5

TRYING TO CHANGE HEARTS AND MINDS

Japanese Nuclear Power Plant Siting

IN EARLY 1981, after initial surveys by the central government had determined that local conditions met the necessary geological and geographical criteria, the private Chugoku Electric Power Company proposed a nuclear reactor complex for the rural town of Kaminoseki in the southern prefecture of Yamaguchi. Central government bureaucrats assisting with the process learned through phone surveys, visits, and discussions with local politicians that local feelings about the project were mixed. To overcome opposition from fishermen's cooperatives, the utility and the local government used central government funds to fly local residents to visit other communities that were hosting nuclear power plants.[1] The bureaucrats also promised also residents millions of dollars for new roads, medical and old age facilities, and loans and subsidies for new businesses.

As talks bogged down, officials from the Agency for Natural Resources and Energy visited and emphasized to local residents the importance of nuclear power plants for Japan's energy security. The government distributed to households thousands of pro-nuclear brochures stressing the safety of nuclear power and the country's need for new reactors. In their science classes, middle school students used a curriculum written by pro-nuclear central government bureaucrats. Local government officials were flown to Tokyo to learn not only the technological aspects of nuclear power but also how to "spin" it to local residents. Although protests continue, and one fishing cooperative from Iwaishima regularly blocks attempts to survey the area (*Japan Times*, 22 June 2005), the state has never used eminent domain, police presence, or other coercive tools to force the issue. The utility expects the plant to be operational by 2015.

This chapter shows how state authorities in Japan developed strategies of soft social control and complex incentives to handle acute, long-duration

1. This is an example of the soft social control strategy of habituation: by traveling to host communities and meeting similar people living in the shadow of nuclear power, the members of potential host communities become more familiar with a technology often perceived as alien and dangerous.

contention with anti-nuclear civil society. Pressured from the earliest days by local and outside anti-nuclear groups because of japan's World War II experience of nuclear warfare, ANRE, part of the Ministry of International Trade and Industry, developed a wide array of strategies to handle citizen opposition and mold citizen preferences. Though expropriation and other forms of coercion are legal, and the state had relied on those policy instruments in handling opposition to other controversial facilities, the government never used them in siting any nuclear power plant. Instead, ANRE developed targeted strategies intended to overcome opposition and win over the hearts and minds of local subsections within civil society.

Japan's Relative and Absolute Success at Siting Nuclear Power Plants

Given its firsthand experience of the dangers of nuclear weapons, no nation should be less friendly to nuclear power than japan, yet it embarked on a commercial nuclear power program almost as soon as the American occupation ended. Against all odds, the only country in the world that ever experienced significant civilian exposure to radioactivity began building one of the world's strongest civilian nuclear programs. Although Italy, the United States, and Germany suspended nuclear programs during the 1980s and 1990s, and even France, known for its commitment to nuclear power, canceled its ambitious Superphoenix program (Kodama 1995,282), japan has kept going with plans for fast breeder reactors, nuclear fuel recycling, and new plants (Pickett 2002). Furthermore, despite early and continuing protests, and japan's purported "nuclear allergy" *(kaku arerugl),* communities continue to volunteer to host plants; others host interim radioactive-waste storage facilities; and additional plants are in the works (NGSK 45/1 [2001]: 6; author's interviews with Diet members, winter 2002). The national political culture and comparatively fewer access points for citizens may explain some of this success, but the state's use of soft social strategies and incentives is most critical in understanding its current nuclear program.

In Japan as in the United States, the private sector undertakes siting responsibilities, but the Japanese government plays a substantial role in the process: in addition to research and design, risk amortization, and open support for nuclear power expansion (Lester 1983,30), it has "carefully nurtured japanese industries" through "a huge commitment of technological and capital resources" (Garran 1997,25). Further, like other nations with nuclear energy policies, japan faced increasing resistance to atomic reactors over time (Rosa

and Dunlap 1994), but it did not respond by placing a moratorium on nuclear power. Instead, it identified potential obstacles-primarily fishing cooperatives, local political elites, youth, and women-and aimed to make them more receptive to nuclear power through a variety of programs.

With the advent of nuclear power, MITI (and later ANRE, formed in 1973 as an agency within MITI) assisted private companies by conducting extensive geologic and demographic surveys of potential host communities. The state remains tightly connected to private utility firms; when anti-nuclear activists argued that plans for Yamaguchi's Kaminoseki nuclear site encroached on wetlands, bureaucratic influence by members of MITI compelled the company to alter the plant's layout. Regular meeting and the *amakudari* retirement system[2] ensure that public and private sectors remain close. In 2001 the Science and Technology Agency (STA) and the Ministry of Education merged into the Ministry of Education, Culture, Sports, Science, and Technology, an organization that regulates the field of nuclear power and educates the nation about it.[3] Still, ANRE continues to play the strongest role in the nuclear siting process (CNI C 82 [Marchi April 2001]: 9).

