program continues to dwell on the minds of nuclear nonproliferation watchers. Japan remains the only non-nuclear weapon state that is operating uranium enrichment and reprocessing plants, all of which are technically capable of producing fissile materials for nuclear weapons. The magnitude of these projects exceeds those of other nations that have either abandoned or postponed similar programs.

The issue of Japan's capability to acquire a nuclear arsenal is entangled with Tokyo's enigmatic diplomacy. On the one hand, it complies with its obligations to the International Atomic Energy Agency (IAEA), making financial contributions, being open to inspections, and crusading for a nuclear-free world as the world's sole victim of nuclear attacks. On the other hand, the number of remarks made by political figures alluding to Japan's ambitions for developing nuclear weapons has increased in recent years.

As nuclear nonproliferation forces continue to grow worldwide amid the emergence of post-Cold War multipolarity, criticism of the Japanese plutonium program tends to be aimed indiscriminately at every single aspect of the program. From a nonproliferation perspective, we must ask instead, what is the most effective approach to take? What are the most serious problems with the program? How are they relevant to nonproliferation, and what is the role of other countries in influencing the Japanese plutonium program? In an attempt to describe accurately the nuclear weapons proliferation concerns, this article begins with a general overview of the Japanese plutonium program. It then illustrates the strong driving forces behind the program: an adherence to energy security, past encouragement from the United States, and powerful and interested domestic nuclear bodies. This article argues that the incentives for plutonium development, especially the promotion strategy by the United States, have made Japan indifferent to U.S. nonproliferation policy, which has swayed back and forth between promotion and control during the Cold War era. After describing the fluctuation of the nonproliferation policy in the past, the article examines the concerns raised today.

For the development of a nuclear weapon program, both the political will and the technology represented by the plutonium program are necessary. Of the two, Tokyo's political will holds the key to preventing nuclear proliferation in Japan, but the nuclear umbrella provided by the United States will have the strongest influence on Tokyo's decisionmaking.

CHARACTERISTICS OF THE JAPANESE PLUTONIUM PROGRAM

An Overview

The Japanese plutonium program is the logical extension of the nation's extensive nuclear energy program, which was first established with the goal of achieving energy independence. Since the 1966 open-

ing of the Tokai Plant, 48 nuclear reactors have started operation, bringing the nation's total installed capacity to 38.0 gigawatts electric, the third largest in the world after the United States and France.[1] Four new reactors are currently under construction.

The basic direction of the plutonium program was first outlined in the 1967 Long Term Program, 11 years after its principles had been approved by the Japan Atomic Energy Commission (JAEC).[2] The program identified fast breeder reactors (FBR) and the closed nuclear fuel cycle through uranium enrichment and plutonium reprocessing as its main goals.

In accordance with these policies, the Power Reactor and Nuclear Fuel Development Corporation (PNC), created by the Japanese government, began construction on the experimental FBR JOYO in 1970, which reached criticality in 1977. The prototype FBR MONJU began operation in 1994 and generated electricity for the first time in August 1995.[3] The construction of a demonstration FBR is planned to begin shortly after 2000, with commercialization planned by 2030 (the schedule was pushed back in the 1994 Long Term Program). Construction started on the advanced thermal reactor (ATR) prototype FUGEN in 1970, which reached criticality in 1978. The ATR project had been planned in preparation for the more important FBR project, but in July 1995 the electric utilities demanded its suspension due to its prohibitive cost.[4]

As for the nuclear fuel cycle, an experimental reprocessing plant was built in Tokai-mura in 1975 and began operation in 1977. In principle, reprocessing had been carried out only on a case-by-case basis with the prior approval of the United States. However, a 1988 agreement between Japan and the United States provided for a new arrangement in which the United States gave prior consent for all civilian programs Japan proposed for plutonium use during the next 30 years. The Tokaimura plant can produce about 450 kilograms (kg) of fissile plutonium per year. The reprocessing plant in Rokkasho-mura, now under construction, will start operation around 2001. According to the 1994 Long Term Program, a decision to build the next reprocessing plant will be made in 2010.[5]

Since the mid-1970s, Japan has realized that its reprocessing capacity would fall short of increasing demand for plutonium. To counteract this shortage, Japanese utilities in the late 1970s signed contracts with the French state-owned Cogema group and with British Nuclear Fuel Ltd. (BNFL) to extract and return plutonium (and high-level radioactive waste (HLW) that would be recovered from Japanese spent fuel in their reprocessing plants).[6] Thus, between 1970 and 1979, a total of 13 shipments were made from Britain to Japan. The amount of plutonium carried in those convoys varied for 25 kg to 100 kg. In 1981, 190 kg were transported in a single shipment. In 1984, 253 kg shipped from France (not all in one shipment) began to draw public attention. The 1992-93 transport, the first case conducted under the 1988 U.S.-Japan Agreement that required tight physical protection, had 1.7 tons of plutonium; this provoked intense international controversy. The most recent shipment in April 1995 contained 400 kg of HLW from Cogema.[7]

The Japanese plutonium program has gathered attention in recent years because of the gradual demise of similar programs in other nations. Cost, technology, uranium availability, safety, and the environment all became causes for concern. The United States, Sweden, Italy, and Canada have abandoned civilian plutonium programs. Britain and Germany canceled their programs or halted the operation of breeder reactors. Although Britain maintains a large reprocessing plant, it has no plans for domestic recycling. And although France completed the world's largest prototype FBR, Superphoenix, in 1985, it had operated for fewer than 200 days through 1993. The status of the two FBRs in the former Soviet Union is unclear. While both appear to be operating, technical concerns and rumored shutdowns have been raised.[8] If this trend continues, the Japanese program will not be able to escape close international scrutiny.

Driving Forces

What have been the driving forces behind the Japanese plutonium program? Why has it overcome the economic and political barriers that have hindered development in other nations? Why has Japan devoted so much energy to technological development? The key to understanding such questions lies in the history of the nuclear project.

Japanese interest in nuclear power following World War II surfaced for the first time with Dietman Yasuhiro Nakasone. In 1951, during the Allied occupation, the future prime minister petitioned then-Ambassador John Foster Dulles for the development of a nuclear industry. Fueled by President Eisenhower's

"Atoms for Peace" speech in December 1953, Nakasone joined three other members of the Diet to secure suprapartisan support for a supplemental 235 million yen budget for a nuclear power project in March 1954.[9]

Nuclear power was a treasure box for Japan for two main reasons: 1) it would provide a more secure energy resource than limited domestic coal reserves; and 2) it would spawn a major new high-technology industry in the then-weak economy.[10] This reaction differed only slightly from many other countries that saw this new form of energy in a very promising light.

However, Japan was more eager to achieve energy security than other countries; its defeat in the war was still a vivid memory. To state that Japan launched and lost the war because of its blind pursuit of energy autonomy is probably not an exaggeration. It tried to escape from Western dependence by seeking oil control over its East Asian neighbors, attacked Pearl Harbor and Southeast Asia in response to the Allied oil embargo, and surrendered partly due to a serious oil shortage after its oil tankers were sunk by U.S. submarines. (A symbolic consequence immediately following the surrender was the bloody suicide-attempt of Hideki Tojo, the wartime premier; he lay for two hours in his Tokyo residence while the one gas-fueled ambulance in the city was found.[11])

Such hard lessons underlay Japan's decision to embark upon a breeder program. Uranium alone, found only in small quantities in Japanese soil, did not guarantee energy security. As early as 1956, the JAEC issued a Long Term Program calling for the development of a completely indigenous fuel cycle, including breeder reactors:

> ...it is our basic policy to conduct reprocessing using domestic technology as much as possible and [this] will be exclusively done by [the] Japan Atomic Fuel Public Corporation...Mainly [for] effective utilization of nuclear fuel resources, [the] breeder reactor is the most appropriate type of reactor for Japan, thus it is our basic goal to develop such type of reactor.[12]

This basic policy evolved into a more specific one in the 1967 Long Term Program, which described the nuclear fuel cycle program as an "essential" part of the nuclear program. Thus, the plutonium program became a national obsession akin to an industrial religion, and it became taboo to argue against the Japanese nuclear community. Many in this community have even come to see a kind of morality in the policy.[13] An atomic expert confesses, "I must remain quiet on the record when the consensus is that without the project the nation would collapse."[14]

Energy security has always remained a major focus of Japanese foreign policy, as reflected in its plutonium program. One justification for the plutonium program presented by the Japanese delegates during the 1977 U.S.-Japan negotiations on the Tokai-mura reprocessing plant was that "Japan, relying on the Middle East for most of its oil supply, has the right to commercialize an indigenous plutonium fuel cycle because of what Japan had suffered due to its oil dependence during World War II."[15] Even now, the nation continues to rely on imports for 80 percent of its primary energy. Seventy-five percent of its oil is shipped from the Middle East, explaining Tokyo's apprehension about recent territorial disputes in the South China Sea, through which these oil tankers pass.

The second historical explanation for Japan's persistent plutonium policy is its encouragement by the United States, especially by the Eisenhower administration in the context of the Cold War. Japanese efforts could not have been achieved without a U.S. policy of nuclear promotion among its allies. While Japan was primarily concerned with itself, the U.S. concern was international.

The United States saw ideological benefits in promoting nuclear energy during the Cold War. National Security Council (NSC) document 5507/2 (1955) argues that this policy could "generate free world respect and support for the constructive purposes of US foreign policy," and that "such a program will strengthen American world leadership and disprove the Communists' propaganda charges that the US is concerned solely with the destructive uses of the atom."[16]

Economic benefits from the peaceful atomic trade followed. Pressure from private industry and the scientific community was mounting to exploit nuclear energy. American reactor firms would dominate the European and world reactor market through direct sales and licensing arrangements with foreign firms, supplying 90 percent of the world market by the end of the 1960s.[17]

Japan was a typical example. An economically rejuvenated Japan would provide a potentially large new market for US industry. More strategically, Japanese economic growth would create a basis for domestic political stability and strong political and economic ties with the

Western world, creating solidarity in East Asia against the communist bloc.[18] This geopolitical dynamic increased in significance after the emergence of communist China and the outbreak of the Korean War.

Eisenhower's eager support for the Japanese nuclear program is explicit in the treatment of the 1954 *Fukuryu Maru No. 5* incident, where 23 crew members of a Japanese fishing vessel suffered from radiation exposure during the first H-bomb explosion in the Bikini Islands. The United States, concerned with citizen protest and strong communist influence in Japan, not only decided to compensate the men with $2 million (collectively), but also launched propaganda projects to diminish Japan's nuclear "allergy":[19]

> The Japanese Government and people have an almost pathological aversion to anything connected with nuclear energy. This results from the wartime bombings and the recent Bikini incident and is directed in large part against the United States for its presumed overemphasis on military security. It is important that the United States attempt to instill in the Japanese a fuller understanding of nuclear problems, as they relate both to international security and to peacetime uses.[20]

One of Eisenhower's efforts was to contact Matsutaro Shoriki, then president of the influential *Yomiuri* newspaper. Beginning with meetings with an American agent, Shoriki would host nuclear exhibitions, invite General Dynamics chairperson John Hopkins for a promotional visit, and, most importantly, publish pro-nuclear articles in the paper.[21] Shoriki would later become an icon in the early years of Japanese nuclear history as the Minister of State for Atomic Energy, the first chair of the JAEC, and the founder of many key nuclear-related organizations.[22]

Having overcome the *Fukuryu Maru* incident, the NSC for the first time in April 1955 included the U.S. promotion of nuclear energy in a course of action toward Japan.[23] Two months later, the United States signed the first U.S.-Japan Agreement for peaceful use of nuclear energy, which guaranteed a supply of enriched uranium from the United States and required that all spent fuel be returned to the United States.[24]

Proliferation concerns did arise. In December 1955, a task force of the U.S. Atomic Energy Commission (AEC) concluded that Eisenhower's Atoms for Peace policy might contribute to nuclear proliferation and that fissionable materials (including plutonium) produced from reactors could be diverted to military purposes.[25] But these reservations were outweighed by diplomatic considerations and the notion of proliferation fatalism. The prevailing argument was that a U.S. withdrawal would only invite Britain or the Soviet Union to enter the Japanese market, which would result in both a political and an economic defeat for the United States. The spread of nuclear power, in this view, would eventually occur no matter which nation became the promoter.[26] Making a similar argument, U.S. Secretary of State Dulles rejected a proposal to abandon plans for building power reactors overseas, insisting that it would be "altogether disastrous from the point of view of foreign policy."[27] Until the IAEA established safeguards requirements in 1957, proliferation questions were covered in U.S.-Japanese bilateral agreements.

Relying on this premise, the AEC in October 1956 decided to allow Japan to conduct research on a small amount of nuclear waste to extract plutonium.[28] Thus, the Japanese plutonium program began modestly. The U.S.-Japan Nuclear Agreement was amended in 1958 to incorporate a safeguards requirement following the creation of the IAEA in 1957.[29]

Washington went further toward nuclear promotion in July 1968 when the AEC agreed on prompt information exchange on FBR technology. The AEC signed in the following year the Cooperation Agreement on FBRs. In 1972, the U.S.-Japan Nuclear Agreement was amended to include a requirement for a joint decision by the two nations to permit startup of a new reprocessing plant, giving the United States the right to intervene in the project.[30] These go-ahead signs for the Japanese plutonium project were not unprecedented for the United States, since it had already reached an agreement with EURATOM (including West Germany) to supply 355 kg in 1964:

> The use of this plutonium by the Germans in an entirely proper manner within their fast reactor program will give the Germans additional experience in plutonium handling and fabrication technology which would also have applicability to a weapons program. However, this technology, which has long been unclassified since it forms a legitimate part of the technology for the use of plutonium in power reactors, is already available to the Germans...The material...will be in the form of plutonium oxide and any conversion of this material to plutonium metal,

which is the material of interest for weapons purposes, would be detected.[31]

While memories of such promotion policies have almost completely faded away on the U.S. side, the Japanese nuclear society clearly remembers the support it received. In fact, the nuclear industries of both nations still enjoy a close relationship, and Washington maintains considerable leverage over Tokyo due to its on-going technological and material support. Thus, Japanese nuclear organizations still tend to view U.S. nonproliferation advocates as merely politically-biased, anti-industry factions. Until recently, they have not taken such advocates seriously.

But such historical analysis does not completely explain the reason for the persistence of the Japanese plutonium program. The answer lies in part in domestic factors, including local politics, nuclear organizations, and industrial interests that are poorly understood not only by other nations but also by non-nuclear communities in Japan. These elements have so far helped to overcome the economic difficulties and public opposition to the program and ensured a long-term commitment by the Japanese government.

First, local areas surrounding nuclear fuel cycle program sites have received economic benefits from the electric utilities through tax subsidies and compensation money. The amount of the former is decided by negotiation between the utilities and local governments, and that of the latter according to the size of the project. The figures provided by the Japanese Ministry of International Trade and Industry (MITI) show, for example, that Rokkasho-mura receives around 1.5 billion yen ($150 million per year), its neighboring towns about the same amount, and Aomori prefecture 300,000 yen ($30 million per year) for the construction of the reprocessing plant alone. In addition, there is an enrichment and low-level waste facility in Rokkasho-mura.[32] Given this, it is no surprise that the governor of Fukui prefecture showed strong resentment when it learned of the cancellation of plans to build a prototype ATR in one of the prefecture's villages.[33]

Secondly, the nuclear organizations are closely intertwined with each other to enable close and long-term cooperation. The Long Term Programs of the JAEC involve three key government agencies—the Science and Technology Agency (STA), the Ministry of Foreign Affairs (MOFA), and MITI, two national research organizations—PNC and the Japan Atomic Energy Research Institute (JAERI), the nuclear suppliers industry, and electric utilities. The members of the JAEC consist of officials from the government, universities, and private corporations. The large and complicated decisionmaking process guarantees self-serving and conservative conclusions.[34]

Finally, the nuclear cycle program involves huge industrial stakes. All the major Japanese firms, including electric utilities, banks, and construction companies, are profoundly involved in the project. The magnitude of the capital costs and the political influence of these corporate giants alone insure the continuation of the plutonium project.[35]

U.S. NONPROLIFERATION POLICY TOWARD JAPAN

Intertwined with the solid and undisturbed development of the Japanese plutonium program has been U.S. nonproliferation policy. It forms a complicated and ironic picture because U.S. nonproliferation policy developed simultaneously with the promotion strategy launched by Eisenhower's "Atoms for Peace" speech. Understanding the history of U.S. nonproliferation policy is as significant as tracing that of the Japanese plutonium program, since the former has fluctuated, causing conflict with the static nature of the latter. Only through such analysis can the perceptions of the Japanese nuclear community regarding U.S. nonproliferation policy be fully appreciated.