Two parallel arcs of state-civil society interaction can be traced over nuclear power plant siting. The first focuses on the evolution of public opinion, incorporating major events and accidents and several cases of reactor siting to detail the evolution of state strategies over time. Opposition to nuclear power resonated with many Japanese citizens who regarded it as a known but highly dreaded technology. Groups in civil society which had been completely local coalesced within a short period and organized into regional and ultimately national organizations. The second arc chronicles how the state targeted narrow groups within civil society, including farmers, fishermen, and local political leaders, with specific policies and programs. Some of these groups hold veto power because they control resources, such as water and land, necessary for the siting of reactors; others have a reputation for opposing nuclear power. Bureaucrats view their agreement, or at least acquiescence, as critical to the success of the nuclear power program.

Japan's historical experiences expanded the salience of nuclear power issues beyond local host communities. Figure 11 reveals that anti-nuclear civil society has garnered more steady attention in Japan over time than anti-dam and anti-airport groups. Reporters covered anti-nuclear movements even between

2. *Amakudari,* literally "descent from heaven," refers to a system whereby bureaucrats retire into industries they regulated while in office (Colignon and Usui 2003).

3. Because of the historical context of much of the material in this chapter, I continue to use the older names for these organizations when appropriate.

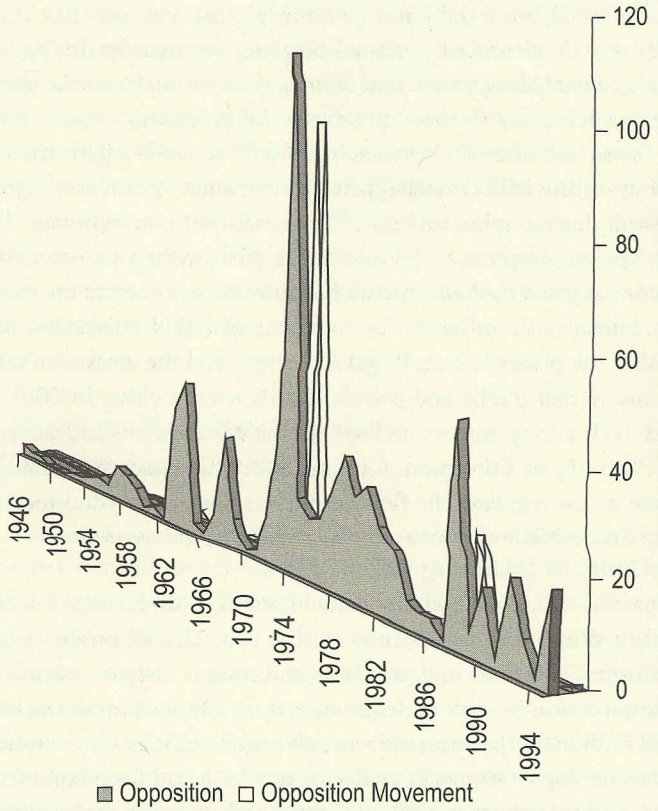

Figure 11. Steady media coverage of anti-nuclear sentiment in Japan. Number of articles with the key words "nuclear power" and ... *SOl/ree:Asahi Shinblltl* CD-ROM

1946 and 1966-a span of two decades during which the few extant anti-dam and anti-airport groups garnered no reporting whatsoever. As communities targeted to host nuclear plants responded to siting plans with protest and opposition, they found sympathetic ears in the larger public.

Unlike dams and airports, nuclear power brings with it considerable dreac and other widespread externalities; together, these lower the barriers to wider collective action. In 1955, for example, millions of Japanese citizens signed petitions against nuclear weapons after Japanese fishermen were exposed to radioactivity. Media coverage of anti-nuclear power groups remained steady between large-scale events such as Three Mile Island-which *caused* a *spike* in the mid-1970s-and Chernobyl, which brought an upsurge of reportin in the late 1980s. Even between these well-publicized events, however, anti-

nuclear sentiment made it into the national mainstream media. Although airport siting in Japan generated more articles overall, eliminating those focused primarily on the extreme case of Narita reveals more regular coverage even of typically nonviolent antinuclear protest.

The "Age of the Gods": The 1950s and 1960s

On 13 February 1961 when the opposition party leader interrogated the chairman of a nuclear power commission about the possibility of success, he replied, "Because nuclear technology is still in the age of the gods *[Kamiyo jidai],* , God knows whether the program ... might be carried through" (NGSK 4/5 [1961]: 1).

The atomic bombings left a legacy of more than the so-called nuclear allergy among the Japanese people (Gale 1978, 1118; author's interviews summer 2002); it includes monuments, annual ceremonies, and constant literary references and allusions to Hiroshima and Nagasaki, along with a recurring distaste for nuclear weapons.[4] Not only is Japan not a nuclear power militarily, but many analysts argue that its nuclear allergy is responsible for public resistance to its nuclear power program.

Despite such trepidation, after the American occupation ended, Japanese authorities quickly moved to ensure sufficient power for industrial and home use. In September 1952, believing that regional companies lacked the capability to maintain facilities sufficient for nationwide energy production, the government created the semi-private Electric Power Development Corporation to guarantee energy production (Okawara and Baba 1998, 4). Nevertheless, the EPDC rarely produced more than five percent of the total energy output.. At that time, nine regional firms-Hokkaido, Hokuriku, Chubu, Chugoku, Kyushu, Shikoku, Kansai, Tokyo, and Tohoku Electric Power Companies-were made responsible for power generation, distribution, and service in t1)eir jurisdictions.[5] But although these private utility companies would be officially responsible for siting and constructing nuclear power plants, the state played an enormous role through policies aimed at smoothing the siting process.

In 1954, closely tied into the affairs of the American government by its occupation experiences, and responding (along with other nations) to President

4. Among the better-known books is Masuji Ibuse's *Black Rain (Kuroi Atle).* See Broderick 1996 for a full discussion of the movies on "affected persons" *(hibakusha),* and Treat 1995 for a discussion of Japanese literature on the atomic bombing.

5. [n the 1950s, Okinawa was an American protectorate; the power company for those islands-the tenth regional one, Okinawa EPCO-was formed in 1972 as a special public corporation.

Dwight Eisenhower's calls for the civilian use of atomic energy, the Ministry of International Trade and Industry began to debate the use of nuclear energy within the framework of "Atoms for Peace" *(heiwateki riyo) (AS,* 9 April 1954). In 1955, MITI set up a nuclear energy division and petitioned the Diet for 5.1 billion yen ($14 million at 1955 exchange rates) for nuclear energy research with the encouragement of the Liberal Democratic Party *(AS,S* September 1955). In December 1955, these joint efforts culminated in the passage of the Basic Atomic Energy Law, which established a framework for civilian use of nuclear power (Baba 2002, 17).

In Mdxch \9':.4, 'oefoTe ';;. connneTc"";;.l nude';;.T t'TOg,T';;.Trcould. . 'oeg.,"n, ,e'1-eral Japanese fisherman in a boat named *Lucky Dragon* had been exposed-one fatally-to a Bikini Atoll hydrogen bomb blast. This event deepened antinuclear convictions and spawned the first antinuclear organizations. By August 1955, a women's group based in Tokyo's Suginami Ward had collected more than 30 million signatures against nuclear weapons and weapons testing. Besides increasing antinuclear feelings among the general public, the *Lucky Dragon* tragedy provided the impetus for the formation of *Gensuikyii* (Gensuibaku Kinshi Nihon Kyogikai), the japan Council against Atomic and Hydrogen Bombs, which began meeting approximately one year later in Hiroshima (Nakagawa et al. 2004). From its inception, Gensuikyo primarily demonstrated against nuclear weapons, but its members also petitioned and mobilized against civilian nuclear power plants. In 1965, *Gensuikin,* the japan Congress against Atomic and Hydrogen bombs, broke off from Gensuikyo and later helped form the nationwide umbrella organization Citizens' Nuclear Information Center (CNIC), which coordinated anti-nuclear power activities around the country (Tabusa 1992, 126). Gensuikin has been more active in protests against commercial nuclear power plants than Gensuikyo.

In 1956 the central government formed Genshiryoku Iinkai, the Atomic Energy Commission (ABC) within the prime minister's office to manage nuclear power policy. Members of the ABC and state bureaucrats encountered a portent of things to come when plans for japan's first reactor met with resistance from civil society groups in the planned host community: oppQsition from Uji City residents, along with high demands for compensation for nearby urban dwellers, led them to cancel the plan for an experimental reactor at Kansai University *(AS,* 21 September 1957).[6] Vocal resistance to nuclear power plants in potential host communities was joined by opposition parties; in November

6. In December of 1960, nuclear promoters within the university did eventually settle on the village of Kumatori near Osaka as the site for the plant *(AS,* 9 December 1960).

1959 the Socialist Party announced its opposition to upgrading the British-model Calder Hall reactor for use in Japan and promised to coordinate its resistance with citizens around the country (*AS*, 12 November 1959).

Recognizing widespread distrust of nuclear power, the government promoted its development by establishing the first Nuclear Power Day on 26 October 1964 (*AS*, 31 July and 4 October 1964).[7] This annual observance served as one of the government's first soft social control instruments, disseminating a positive image of nuclear power. On Nuclear Power Day the government sponsors essay contests on the necessity and safety of nuclear power, provides free concerts, and runs commercials in both print and television media to emphasize the need for atomic power. The government also began to open free museums relevant to energy issues, hand out pamphlets and put up posters in subways, and allow the public access to nuclear facilities (NGSK 11/13 [1969]: 30).

Tōkaimura, the site of Japan's major nuclear accident in 1999—a fuel-processing error that resulted in two deaths—hosted the first Japanese experimental reactor, the Japan Power Demonstration Reactor. Sponsored by the Japan Atomic Energy Research Institute, the JPDR came online in 1963. Tōkaimura—a rural village that was losing many fishermen—was also the site for the first nonexperimental commercial reactor, which came online in 1966 under the management of the Japan Atomic Power Company. When MITI selected the location in February 1957, no protest was noted in media coverage (*AS*, 22 February 1957). In the late 1970s, Ōkaimura accepted a second commercial reactor which came online in 1978, but this time not without protest (*AS*, 19 February 1973): existing social networks within civil society—in this case, fishermen's cooperatives—mobilized, bringing 130 ships to protest the plant, arguing that negotiations for the siting of the second plant had proceeded without their input (*AS*, 3 September 1973).