Cold War Period

During the Cold War period, nonproliferation policy was seldom given top priority in American foreign policy. Most of the time, other considerations outweighed its importance: evaluation of political trends within a problematic country, the relationship of the United States with Europe, the state of the domestic economy, and others. This resulted in inconsistencies, contradictions, and at times even promotion of proliferation during the Eisenhower period. Generally, the policy has been seen in the context of the United States vis-a-vis foreign countries, not of humanity vis-a-vis nuclear weapons.

It would require an overly simplistic reading to interpret Eisenhower's "Atoms for Peace" speech as simply an arms control effort, advocating the diversion of fissionable material from the purposes of war to the purposes of peace. In reality, Eisenhower viewed nuclear weapons proliferation as in-

evitable.[36] Moreover, especially in the wake of NATO—where the Suez crisis in 1956 fueled the member nations' distrust of U.S. military support and raised growing concerns about Soviet nuclear capabilities—the United States endorsed the deployment of intermediate-range ballistic missiles (IRBMs) abroad, a move that bordered on *de facto* weapons proliferation.[37] Once this notion was established, Eisenhower outweighed the proliferation concerns of the plutonium program of Japan against the importance of embracing Tokyo as an ally.

Proliferation concerns were sharply reinforced in the 1960s, during the Kennedy and Johnson administrations. Several factors contributed to this: 1) France (1960) and China (1964) joined the nuclear weapon club; 2) the geographic focus of U.S. foreign policy shifted from Europe to Asia and the Third World; and 3) a closer relationship with the Soviet Union enabled the superpowers to cooperate on nonproliferation.[38] Thereafter, U.S. nuclear promotion policy weakened.

Evaluation of nations' political aspirations to join the nuclear weapons club started, especially where access to technology had already been achieved during the Eisenhower era. For example, a memorandum by the State Department to President Kennedy in 1962 foresaw a strong potential for China to acquire a nuclear arsenal, which would, according to its analysis, lead Japan to follow. It also warned that plutonium and nuclear technology gained from the development of peaceful nuclear programs made it easier for nations to develop nuclear weapons.[39]

The first Chinese nuclear test moved the United States to tilt more toward nonproliferation. Signs of loosening of Cold War tensions enabled the superpowers to collaborate with each other and maintain the nuclear umbrella over their allies, taking a more interventionist policy towards strengthening nuclear control. In 1964, negotiations began on the Non-Proliferation Treaty (NPT). The NPT would enhance IAEA safeguards and symbolically create a multinational regime against any further emergence of nuclear weapons states.[40]

Despite the multilateralism behind the NPT, however, U.S. nonproliferation policy was still pursued on a country-by-country basis. This would be, and still is, poorly understood by other nations, which interpret it as inconsistency on the part of American foreign policy. An insightful paper written by then-Director of Policy Planning Walt Rostow in 1964 after the Chinese nuclear test argues:

> It is only by reconstructing the complex calculus faced by the various governments concerned and mounting policies of substance and weight to influence the components of that calculus that we have a chance of shaping the course of events—not merely in preventing new nations from entering the nuclear club but in influencing their subsequent course of behavior.[41]

The last phrase suggests that, although the basic idea of proliferation fatalism recognized in the Eisenhower administration still remained, international control by the IAEA and the NPT was perceived as one of many tools, or an element in a "calculus" of nonproliferation which would with luck evolve in the future.

Moreover, before the NPT negotiations, the United States carefully studied the potential of Japan acquiring nuclear arms. A 1964 background paper by the State Department and a 1965 memorandum by the Arms Control and Disarmament Agency (ACDA) both reached the same conclusions that: 1) Japan is technologically and economically capable of becoming a major nuclear weapon state within six years; 2) psychological restraints toward nuclear weapons are diminishing and may disappear in a few years; and 3) Japan's evaluation of U.S. nuclear deterrence vis-a-vis Chinese nukes would decide whether it would develop nuclear weapons. Conversely, factors preventing Japanese nuclear armament included: 1) the nuclear allergy; 2) the lack of a clear and present danger; and 3) the U.S. nuclear umbrella. Based on this interpretation, both reports recommended that the United States: 1) continue with a credible nuclear deterrent; 2) maintain a mutually beneficial partnership with Japan; and 3) maintain cooperation with Japan on high-tech projects, such as space projects and the peaceful use of nuclear power in order to promote Japanese "national unity and pride." The study by ACDA adds that maintenance of U.S. influence over Japanese defense planning and involvement of Japan in the nonproliferation effort are necessary.[42]

Although dated, this analysis still reveals the pertinent point that Washington's bilateral relations with Tokyo were viewed as the key to preventing nuclear proliferation in Japan. As for the civilian nuclear relationship, one notices dual dilemmas. First, the United States had to support Japanese nuclear energy programs to prevent Tokyo from acquiring nuclear weapons. Second,

and more fundamentally, the United States could not forcefully or directly stop Japan if it were to obtain nuclear bombs, since such an attitude would disgust Tokyo and poison the bilateral partnership, including the military relationship.

Thus, it is not surprising that the United States compromised with Japan and its European allies during the Geneva NPT negotiations in 1966. Japan had demanded assurance that the treaty would not adversely affect its peaceful nuclear programs by restricting access to fissile materials and the full range of fuel-cycle technologies. In 1968, the United States responded by guaranteeing West Germany and Japan that, under Article IV, civil nuclear programs could be carried into areas with direct relevance to weapons production.[43]

However, the Indian nuclear explosion in 1974 shocked U.S. officials because the device used plutonium recovered from a research reactor. Following President Ford's decision to embargo the export of reprocessing and enrichment technology, Washington startled the international nuclear community in October 1976 with the declaration that it no longer viewed reprocessing "as a necessary and inevitable step in the nuclear fuel cycle."[44] These decisions were also provoked by the increasing availability of uranium and the fact that some European countries had agreed to supply bomb-grade uranium and plutonium to the Third World.[45]

Not surprisingly, Japan was unfavorable to this policy. It even suspected that the United States, fearing Europe and Japan would no longer need the U.S. enriched uranium after the completion of breeder reactors, was trying to monopolize the uranium trade under the guise of its nonproliferation policy.[46] Tokyo's frustration increased when newly-elected President Carter put nonproliferation near the top of his foreign policy agenda. He added humanitarian, idealistic, and antimilitarist language to Ford's words. The plutonium program was directly under fire. In 1977, in addition to announcing that domestic commercial reprocessing would be deferred indefinitely, President Carter indicated that the United States would attempt to persuade other nations to adopt similar policies.[47]

Japan, as well as other countries, rejected Carter's proposal outright. The fundamental logic of the Japanese nuclear program, which was to reduce oil dependency, was under siege. Japan perceived Carter's policy as a betrayal, given its departure from previous U.S. encouragement of reprocessing and breeder programs. A major gap in perceptions now existed between the United States, which viewed nuclear policy as a global issue, and Japan, which had pursued a step-by-step domestic strategy of energy security through nuclear power since 1956. The timing of Carter's announcement could not have been more insensitive, since JOYO had just reached criticality and the Tokaimura reprocessing plant was ready for its test run in the spring of 1977, after 14 years of preparation and at a cost of $170 million.[48]

Because the 1972 agreement gave the United States direct influence on the reprocessing program, Japan had to go through extensive negotiations until a compromise was reached in September 1977. The delegates from both countries made concessions on the basis that: 1) the Carter administration was divided over how firmly the United States should exercise its control over foreign reprocessing; 2) in return for approving the limited operation of the plant, the United States should receive some concessions from Japan in other, less vital, areas; and 3) both nations would wait until the elaborate two-year study devised by the United States, known as the International Nuclear Fuel Cycle Evaluation (INFCE), provided consistent and politically sustainable global criteria for plutonium activities. As a result, the United States agreed to allow the plant to begin operations while imposing several restrictions and conditions. The initial agreement was only to last two years, until the outcome of the INFCE deliberations had become clear.[49]

During the remainder of his term, Carter extended the interim Tokaimura agreement three times. The administration accomplished the difficult task of not destroying an ally's plutonium program, while simultaneously discouraging other nations with nuclear ambitions from embarking on new ones.[50] Carter's policy had a huge impact on public relations; its condemnation of the plutonium program attracted worldwide attention, which would later only increase. Moreover, it came as a shock to the Japanese nuclear community that had always been blessed with generous help from the United States. The cloud of uncertainty and the realization of the United States' leverage over the Japanese nuclear program would never disappear.