Because of regional economic and demographic stagnation, the local Tōkai community had actively campaigned for the first plant siting with the stipulation that the reactors conform to the "Atoms for Peace" ideology (Hase 1978, 80-81). Though they were initially supportive, in late 1969 fishermen carried out a series of demonstrations against facility expansion: on 4 October, 200 boats rallied in the sea near the proposed site, and on 11 October, 1,000 boats from local fishermen's cooperatives gathered to demonstrate against plans to construct a fuel recycling facility on site (*AS*, 11 October 1969). And, according to activists, in November 1970 the anti-nuclear weapons group Gensuikin

7. The first Nuclear Power Day was not held in the late 1980s, as some have stated (see Dauvergne 1993,581).

brought together some 100 protesters to the site from its regional branches (Tanaka 1971, 117).

In the early 1960s the Tokyo Electric Power Company (TEPCO) sited its first complex of commercial nuclear reactors in and around Okuma village in Fukushima. (Later reactors were placed in the nearby villages of Futaba, Naraha, and Tomioka.) The village of Okuma, like its neighbors, is a small coastal town of fewer than 9,000 people. Town archives show that when MITI and TEPCO announced their desire to construct a nuclear plant, Okuma village officials volunteered eagerly. As one observer reported, the town "welcomed the nuclear power plant, then the country's second" because "it meant jobs and tax revenue" (Kelly 2002, 1). In October 1960 a wealthy resident set aside a large plot of coastal shore land for the power plant, land that had been a military airstrip and later converted into a salt plant. As with other public bads, the chosen location for the nuclear complex had few neighbors and had already hosted a public bad-a military airfield. -In 1961 the town council formally invited the nuclear power plant through a public vote (TEPCO, direct communication with the author, summer 2002).

For at least a decade beginning in 1960, in an effort to provide a head start to the utility companies, MITI carried out a series of topographical and geographical surveys of coastal areas to map appropriate sites. It spent more than 100,000 yen each year on the process, and each year selected four sites for further testing. These targeted surveys cost MITI 5 million yen (approximately $14,000 at the 1960 exchange rate). In 1968 MITI's survey committee selected three Hokkaido sites as candidates for nuclear power plants. The committee declared that it had considered many technical criteria in selecting sites, including proximity to electricity demand, strong bedrock foundation, few earthquakes, proximity to the sea, small local population, and the ability to insure the site (Ohashi 1972, 117). (The technical criteria-few recorded earthquakes, abundant water, and aseismic bedrock-remained important official considerations for future reactor sitings (Denki jigyo koza henshu iinkai 1997, 278-279)-although as shown in chapter 1, geological and geographic criteria may playa role in initial selection, but the choice of sites within technically appropriate localities is best predicted by the weakness of local civil society.)

From the late 1950s until the early 1970s, despite resistance from some local communities and subgroups, many residents were neutral toward their nuclear neighbors: the promise of new jobs, increased tax revenues, and improvement and maintenance of their roads seemed to overcome safety concerns (Hatakenaka 1972, 45). The Japanese state therefore saw no reason to create additional incentives or intensive soft social policy instruments. As one analyst observed, these years "were a time of enthusiasm .... The government

and industry were making strides, local communities were benefiting from infrastructure development, and little was known of the difficulties that lay ahead" (Pickett 2002, 1349).

Beginning in the late 1960s, the Management and Coordination Ministry (S6much6) initiated a series of opinion polls on energy conservation. These surveys, carried out quite regularly, gauged how seriously Japanese considered energy conservation in their daily lives, and included questions on nuclear power.[8] Figure 12 shows the results of three surveys. Given their wording differences, I compressed responses into three categories: continue building plants, maintain current number or stop building, and no answer. The graph shows