President Reagan, following the end of detente with the 1979 Soviet invasion of Afghanistan, was devoted to reasserting American power in the world. Highly critical of the universalism of Carter's policies,

Reagan relegated nuclear nonproliferation to a subordinate position in the new struggle against the Soviet Union. However, the policy was not abolished; rather, it was applied in a selective manner. Washington weakened its interventionist policy toward its allies while maintaining its bilateralism vis-a-vis Third World countries. Reagan's policy was also motivated by an emphasis on restoring American leadership in the nuclear market.[51]

Japan, as the main ally, thus enjoyed Reagan's flexible, discriminatory approach to nuclear trade and cooperation. Previous concerns about plutonium were dropped altogether. The United States agreed in 1981 to lift the operating restrictions at the Tokai-mura plant. Although in 1988 American influence over Japan's nuclear program was strengthened, it also allowed Japan to reprocess spent fuel for 30 years without U.S. permission.[52]

Post-Cold War Period

U.S. nonproliferation policy has played a significant role in the post-Cold War period, in which the incentives of the "haves" to develop nuclear weapons have weakened and those of the "have-nots" have been strengthened. While the pattern of meshing nonproliferation with the pursuit of other interests and goals remains, the United States advocates more convincingly than any other country the strengthening of the regime outlined by the NPT and IAEA safeguards. Arms control agreements with Moscow have moved Washington to focus more on nonproliferation. Thus, the concern over Japan's potential to proliferate has increased.

As an original promoter of the plutonium program, Washington is weighing its nonproliferation concerns and the cooperation with Tokyo it has guaranteed. Although the Clinton administration announced in 1993 that it would "maintain its existing commitments regarding the use of plutonium in civil nuclear programs in Western Europe and Japan," it has opposed any other domestic and international programs.[53] The classic incentives of supporting high-tech nuclear projects for nonproliferation concerns (portrayed in the 1964 and 1965 reports) seem to be more than offset by the overall apprehension regarding the Japanese plutonium program. This might explain the U.S. decision in 1994 to phase out technological cooperation in plutonium reprocessing and FBR development as a response to Greenpeace's claim that the transfer of the technology was illegal.[54]

There are at least six reasons for the apprehension. The first four relate directly to the plutonium program. First, many recognize Japan's capability to convert the civilian program into a military one. The plutonium program would, at the very least, make it easier for Tokyo to produce nuclear warheads. Some fear that the H-2 rocket program could contribute to a potential weapon program. North Korea, South Korea, and China have already expressed such concerns.[55]

Second, the United States worries about the "demonstration effect," of Japan's program; it justifies other countries' plutonium programs. North and South Korea have complained that U.S. policy discriminates in favor of Japan on nuclear issues. When China publicized its plan to reprocess spent nuclear fuel in February 1995, it announced, "China will follow Japan's lead and use the separated plutonium to fuel fast-breeder reactors."[56] Other countries might also wish to follow Japan's example.

Third, the stockpile of plutonium assures the capability of Japan to become a nuclear weapon state. In October 1995, the Science and Technology Agency announced that the stockpile amounted to 13.1 tons at the end of 1994.[57] According to one estimate, over the next two decades around 89 tons of fissile plutonium (about 125 tons of total plutonium) will be separated at plants in Japan and Europe, if current plans are implemented. (This is compared to 220 tons of separated plutonium in the combined American and Russian arsenals.[58]) China, North Korea, and South Korea have all expressed fears that this plutonium could be used to produce weapons. President Clinton also declared in September 1993 that the United States will seek to eliminate international plutonium stockpiles.[59]

Fourth, plutonium shipments from Europe have begun to receive international attention. The controversy over the 1992-93 convoy shocked Japan and resulted in a reevaluation of its plutonium policy in the 1994 Long Term Program.[60] While most nations criticized the plan on safety and environmental grounds, the potential for the seizure of plutonium by terrorists also raised nonproliferation concerns. A 1988 study by the U.S. Department of Defense warned that "even if the most careful precautions are observed, no one could guarantee the safety of the cargo from a security incident, such as an attack on the vessel by small, fast craft, especially if armed with modern antiship missiles."[61]

The fifth source of nonproliferation concern, the potential exporting of Japanese nuclear reactors, is less stated and not directly related to the plutonium program. Demand exists both at home and abroad. Domestically, the Chernobyl accident in 1986 alarmed the Japanese public, hitting the nuclear program. Though to a lesser degree than in most industrialized countries, the growing anti-nuclear movement forced the dropping of plans outlined in the 1986 MITI White Paper to build 120 nuclear power plants by 2030. Since December 1986, no new sites have been completed. Moreover, equipment investment for nuclear power by the nine major electric utilities dropped 56 percent from 1991 to 1994.[62]

This trend has shifted the attention of Japan's nuclear industry to East Asia, where exploding energy demand might be met by ambitious nuclear programs. Nuclear firms see China and Indonesia as major potential markets. Other nations, such as Vietnam, are also showing interest. The Japanese nuclear community has proposed a pan-Asian agreement, nicknamed "Asiatom" or "Pacific Atom," to police the recycling of nuclear material and prevent military diversions. This would, according to them, provide a framework for industrialized nations to export nuclear reactors to Asian countries.[63] Although the threat of military use is scarcely immediate, some are already alarmed, since the promotion of nuclear energy in tandem with the IAEA safeguard systems and "Asiatom" echoes Eisenhower's Atoms for Peace policy, as well as its possible consequences in promoting *de facto* proliferation.[64]

The sixth and final reason for the concern is political. While Washington has been aware since the 1960s of the potential political will of Japan to obtain nuclear warheads, it has never heard it expressed as vocally as it has in the post-Cold War period. At the Tokyo Economic Summit in July 1993, Japanese leaders refused to give unconditional support to an indefinite extension of the NPT. Less that a month after the summit, an informal statement made by Foreign Minister Muto reported: "If North Korea develops nuclear weapons and that becomes a threat to Japan, first there is the nuclear umbrella of the U.S. upon which we can rely. But if it comes down to a crunch, possessing the will that 'we can do it' is important."[65] Since then, similar statements have been repeated by other high-ranking officials. Even after endorsing an indefinite extension in 1995, Japanese officials have noted pointedly that there "is a clause in the NPT allowing withdrawal from the treaty."[66]

Tokyo has responded quickly to the suspicion caused by such comments. It has denied having the political will to acquire nuclear arms by stressing the social "nuclear allergy" and the "three nonnuclear principles" declared in 1968.[67] Some officials in Japan have maintained that Japan's initial hesitation about the NPT indefinite extension is due to its moral crusade to achieve a "zero-nuclear" world.

Japan's official position on the 1995 NPT Extension Conference was endorsing an indefinite extension and urging the nuclear weapon states to continue nuclear disarmament effort. Domestic response was mixed. Supporters of the NPT welcomed the increasing trend of nuclear nonproliferation, while the skeptics criticized the discriminatory nature and the lack of focus on nuclear disarmament.[68]

The Clinton administration considers U.S.-Japan bilateral security ties as the key to hindering Japan's acquisition of nuclear weapons. A report written in November 1994, which became the basis for Assistant Secretary of Defense Joseph Nye's policy to rejuvenate U.S. military links with Tokyo, notes: "Some in Japan appear to be questioning old taboos regarding force projection, arms exports and even nuclear weapons."[69] Shortly before, the Japanese prime minister's special panel completed a review of Japan's basic defense posture in August 1994, emphasizing the importance of U.S. nuclear deterrence: "...it is absolutely essential for Japan, which adheres to a nonnuclear policy, that the credibility of the U.S. deterrent be maintained."[70]

Furthermore, the United States considers Japan as the threshold country for nuclear nonproliferation in East Asia. Japan's uncoupling from the U.S. nuclear umbrella could signal the end of its reliability for other nations.[71] The Department of Defense's February 1995 East Asia Strategy Report concludes, "...it is the maintenance of United States security commitments, notably to Japan, and America's force levels in the region, which bolster the sense of security and help forestall possible attempts to build a nuclear weapons capability."[72]

EXAMINING NONPROLIFERATION CONCERNS

Discussion on how to approach these potential proliferation forces has been largely absent. But with-

out it, criticism of the Japanese plutonium program remains hollow and irrelevant to existing problems. To prevent nuclear proliferation in Japan, it is necessary to examine each concern, assess its significance, and provide the most effective prescription.