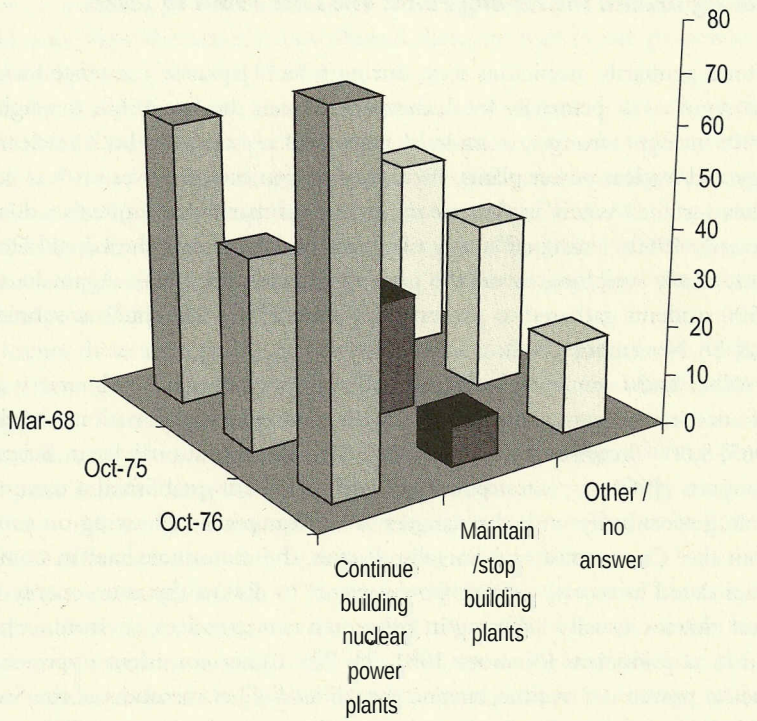

Figure 12. Early support for the Japanese nuclear program. Percentage of respondents who said that Japan should .. .
Source: Management and Coordination Agency *(sOlllUC"O)* surveys (1968, 1975, 1976)

8. On average, these surveys, carried out by the Chilo Chosa Sha (Central Research Services), involved at least 2,200 respondents, all over age twenty and located throughout Japan. Several surveys in the mid-1980s had 4,000 respondents; in 1990 there were closer to 7,000. These large, randomly sampled populations provide excellent representation of wider Japanese public opinion.

that through the 1970s the majority of the respondents-close to 70 percent-supported the continuation of Japan's nuclear power plant policies. Notice that the percentage of respondents not answering the question shrank from 40 percent to around 10 percent; some citizens became comfortable with the concept of a commercial nuclear power program. Government assurances and accompanying economic benefits dampened protest and kept mobilization local. Nuclear power seemed to provide an excellent alternative to the difficulties accompanying reliance on oil. Furthermore, no major accidents plagued the industry during that period; nuclear power was still quite clean.

Moving toward the Boiling Point: The Late 1960s to 1980s

After a primarily auspicious start, during which Japanese resistance to siting was regular but primarily local, the period from the late 1960s through the 1980s brought stronger, extra-local, organized resistance to both nuclear energy and nuclear power plants. Increasing citizen concern over nuclear power issues surfaced when an American nuclear submarine attempted to dock in the early 1960s, setting off nearly two years of debate, with the Liberal Democratic Party weighing in on the issue (Jiyuminshuto 1964). Again in 1964, 1,500 students gathered to protest the presence of a U.S. nuclear submarine (*AS*, 28 November 1964).

What had been initially been small-scale segments of civil society grew into anti-nuclear associations operating at the regional and national levels. In 1965,8,000 professors and researchers formed the national Japan Scientists' Congress (JSC) to protest pollution, and in 1972 it established a committee dealing specifically with the dangers of nuclear power. Drawing on support from the Communist and Socialist Parties, the committee met in communities slated to receive nuclear power plants to discuss the issue openly with local citizens, usually bringing in fishermen's cooperatives, environmentalism, and local politicians (Nemoto 1981, 21-22). Other consistent opponents of nuclear power at that time, beyond the "liberal" Diet members of the Socialist and Communist Parties, were labor unions, sometimes even of the power companies themselves (Gogatsusha 1982). Between 1972 and 1977 the committee of the JSC met five times, in Hokkaido, Fukui, Ibaraki, Fukushima, and Shimane-all prefectures where nuclear power plants were planned or under construction.

In 1968, 1,800 local residents signed a petition against a proposed research reactor in Saitama's Omiya City. The government rejected their petition (*AS*, 4 December 1968); nonetheless, by 1973 the experimental facility was

dismantled because of citizen lawsuits. Also in 1968, stronger local protests, had began to develop, such as a demonstration against the proposed Hamaoka plant in Shizuoka (*AS*, 21 March 1968). A core complaint among anti-facility groups was the lack of citizen input; in many cases, village politicians "invited" a plant without involving or consulting the public. This procedure was repeated in Tomari-mura in Hokkaido, as well as in Kashiwazaki (Ohashi 1972, 117). In Kagoshima prefecture a local assembly rammed through its "invitation" to the power company over the strong objections of 2,000 anti-nuclear students and local residents who rallied at the legislature (*AS*, 29 July 1974). In the early 1970s, academics studying nuclear power complained bitterly about nondemocratic plant siting that involved only the governor, mayor, and local notables, put everyone else in the "upper gallery" seats (where they could only view the action), and allowed them no part in the process at all (Todai kogakubu Joshukai 1973,4).

As local communities and organizations demonstrated against nuclear power, **MITI** moved to extend its public relations activities beyond its annual Nuclear Power Day Spending more than 900,000 yen a year (approximately $2,500 at the 1970 exchange rate) through the early 1970s, **MITI** sponsored the distribution of materials to communities that already had or were targeted for nuclear power plants in order to spread "understanding about the safety of nuclear power" (NGSK 14/10 [1970]: 26).

Despite these attempts to garner public trust and acceptance, the decision to site new reactors in Niigata's Kashiwazaki-Kariwa region set off years of struggle and forced **MITI** to create more sophisticated strategies for handling resistance. Opposition began in 1969 when the private Tokyo Electric Power Company initiated negotiations with local community members over land purchases and siting. Claiming that the local community had invited them, TEPCO officials indicated their desire to begin construction on a large-scale nuclear power complex (*AS*, 19 September 1969). The proposed location, approximately six kilometers from the nearby town of Kashiwazaki, made many community residents nervous and split the town: the anti-nuclear groups were concerned about the possibility of accidents, radioactive leakage into the water, and health risks; the pronuclear organizations, primarily set up by local businesses, saw the complex as a way to save the village from economic and demographic stagnation.