Nuclear weapons capability. If the nuclear weapons capability *per se* of the Japanese plutonium program were to deliver such a devastating blow to nonproliferation efforts that either the United States or the international community would voice the need to discontinue the project, how might such an event take place? Which nation or organization has the authority to curtail directly the energy policy of sovereign Japan? How could another country's concern outweigh the strong domestic forces driving the program? The right of the IAEA is limited to inspecting materials in declared nuclear facilities; all such facilities in Japan are safeguarded. The United States is so far the only power to negotiate a freeze in the operation of nuclear reactors in another nation, as it did in North Korea in 1994.[73] However, the 1988 U.S.-Japan Agreement gave comprehensive approval to Japan's plutonium program for the next 30 years. Moreover, as seen in President Carter's anti-recycling policy in 1977, opposition from the pro-nuclear, pro-plutonium, yet pro-nonproliferation factions in the United States may soften such interventionist actions.[74]

The only forces that might potentially stop the plutonium program in Japan exist within Japan. Even though Tokyo has stuck to energy security, such a scenario cannot be totally ruled out. The Japanese project has, especially in recent years, suffered from technological difficulties, excessive cost, and possibly, international pressures. Examples include the 1994 Long Term Program that announced the postponement of the second commercial reprocessing plant and FBR commercialization schedule, as well as a delay in the Rokkasho-mura reprocessing plant. Furthermore, the coming deregulation of the Japanese electric industry has increased its flexibility on the cost issue. Deregulation resulted in the atypical rejection by the electric utilities of the prototype ATR construction in July 1995. Utilities have also expressed their reluctance to order a demonstration FBR if the construction cost exceeds 1.5 times that of a light water reactor (LWR).[75] Some even argue that Tokyo intends to use the August 1995 report published by the Massachusetts Institute of Technology (MIT), discouraging further development of the Japanese plutonium program, as an excuse to reverse the program; this speculation is caused by the partial funding of the report by PNC.[76]

The leakage of two to three tons of non-radioactive liquid sodium coolant in MONJU in December 1995 further sobered the advocates of the program. PNC officials announced that this prototype FBR might have to cease its operation for two years.[77] This will delay not only the construction of a demonstration FBR but also the whole recycling program due to the increased skepticism about the technology and the safety measures. The apprehension could be reflected in a higher O&M cost, which would discourage the electric utilities from continuing the plutonium program.[78]

On the other hand, the fundamental commitment to the plutonium program remains. Moreover, *positive* pressures also exist in the international nuclear community. Nuclear experts from Europe have expressed high expectations that MONJU will succeed in initiating electric generation.[79] Some are attracted by the idea that the Japanese and European plants could recycle plutonium from dismantled nuclear warheads in the United States and former Soviet Union.[80]

More essentially, abolishing the plutonium program would not guarantee that Japan could not become a nuclear weapon state. The technical know-how and experience of producing nuclear arsenals have already been acquired with existing plants. Not only is the disinvention of nuclear arms impossible, but information on their design is also widely available.[81] But most nuclear weapon states did not develop their arsenals from commercial programs. This suggests the irrelevance of the civilian plutonium program to any potential weapon program. Nevertheless, with or without the cancellation of the plutonium program, Japan would retain its capability to acquire nuclear weapons, through the continued existence of the civilian nuclear program.[82]

Demonstration effect. If the Japanese plutonium program is suspended, to what extent might it serve as a positive example of the nonproliferation? With no nation having a strong FBR program, justification for such a program would be difficult. Canceling it might discourage countries such as China, Russia, or South Korea, which have expressed ambitions for plutonium programs.[83] But while its cancellation would reduce the risk of proliferation to a considerable extent, the rationale for plutonium reprocess-

ing or recycling would remain, since other countries such as Germany, Britain, France, and Russia pursue one or the other of these.[84] Reprocessing plants produce separated plutonium, which is usable for mixed-oxide fuel (MOX) fabrication for LWRs as well as for nuclear weapons production. Therefore, abolishment of the Japanese plutonium program would substantially—but not fully—erase the nuclear proliferation risks posed by the demonstration effect of existing plutonium programs.

Stockpile. Ironically, speeding up the plutonium program would reduce the stockpile of plutonium. The stockpile exists in Japan in part because of the delay in use of MOX fuel in the LWR and FBR programs.[85] If Japan were to put a top priority on reducing the stockpile, accelerating its FBR program would be a theoretical step in the right direction, if not a total solution. It is also difficult to argue exclusively against the presence of the stockpile in Japan since: 1) it is under IAEA safeguards; and 2) other nations, especially nuclear weapon states, also have plutonium stockpiles. Any stockpile reduction measure would therefore have to embrace all other non-nuclear club nations with stockpiles (i.e., Germany, Belgium, and Switzerland), as well as the nuclear weapon states, in order to create sufficient international pressure on Japan. Otherwise, the FBR program would remain the only solution to the stockpile issue.[86]

Shipments. If the plutonium program were to terminate, where would the remaining plutonium go? If it were to stay in Japan, the stockpile issue would remain as a problem. The other option would be to shift the stockpiles, for example, to an international IAEA repository; this would require shipment of the material. Without such a transfer, the stockpile issue—and therefore Tokyo's weapons capability and the negative demonstration effect—would remain even if the program were terminated. Finally, the completion of the recycling and reprocessing programs would erase the need for shipments from Europe; as in the stockpile case, the recycling program (this time reprocessing plants) would remain a solution to the shipment issue.

Export of nuclear reactors. If Japan gave up its export ambitions in Asia, would it spell the end of the nuclear energy dreams of China, Indonesia, and other nations? More likely, it would only lead to a domination of the market by the United States, France, Russia, and/or Canada. French and Russian firms have already signed contracts to build nuclear reactors in China, provoking the chairpersons of Westinghouse (WH) and General Electric (GE) to visit Beijing.[87] Both American companies benefit not only by building their own reactors but also by Japanese firms selling reactors in China, since WH and GE have licensing agreements with them. From a nonproliferation point of view, this situation echoes that of the Eisenhower period, when the administration competed for civilian nuclear markets with the Soviet Union. Therefore, to halt nuclear energy programs in the rest of Asia, the United States or an international organization must include not only Japan but other exporting countries as well. Since the export of LWRs is not perceived as a direct proliferation threat (as evidenced by the North Korean case), it will be difficult to implement such an action.

Political will. With or without the plutonium program, Tokyo could acquire nuclear weapons, if it developed the political will. Although the probability is small under current circumstances, it could grow if the international balance of power were to shift. Japan's nuclear assessment could be influenced by foreign relationships with: 1) the United States, which provides the nuclear umbrella; 2) China and Russia, neighboring nuclear weapon states; and 3) North Korea or a unified Korea, if either entity acquired nuclear arms.

It would be unwise to believe that economic interdependence would prevent Tokyo from acquiring nuclear weapons. First, if economic reasons were a real deterrent, Japan, or any trading state, would never go nuclear. Second, interdependence could have adverse effects; other countries would not retaliate, for example, by closing their markets against nuclearized Japan, precisely because of their economic dependence on Japan. Third, previous retaliatory economic measures against nuclear activities, such as the recent boycott of French products, have never caused serious long-term damage to the weapon states. Thus, economic interdependence should not be overestimated in analyzing Tokyo's decision to acquire nuclear weapons.

Currently, the U.S.-Japan Peace Treaty guarantees to Tokyo extended U.S. nuclear deterrence. This is the basis of Japan's present nuclear policy. In other words, without the U.S. nuclear umbrella, Japan's acquisition of nuclear arms would become more likely. There are still well-understood motivations for the U.S. military presence, such as

countering the Chinese threat to Taiwan, countering the North Korean threat, policing the Spratly Islands, muting East Asian fears of Japan's large, high-tech military, and containing the smaller (but still extant) Russian threat. Unlike the Cold War era, however, all of them are too indirect to pose a clear and present danger to the United States. Therefore, they do not guarantee a commitment of indefinite length. Moreover, countering North Korea and patrolling the Spratly Islands are more or less viewed as doing a favor for Japan. Containing Japanese militarism is also increasingly seen as allowing Japan a "free-ride" on U.S. taxpayers. Such beliefs are gaining momentum in Washington as traditional isolationism grows in the post-Cold War period, worsening bilateral trade frictions and causing Americans to view Tokyo as an economic rival.[88] Even voices questioning the need for the U.S. nuclear umbrella have started to be heard.[89]

If the credibility of the U.S. nuclear deterrent diminishes, Japan could feel the need to fill the gap. Tokyo might reconsider its response to Russian and Chinese nuclear capabilities, which until now has been verbal at most. This reassessment would depend on the stability of Russo-Japanese and Sino-Japanese relations. In its relations with Moscow, Tokyo has recently been enhancing its economic ties, including participation in Sakhalin oil and gas projects. This has occurred despite the conservative uproar in Japan over the Northern Territories dispute during the early years of Yeltsin's presidency.[90] However, the possible reversal of Russian reforms, given the nationalistic trends demonstrated by Zhirinovsky's popularity in the 1993 elections, could move Japan to counter Moscow's nuclear capability with its own arms.

Tokyo feels a stronger threat from China. It is apprehensive about Beijing's continued nuclear tests, its rapidly expanding military budget, and the vast size of the People's Liberation Army. Coupled with these capabilities, China's claims on the Spratly and Senkaku Islands directly provoke Japan's sense of vulnerability. A regional war over both islands, as well as over Taiwan, would interfere with its oil tankers. Tokyo's apprehension of Beijing's military strength was recently evoked in the Diet by Foreign Minister Yohei Kono.[91] China, on the other hand, is also wary of Japanese military capacity, especially naval projection, and the potential of its uncoupling from the U.S. security umbrella; this suspicion has its roots in Japan's continued failure to come to terms with its imperial past in World War II.[92] In the aftermath of the loss of the U.S. nuclear deterrent, Tokyo might judge that nuclear weapons would be a cheap way to balance the giant size of the Chinese army.

North Korea's distrust of Japan resembles China's distrust of Japan. Although the military threat it poses is smaller, North Korea's is also more direct. Tokyo never felt a danger during the Cold War as immediate as when in 1993 Pyongyang flight-tested the medium-range Nodong 1 ballistic missile, capable of carrying nuclear, chemical, or biological weapons. The missile could reach western Japan, including the Osaka metropolitan area.[93] Japan's sense of insecurity surfaced in 1994 during the North Korean crisis, when a survey showed that 71.4 percent of Japanese expressed "anxiety" about the possible existence of nuclear arms in North Korea.[94] Most mainstream strategists, including the Japan Defense Agency—which stressed that the crisis was a "most acute threat to Japanese security"—advocated defensive measures, like a theater missile defense system. In response to arguments that North Korea is an abnormal, terrorist state, they expressed the view that a Japanese nuclear defense would not be as effective as U.S. nuclear deterrence. However, former Defense Minister Taku Yamazaki stated in May 1994 that he would oppose the indefinite extension of the NPT if North Korea were to be permitted to develop nuclear weapons.[95]

Seoul is as critical of Japanese politicians' insensitive remarks as Pyongyang is. On the other hand, many Japanese, especially the older generation, are disturbed by the Koreans' emotional reaction. Each considers the other untrustworthy, and, therefore, a potential threat. Thus, if unification, even peacefully, were to take place in the future, the hostility of North Korea would not mellow greatly.

Moreover, if the U.S. security alliance is weakened after the disappearance of the North Korean threat, South Korea might acquire a nuclear arsenal for the same reasons that could theoretically drive Japan in that direction. Since many in Tokyo view a unified Korea as an economic rival and a possible military threat, it may respond by acquiring its own nuclear weapons.[96]

Still, even without the U.S. nuclear umbrella, Tokyo would need tremendous political strength and a persuasive excuse to mute the likely international criticism for withdrawing from the NPT regime. Whereas deploying nuclear weapons against China or Russia would be especially

difficult, Japan has made sure that its withdrawal from the NPT is legally possible. Nuclearization against North Korea or a unified Korea would be politically easier for Tokyo because in each case Korea would have to withdraw from the NPT before Japan would.

Liberals argue that the domestic nuclear allergy will prevent Tokyo from going nuclear. The legacy of the Hiroshima and Nagasaki bombings is heavily reported every August. Many politicians and bureaucrats have voiced the responsibility of Japan, as the world's sole nuclear victim, to lead the drive for the abolishment of nuclear arms. Tokyo has pledged itself to the "three non-nuclear principles": that Japan would not produce, not introduce, and not possess nuclear weapons.

Overlooked in this analysis is Japan's adherence to the U.S. nuclear umbrella. The nuclear allergy, anti-nuclear commitment, and the three principles are all discussed in the context of "humanity vs. nuclear weapons" or "weapon states vs. non-weapon states," resting on the comfort provided by U.S. nuclear deterrence. But they should not be confused with Tokyo's national security policy. An anti-nuclear commitment is not unique to Japan, being common to other non-weapon states, such as Australia. However, the nuclear allergy is a flexible phenomenon; even a poll as recent as 1976 shows 48 percent of Japanese citizens felt "quite a bit" or "somewhat" uneasy about Japan not having its own nuclear weapons.[97] In fact, the famed three principles do not have a legal basis and were produced by Tokyo to broaden public support for the U.S.-Japan Security Treaty in 1968.[98] Moreover, Prime Minister Eisaku Sato, the very person who declared the principles, had a pro-nuclear ideology, which was expressed privately to the U.S. ambassador in December 1964:

> If the other fellow has nuclear weapons, it is only common sense to have them oneself. The Japanese public is not ready for this, but would have to be educated. The younger generation is showing hopeful signs of going this way(...). Nuclear weapons are less costly than is generally assumed, and the Japanese scientific and industrial level is fully up to producing them.[99]

Thus, there are good reasons to believe that Japan's anti-nuclear sentiment is merely a product of the U.S. security umbrella. These are exemplified in a November 2, 1995 quote from a *Yomiuri* newspaper article:

> Without the U.S.-Japan Treaty, how can we counter the three-million People's Liberation Army in China? What can Japan do if something happens on the Korean peninsula? Without the treaty, the only way Japan can survive is to multiply its defense budget and to develop its own nuclear capability.[100]

These views are not those of a sensational journalist, but those of Satoshi Morimoto, a well-known military strategist and the former head of the security policy office in the Ministry of Foreign Affairs (MOFA).

CONCLUSION

Nonproliferation concerns surrounding the Japanese plutonium program have been voiced in three main areas: 1) the possible acquisition of nuclear weapons by Japan; 2) other states' fears about Japan's intentions; and (3) the program's creation of a double standard in efforts to stop plutonium programs in rogue countries. This article has sought to suggest that Japan's plutonium program is only partially responsible for these concerns.

As for Japan joining the nuclear weapons club, Tokyo's political direction will play the key role. Japan's efforts to improve relations with its neighbors point in the most positive direction for nonproliferation efforts in the region. Domestically, Japan should start discussing how to maintain the balance of power in a region of multiple nuclear weapon states, in case the U.S. nuclear deterrent disappears; in doing so, Japan could avoid panicking when the time comes. Washington and Tokyo should work together in sorting out how to counter nuclear threats in the region. Weapon states must realize that Japan would like to see greater commitment from them to reduce the number of nuclear warheads, not only in the United States and in Russia, but also in China. The current NPT regime has its limitations. It could be used effectively to create an anti-nuclear political climate, but it does not cover all the complicated factors affecting international nuclear relations.

States that are uneasy about Japan's plutonium program have essentially distrustful relationships with Tokyo. Again, Japan has room to improve its partnership with its neighbors. Tokyo should realize the militaristic fears that the program encourages among its neighbors. Unless Japan improves its overall diplomatic relations and becomes more open and vocal about the objectives of its plutonium program, nonproliferation concerns will not

fade away, with or without the program.

Double standards have always been present in the area of nuclear policy, not only with North Korea but also with France, Britain, Israel, Russia, Iran, and others. The very premise of non-weapon states and weapon states in the nonproliferation policy framework is itself a double standard. Rather than sticking to a universal approach, a continuation of the U.S.-Japan bilateral alliance may be more appropriate to avoid proliferation.

As this article has suggested, abolishing the Japanese plutonium program through outside pressure is not only unlikely, but also would not solve all nonproliferation concerns. Japan's nuclear capability, foreign skepticism, regional tensions, as well as the double standard in nuclear policy would all remain. Free criticism of the program should be encouraged, but should remain verbal. More significantly, nonproliferation watchers should not be so concerned about the plutonium program as to overlook the more important factors in Japan's future nuclear decisionmaking: its bilateral relations with China, Russia, the two Koreas, and most importantly, the United States.

[1] Energy Information Administration, *1994 World Nuclear Outlook* (Washington, D.C.: Department of Energy, 1994), pp. 4-17.

[2] This overview of Japan's plutonium program is basically drawn from Eugene Skolnikoff, Tatsujiro Suzuki, Kenneth Oye, *International Responses to Japanese Plutonium Programs* (Cambridge, MA: Working paper from the Center for International Studies Massachusetts Institute of Technology, August 1995), pp. 2-26.