By late 1969, declaring that the ground under the site was "as soft as tofu," local high school teachers and others in Kashiwazaki formed an anti-nuclear-power union and demonstrated against the plant (Todai kogakubu Joshukai 1976b). In a statement written in 1970, a local fishermen's cooperative angrily accused town officials of inviting the plant in because of the vast sums of

money the town would receive in property taxes (Noru 1971,65). In 1972 anti-nuclear citizens gained a majority on the town council and successfully brought up a referendum that opposed construction (*AS*, 16 July 1972). In 1972 another city, N oto, in Ishikawa prefecture, also held a referendum against nuclear power siting, but prefectural officials there prevented town officials from counting the results by (*AS*, 22 May 1972). Since local citizens' referenda *(jumin tohyo)* are not legally binding on politicians, future mayors and local town councils can ignore results without legal sanction.

The Kashiwazaki-Kariwa case in Niigata prefecture prompted central government ministries to develop new strategies. When anti-nuclear groups protested against the Kashiwazaki-Kariwa complex, STA sent in its former minister to give them a "pep talk" *(happa wo kake)* emphasizing the importance for the national energy crisis of building such plants quickly (Kamata 1991, 239). This policy tool, designed to call upon the people's "obligations" to assist the nation toward its energy goal, joined a growing body of soft social control instruments that the state created in response to better-organized, rising opposition.

On 4 July 1974, five years after initial negotiations with locallandowners, TEPCO submitted an application to the government to construct eight nuclear power plants near the villages of Kashiwazaki and Kariwa. In 1975, during that same struggle, the central government set up the Japan Science Conference in neighboring Kariwa to convince local citizens that the planned reactors were safe. Recognizing the presence of strong local beliefs concerning the risks of nuclear power, bureaucrats brought in "neutral" experts who stressed the plant's safety. Anti-nuclear activists decried what they felt was the government's deliberate deception, leveraging the "authority" of scholars to undermine their opposition (lOdai kogakubu Joshukai 1976b, 8-9). The very legitimacy of these visitors, however, who reassured local residents that nuclear power was safe and needed, provided another soft social control tool.

During this period, when citizens complained about the secrecy of the siting system, **MITI** developed strategies that seemingly increased citizen input and involvement in the siting procedure but in reality provided little leverage over or access to the process, despite a 1959 Diet bill that mandated public hearings on nuclear plants. But as complaints continued, the state finally outlined a plan to hold "public hearings" when officials in the Atomic Energy Commission felt it necessary. In the summer of 1977, **MITI** announced environmental assessments and public hearings with the hope that these procedures would overcome local fears and complaints about the lack of access (*AS*, 5 July 1977).

Public hearings are among the hard social control tools in the state's nuclear siting toolkit; at these meetings, preselected citizens with prescreened questions are given a short period of time to present residents' concerns before moderators cut them off. (Anti-nuclear groups have frequently boycotted these hearings, saying they exist merely as pro forma procedures and in fact have no bearing on the actual outcome of the process.) During assessments, bureaucrats must collect the opinions of local citizens to include in ministerial reports. These procedural changes reflected MITI's desire to be seen as responsive to citizen concerns about transparency and citizen participation, but the new procedures have never yet ended or altered a siting process. As even a pro-nuclear editorial writer was forced to admit, the responses from citizens have "not changed fundamental policy" in any way (NGSK 7 [1998]: 3). Nor have MITI and other central government ministries ever denied a license or withheld approval for any nuclear power plant for *any* reason, let alone as a result of citizen responses (author's interviews with electric utility personnel, fall 2002).

In December 1980 after an earlier event had been suspended because of contention, the government and TEPCO attempted to hold a public hearing on the Kashiwazaki-Kariwa power plants. The event attracted 6,000 anti-nuclear activists from Gensuikin, labor groups, and the Socialist Party. Though 2,000 policemen were brought in to guard the building, only eleven of the twenty preselected questioners and 77 of the 250 confirmed observers could enter through the confusion (Kyodo Newswire, 4 December 1980). Despite anti-nuclear sentiment in Kashiwazaki and Kariwa, the plants were completed in September 1985 after almost seventeen years of contestation.

In 1972, in the context of increasing protests against Kashiwazaki-Kariwa and other plants, MITI and STA began establishing branch offices and "atomic energy centers" in potential host communities to demonstrate the government's good intent and to provide the bureaucrats with direct access to their "constituents." These centers allowed citizens to speak directly with local government representatives-often a rare event-and, as soft social control tools, provided local citizens with the feeling that they were not only informed about the process but also able to supply the government with their input. But these centers rarely provide information about accidents, radiation sickness, or the absence of radioactive waste storage and disposal systems. Rather, they focus on the economic benefits for local citizens and emphasize the safety of the plants and their necessity for the national good.

Another tool the government developed to quell public unrest over nuclear power siting was the explanatory meeting, at which bureaucrats and utility representatives described plans to the local citizens. As one nuclear expert observed,

however, authorities were "able to hold an explanatory meeting ... only under the strict guard of riot police" (NGSK 24/5 [1980]: 2). Those who attended discovered few handouts, little balanced information, and very short time periods for questions (*AS*, 20 September 1973). And because many anti-nuclear groups sought to disrupt these hearings, riot police were called to keep the peace (*AS*, 18 September 1973).

In the fall of 1970, MITI proposed legislation that would allow the central government to assist private utilities further in siting nuclear power plants. Concerned about local opposition and striving to ensure that energy goals were met, bureaucrats suggested an intermediate organization that would smooth negotiations with local residents (*AS*, 7 October 1970). Fearing an energy shortage, the business association Keidanren sought to speed up the implementation of this measure (*AS*, 3 August 1971). By 1972, MITI's plan to identify those areas supporting the national government's energy plan and assist them with infrastructure upgrades (*AS*, 24 August 1972) would evolve into the Three Power Source Development Laws known as *Dengen Sanpo*.

The Atomic Energy Conurussion had initially sponsored a series of ad hoc local measures for 1Okaimura, the host town for Japan's first experimental reactor, to help build roads, ports, and bridges during the late 1960s.[9] In 1973, after years of urgent pleas from localities that believed they should be receiving some sort of compensation for the presence of nuclear facilities, MITI proposed a Diet bill that would "facilitate the development of local areas near power plants through roads, ports, industrial infrastructure, and radiation monitoring" (NGSK 17/2 [1973]: 30). Under the bill's provisions, the central government would underwrite a large percentage of local costs for infrastructure such as roads or schools in towns that accepted nuclear, fossil fuel, or hydroelectric power facilities (*AS*, 1 July 1974). Then came the oil shocks, which changed the political landscape for nuclear power in Japan: in early 1973 one barrel of oil went for $3; by January 1974 it would cost almost $12. Consequently, the government's role in facility siting, once fairly limited, expanded drastically (Okawara and Baba 1998,5). Over time, the state increased the amount of money provided by the *Dengen Sanpo* and the range of projects for which it could be used (Aldrich 2005a).

The early 1970s sawjoint mobilization and cross-organizational cooperation among anti-nuclear groups in civil society. In 1972, seventeen organizations

9. Note that I characterize *Dengen Sanpo* as the institutionalization of previous ad hoc measures; however, other observers have described it as the personal initiative of former Prime Minister Kakuei Tanaka (author's interview with high ranking TEPCO official, 5 August 2002; see also Samuels 1987,246).

met at *Shika* City to combine their efforts in distributing information on the dangers of nuclear power (*AS,* 4 and 9 February 1972). Anti-nuclear movements in Mihama and Ohi became widely known, especially when residents in Ohi started a recall campaign against their pro-nuclear mayor (*AS,* 4 February 1972). Many members of the Union of Electric Utility Workers, some of them employed at nuclear plants, mobilized to join forces with local anti-nuclear power groups because of the plants' excessive secrecy, lack of proven safety records, and poorly developed radiation standards (*AS,* 6 January 1971). Newspapers commented on the nationwide presence of anti-nuclear groups (*AS,* 1 February 1972). Through legislative wrangling opposition parties in the Diet prevented the ABC from approving plans for construction in Ohi (*AS,* 10 March 1972), while STA officials reassured the public that problems over waste water discharge had been solved through compensation to local fishermen's groups (*AS,* 9 March 1972). In August 1973, anti-nuclear groups cooperated with the Japan Scientists' Congress to hold a symposium on the environmental dangers of nuclear power; they sent a joint objection to the prime minister and to MITI (*AS,* 27 August 1973). The early 1979s also saw anti-nuclear groups using lawsuits to fight reactors, both extant and planned. In the town of Ikata, residents sued the government and the utility company in 1973 (*AS,* 27 August 1973).[10] Fukushima residents sued the government for approving the use of reclaimed land as a base for the second Fukushima reactor (*AS,* 30 January 1974).

In 1977, for the first time, twenty-three anti-nuclear organizations, including the Japan Consumers' Union, housewives' organizations, and Gensuikin, met in Tokyo on Nuclear Power Day to campaign against nuclear power; they passed out brochures at train stations, met at the YMCA for a "post-nuclear seminar" involving victims of the bombings at Hiroshima and Nagasaki, and gathered hundreds of signatures against nuclear power. Later that same week the Japan Consumers' Union sponsored an open forum on increasing opposition to nuclear power because of its nondemocratic nature (NGSK 21/4 [1977]: 23). On Nuclear Power Day in 1978, anti-nuclear groups gathered to promote their slogan "End nuclear power and coexist with nature" (*AS, 29* October 1978). One analyst commenting on the alliances between opposition groups in the 1970s argued that although they "began to work together and gained momentum," they "lacked any real policy influence" (Pickett 2002,

10. This lawsuit, like all other such lawsuits, failed in a local court decision set forth in 1978 (*AS,* 25 April 1978); it failed again in two further appeals (*Nikkei,* 18 December 1984; Kaido 1999,204). See Hasegawa (2004) for a discussion of antiproject movements and lawsuits against developers and the Japanese state.