[3] *Asahi Shimbun*, August 30, 1995, p. 3.

[4] *Nihon Keizai Shimbun*, July 12, 1995, p. 1.

[5] Skolnikoff, Suzuki, Oye, pp. 7-12.

[6] Thus, ships that carry spent nuclear fuel from Japanese nuclear reactors, leave Japan for Europe. After the spent fuel is reprocessed in France or Great Britain, it is carried back to Japan to be used in nuclear reactors or to be disposed. The latter shipment receives most of the publicity because it includes the separated, weapons-usable plutonium.

[7] Emiko Terazono, "Mixed Welcome Awaits N-cargo," *Financial Times*, April 25, 1995, p. 6.

[8] Leonard S. Spector and Mark G. McDonough, with Even S. Medeiros, *Tracking Nuclear Proliferation* (Washington, D.C.: Carnegie Endowment for International Peace, 1995), pp. 69-70; "Kazakhstan: Nuclear Reactors," CIS Nuclear Profiles Database, Monterey Institute of International Studies, January 1996.

[9] Nakasone recently admitted thinking then, "Without nuclear development, Japan would remain forever as an agricultural nation," in an interview in *Asahi Shimbun*, October 30, 1995; Nihon Genshiryoku Sangyo Kaigi (JAIF), ed., *Nihon no Genshiryoku: 15 Nen no Ayumi*, v.1 (Japan's Nuclear Power: Fifteen Years of Progress) (Tokyo: Nihon Genshiryoku Sangyo Kaigi, 1971), pp. 3-6.

[10] Richard K. Lester, "U.S.-Japanese Nuclear Relations: Structural Change and Political Strain," *Asian Survey* XXII (May 1982), p. 419.

[11] Daniel Yergin, *The Prize: The Epic Quest for Oil, Money & Power* (New York: Touchstone, 1991), pp. 351-367.

[12] Cited in Skolnikoff, Suzuki, Oye, p. 2.

[13] Skolnikoff, Suzuki, Oye, pp. 49-50.

[14] *Nihon Keizai Shimbun*, September 18, 1995, p. 15.

[15] Ryukichi Imai, *IAEA Sasatsu to Kaku Kakusan* (IAEA Inspection and Nuclear Proliferation) (Tokyo: Nikkan Kogyo Shimbun Sha, 1994), pp. 110-114.

[16] "Statement of Policy on Peaceful Uses of Atomic Energy," NSC 5507/2, March 12, 1955 (Secret), in *Nuclear Non-Proliferation Declassified Documents*, Document No. 191 (Washington, D.C.: National Security Archive, 1991).

[17] Peter A. Clausen, *Nonproliferation and the National Interest* (New York: HarperCollins, 1993), pp. 29-42.

[18] Lester, p. 419.

[19] "Progress Report on US Policy Toward Japan," NSC 5516/1, October 19, 1955 (Top Secret), pp. 1-2, in *Declassified Documents 1993*, Document No. 481 (Woodbridge, CT: Research Publication, 1993).

[20] "Report of the Van Fleet Mission to the Far East," White House, April 26, 1954 (Top Secret), pp. 8-9, in *Declassified Documents 1988*, Document No. 1113 (Woodbridge, CT: Research Publication, 1988).

[21] "Genpatsu Donyu No Scenario" ("The Scenario of Introducing Nuclear Power") (Nihon Hoso Kyokai documentary, March 16, 1994).

[22] Richard J. Samuels, *The Business of the Japanese State* (Ithaca, NY: Cornell University Press, 1987), pp. 234-244.

[23] Memorandum, White House, April 20, 1955 (Top Secret), p. 2, in *Declassified Documents 1994*, Document No. 482 (Woodbridge, CT: Research Publication, 1994).

[24] Skolnikoff, Suzuki, Oye, p. 7; JAIF, pp. 48-54.

[25] Richard G. Hewlett and Jack M. Holl, *Atoms for Peace and War 1953-1961* (Berkeley, CA: University of California Press, 1989), pp. 316-318.

[26] *Ibid.*

[27] Memorandum of Discussion, National Security Council, February 10, 1955 (Top Secret), cited in Clausen, p. 34.

[28] Genshiryoku Iinkai (JAEC), ed., *Genshiryoku Kaihatsu 30 Nen Shi* ("Thirty-year History of Nuclear Development") (Tokyo: Genshiryoku Iinkai, 1986), p. 491.

[29] Skolnikoff, Suzuki, Oye, p. 7.

[30] *Ibid.*

[31] Letter from the AEC Chairman Glenn T. Seaborg to Special Assistant to the President for National Security Affairs McGeorge Bundy, September 30, 1964, in *Nuclear Non-proliferation Declassified Documents*, Document No. 996 (Washington, D.C.: National Security Archive, 1991).

[32] Skolnikoff, Suzuki, Oye, pp. 42-46.

[33] *Asahi Shimbun*, August 30, 1995, p. 3.

[34] Skolnikoff, Suzuki, Oye, pp. 46-48.

[35] *Ibid.*, pp. 48-49.

[36] Clausen writes, "In short, the controls that emerged from the IAEA deliberations were essentially a lowest-common-denominator outcome, which the United States 'regarded as minimal.' But U.S. officials rationalized accepting this result on several grounds: the spread of atomic information and the existence of other sources of assistance (especially Great Britain and the USSR) made it impossible and self-defeating for the United States to insist on maximum controls; the system obtained was preferable to none and could be strengthened incrementally over time; some proliferation was likely to occur regardless of the IAEA system; and proliferation on a small scale was probably manageable in light of the clear superiority of the existing weapon states." Clausen, pp. 36-37.

[37] *Ibid.*, pp. 43-60.

[38] *Ibid.*, pp. 74-99.

[39] Memorandum for the President, Department of State, July 27, 1962, pp. 2, 3, in *Nuclear Non-Proliferation Declassified Documents*, Document No. 892 (Washington, D.C.: National Security Archive, 1991).

[40] Clausen, p. 74-81.

[41] W.W. Rostow, "A Way of Thinking About Nuclear Proliferation," Internal Paper, November 19, 1964 (Confidential), p. 1, in *Nuclear Non-Proliferation Declassified Documents*, Document No. 1046 (Washington, D.C.: National Security Archive, 1991). Echoing Rostow's argument is Joseph S. Nye in 1978: "We are sometimes told that the goal is hopeless because the nuclear 'horse is out of the stable.' But proliferation is a matter of degrees, not absolutes. Our policy can affect the number of horses, which horses, and when horses leave the barn." Joseph S. Nye, "Nonproliferation: A Long-Term Strategy," *Foreign Affairs* 56 (April 1978), p. 602.

[42] "Background Paper on Factors Which Could Influence National Decision Concerning Acqui-

sitions of Nuclear Weapons," Department of State, December 12, 1964 (Secret), pp. 12-16, in *Nuclear Non-Proliferation Declassified Documents*, Document No. 1079 (Washington, D.C.: National Security Archive, 1991); "Memorandum for the Members of the Committee of Principals," ACDA, June 25, 1965 (Secret), pp. 1-16, in *Declassified Documents 1994* Document No. 1807 (Woodbridge, CT: Research Publication, 1994).

[43] Clausen, pp. 87-89.

[44] *Ibid.*, p. 132.

[45] *Ibid.*, pp. 127-133.

[46] Charles K. Ebinger, "US-Japanese Nuclear Energy Relations: Prospects for Cooperation/ Conflict," in Charles K. Ebinger and Ronald A. Morse, eds., *US-Japanese Energy Relations: Cooperation and Competition* (Boulder, CO: Westview Press, 1984), pp. 153-156.

[47] Lester, p. 421.

[48] Clausen, pp. 142-143; Ryukichi Imai, "US-Japan Nuclear Diplomacy," in Michael Blaker, ed., *Oil and the Atom: Issues in US-Japan Energy Relations* (New York: The East Asian Institute, Columbia University, 1980), pp. 61-62.

[49] Imai (1980), pp. 64-66; Ebinger, p. 156.

[50] Imai (1994), pp. 112-114.

[51] Clausen, pp. 156-160.

[52] The strengthening of U.S. influence was a response to the passage of the 1978 Nuclear Non-Proliferation Act (NNPA), which required the President to renegotiate all existing nuclear agreements to satisfy the more stringent requirements of the NNPA. Tighter regulations were implemented, for example, over plutonium shipments. *Ibid.*, pp. 160-162; Skolnikoff, Suzuki, Oye, p. 7.

[53] Fact Sheet, *Non-proliferation and Export Control Policy*, White House, September 27, 1993.

[54] *Kyodo* News Service, September 9, 1994.

[55] R. Manning, "Rethinking Japan's Plutonium Policy: Key to Global Non-Proliferation and Northeast Asian Security," *The Journal of East Asian Affairs* IX (Winter/Spring 1995), pp. 114-131; Skolnikoff, Suzuki, Oye, pp. 19, 22.

[56] Satoshi Isaka, "China Unveils Plan to Process Plutonium," *Nikkei Weekly*, March 13, 1995, p. 1.

[57] *Nihon Keizai Shimbun*, October 25, 1995, p. 6.

[58] William Walker and Frans Berkhout, "Japan's Plutonium Problem - And Europe's," *Arms Control Today* 22 (September 1992), p. 6.

[59] Fact Sheet, *Non-proliferation and Export Control Policy*; Skolnikoff, Suzuki, Oye, pp. 19, 22.

[60] Skolnikoff, Suzuki, Oye, pp. 5-7, 24-26.

[61] Walker and Berkhout, p. 7.

[62] Peter Dauvergne, "Nuclear Power Development in Japan," *Asian Survey* XXXIII (June 1993), pp. 578-582; "Asia Genshiryoku Shijo Wa Hyakka Ryoran No Yoso," (Asian Nuclear Market is Blossoming), *Engineering Business* 14 (November 1994), p. 6.

[63] "Asian Nuclear Market is Blossoming," pp. 6-9.

[64] Philip Shenon, "Energy-Hungry, Asia Embraces Nuclear Power," *The New York Times*, April 23, 1995, Week in Review, p. 4.

[65] Charles A. Radin, "In Japan, Quiet Talk of Nuclear Arms," *The Boston Globe*, September 19, 1993.

[66] Ivo H. Daalder, "What Vision for the Nuclear Future?" *The Washington Quarterly* 18 (Spring 1995), p. 130.

[67] Seiichi Kondo, "Japan's Nuclear Stance" (letter to the editor), *The Washington Post*, November 14, 1993, p. C6.

[68] For example, the editor in chief of *Asahi Shimbun* writes, "NPT is a discriminatory treaty. If only five people in the classroom were allowed to possess knives, all the others would demand, naturally, either to let the others have one each or to have the knives taken away from the five. NPT resembles this situation." Kiyofuku Chuma, "Kokusaiteki Na Kanshi Kikan O" ("Establish an International Monitoring Organization"), *Asahi Shimbun*, May 13, 1995, p. 1; Daalder, p. 130.

[69] Patrick M. Cronin and Michael J. Green, *Redefining the U.S.-Japan Alliance: Tokyo's National Defense Program* (Washington, D.C: National Defense University Institute for National Strategic Studies, 1994), p. 2.

[70] *Ibid.*, p. 52.

[71] Michael Mandelbaum, "Lessons of the Next Nuclear War," *Foreign Affairs* 74 (March/April 1995), pp. 24-28.

[72] Office of International Security Affairs, *United States Security Strategy for the East Asia-Pacific Region* (Washington, D.C.: Department of Defense, 1995), p. 22.

[73] In the case of North Korean crisis, Japan, South Korea, and arguably China also contributed to the framework agreement. However, it was the United States that had the power to negotiate directly with North Korea and reach an agreement; and was that precisely not what Pyongyang wanted to see? Mandelbaum writes, "The course of nuclear nonproliferation in the post-Cold War era, however, will depend less on what happens at the United Nations in 1995 than in Washington thereafter. The main obstacle to the spread of nuclear weapons is not the NPT but the United States...." Mandelbaum, p. 23. One might also argue Israel has the same power to halt other nuclear weapon programs given the raid on the Iraqi Osiraq reactor in 1981. However, that sort of "power" could be obtained by any nation as long as it has a military force. Here the power refers to an overall diplomatic influence that enables the nation to prompt a negotiation exclusively on nuclear nonproliferation, be it in a bilateral manner, or by gathering a multinational support. Moreover, Mandelbaum argues, "Would-be proliferators can insure themselves against a single crippling strike, such as that Israeli warplanes delivered, in the same way that the United States and the Soviet Union during the Cold War protected their nuclear programs from a disarming first strike. They can multiply, disperse, conceal, and shield the component parts of the program so that a single raid could not entirely destroy it. This is exactly what Iraq proceeded to do after 1981...." *Ibid.*, p. 35.

[74] For example, see: American Nuclear Society, *Protection and Management of Plutonium*, (La Grange Park, IL: American Nuclear Society Special Panel Report, August 1995). During Carter's anti-plutonium crusade, the U.S. nuclear establishment became an obstacle, eventually forcing the administration to build consensus by prompting a two-year study of INFCE. Clausen, pp. 144-145.

[75] Skolnikoff, Suzuki, Oye, p. 4.

[76] *Asahi Shimbun*, October 31, 1995, p. 4.

[77] "Saiaku Nara Ninengo," ("In Worst Case, Operation Could Start Two Years From Now"), *Asahi Shimbun*, December 12, 1995, p. 1.

[78] "Denryoku Gyokai Ni Hamon," ("A Blow to Electric Industry"), *Asahi Shimbun*, December 15, 1995, p. 13.

[79] *Asahi Shimbun*, August 30, 1995, p. 3.

[80] Frank von Hippel, Marvin Miller, Harold Feiveson, Anatoli Diakov, and Frans Berkhout, "Eliminating Nuclear Warheads," *Scientific American* 269 (August 1993), p. 47.

[81] David Kay, "The IAEA," in Mitchell Reiss and Robert S. Litwak, eds., *Nuclear Proliferation after the Cold War* (Washington, D.C.: Woodrow Wilson Center Press, 1994), p. 312.

[82] Skolnikoff, Suzuki, Oye, pp. 23-24.

[83] *Ibid.*, pp. 13-17.

[84] Tatsujiro Suzuki, "Japan's Nuclear Dilemma," *Technology Review* 94 (October 1991), p. 42.

[85] Skolnikoff, Suzuki, Oye, pp. 18-19.

[86] Lawrence Scheinman and David A.V. Fischer, "Managing the Coming Glut of Nuclear Weapon Materials," *Arms Control Today* 22 (March 1992), p. 12.

[87] Shenon, "Energy-Hungry, Asia Embraces Nuclear Power."

[88] For example, see: Chalmers Johnson and E.B. Keehn, "The Pentagon's Ossified Strategy," *Foreign Affairs* 74 (July/August 1995), pp. 103-114.

[89] Ted Galen Carpenter, "Closing the Nuclear Umbrella," *Foreign Affairs* 73 (March/April 1994), pp. 8-13.

[90] Mike M. Mochizuki, "Japan and the Strategic Quadrangle," in Michael Mandelbaum, ed., *The Strategic Quadrangle* (New York: Council of Foreign Relations Press, 1995), pp. 145-146.

[91] Terumasa Nakanishi, "Kawaru Anpo No Kozu To Nichibei Kankei," ("Changing Structure of US-Japan Peace Treaty and US-Japan Relations"), *Asahi Shimbun*, November 18, 1995, p. 4.

[92] Mochizuki, pp. 138-139; David Shambaugh, "China's Challenge to Asian Security," *Survival* 36 (Summer 1994), pp. 48-51.

[93] Spector and McDonough, with Medeiros, pp. 105-106.

[94] Mike M. Mochizuki, *Japan's Nuclear Policy and Regional Security* (Santa Monica, CA: RAND paper prepared for the Center for National Security Studies of the Los Alamos National Laboratory project, June 1994), p. 2.

[95] *Ibid.*, pp. 4-5.

[96] Thomas L. McNaugher, "Reforging Northeast Asia's Dagger?" *Brookings Review* 11 (Summer 1993), pp. 14-15.

[97] Joseph A. Yager, "Japan," in Joseph A. Yager, ed., *Nonproliferation and US Foreign Policy* (Washington, D.C.: Brookings Institution, 1980),

pp. 25-26.
[98] Mochizuki (1995), p. 119.
[99] Memorandum for the Members of the Committee of Principals, p. C3.
[100] Satoshi Morimoto, "'Okinawa Mondai' To Nichibei Anpo," ("Okinawa Issue" and US-Japan Peace Treaty), *Yomiuri Shimbun*, November 2, 1995, p. 8.