1349); still, the regular policy responses from the central government suggest that the state was in fact taking their actions quite seriously. In the mid-1970s the central government's Atomic Energy Commission began publishing a variery of public relations documents for local communities, stressing the safery of nuclear power. MITI also publicly debated the possibiliry of siting nuclear power plants in areas without bedrock-that is, of using different or less strict technocratic criteria-to break the deadlock in local communities with more suitable geographic conditions (*AS,* 6 May 1974).

The mid-1970s saw the creation of two national-level anti-nuclear power groups, which served not only as umbrella organizations for smaller NGOs and social movement organizations but also as sources of anti-nuclear information. In 1975, Professor Jinzaburo Takagi, a nuclear chemist, left his career as a research scientist to start the Citizens' Nuclear Information Center with administrative and financial support from the anti-nuclear group Gensuikin. Under his leadership, the CNIC began publishing Japanese- and English-language materials on the dangers of nuclear power and holding a series of conferences and colloquia about plutonium, reprocessing, and nuclear waste. Its two core publications, the sixteen-page *CNIC Monthly* (in Japanese) and the ten-page *Nuke Info Tokyo* (in English), are distributed domestically and internationally. The CNIC emphasizes data collection, scientific research, and dissemination of information and has regularly challenged the central government's nuclear power plans.

The second national-level anti-nuclear organization that both disseminates information and organizes smaller networks is the National Liaison Conference of the Anti-Nuclear Movement (Hangenpatsu Unda Zenkoku Renrakukai), formed in 1975 (Tabusa 1992,125). Its monthly publication *Hangenpatsu Shinbun* (Anti-nuclear newspaper), first published in 1978, has covered not only the activities of various local anti-nuclear power and weapons groups but also accidents and governmental responses to local opposition. Combining profiles of leaders with factual information about the operation of nuclear plants, the paper monitors the government and encourages resistance to national atomic energy policies.

Over time, as anti-nuclear movements increased in number and became better organized, the government decided that a coordinated approach to siting would unify an often fragmented bureaucratic process. While MITI oversaw core licensing and promotion issues, the Ministry of Construction issued relevant construction permits, the Ministry of Finance vetted the budget, and the Environment Agency could theoretically suspend siting on environmental grounds, although it never did so. In December 1976 the government established the Ministerial Council for Promoting a Comprehensive Energy Policy (*Saga* Enerugi Taisaku Suishin Kakurya Kaigi) under the chairmanship

of the prime minister. The council involves a number of ministries, but METI (formerly MITI) dominates the proceedings by providing reference materials and setting the agenda for the meetings (Keizai Sangyosho 2002). The council initiated two new strategies to promote siting: (1) setting up liaison meetings for the construction of the power plants, and (2) designating power plants as Important Electric Power Resources Requiring Special Measures (yo Taisaku Juyo Dengen) (AS, 7 July 1977). The liaison meetings involved representatives from the closest regional bureau of MITI, along with local ministerial offices, the local prefectural governor, and mayors of relevant local towns.

Being designated' by the committee as an "Important Electric Power Resource" meant that the host locality could receive extra subsidies, up to twice what was normally offered. In 1978, for example, the council applied that designation to twenty-two thermal and nuclear power plants and soon sent government officials to these areas to try to smooth the siting process (AS, 11 January 1978). In 1997, twenty-eight nuclear power plants at thirteen sites were given that designation, including a number of contested sites. The council marked Maki-machi, Namie-Odaka, Ashihama, Suzu, and Kaminoseki as areas to receive special subsidies, perhaps because conflicts were ongoing there. These localities each received up to an additional 900 million yen (close to $7.5 million at 2001 exchange rates) over the next five years, while the prefecture received up to 80 million yen (approximately $670,000). In 2001 the right to designate potential or actual host communities was given to the Power Plant Siting Committee (Dengen Ricchi Kaigi).

After the Three Mile Island accident in the United States, March 1979, Japanese authorities on the Atomic Energy Commission reassured the public that "it is almost impossible for nuclear power plants to experience a severe accident" such as that one, a statement inU11ediatelyattacked by anti-nuclear groups (AS, 5 April 1979). Protesters met with MITI officials to argue that the American experience showed how risky nuclear power could be and that Japan should stop its nuclear program, especially because Japan's reactors used the same containment system as that at Three Mile Island. The Japan Scientists' Association asked the government to halt all projects until national consensus could be reached (WS], 9 April 1979, 7). Hundreds of protesters gathered at rallies throughout Japan to demonstrate against nuclear power. Demonstrators at a government symposium 011 Three Mile Island grew violent, and police arrested a number of them. Soon, newspapers stated that anti-nuclear sentiment in Japan was gaining momentum at all levels (AS, 8 April 1979). MITI began sending out more public relations materials emphasizing the necessity and safety of nuclear power, especially to communities struggling against proposed plants (AS, 7 July 1979). MITI also suggested additional subsidies, such as

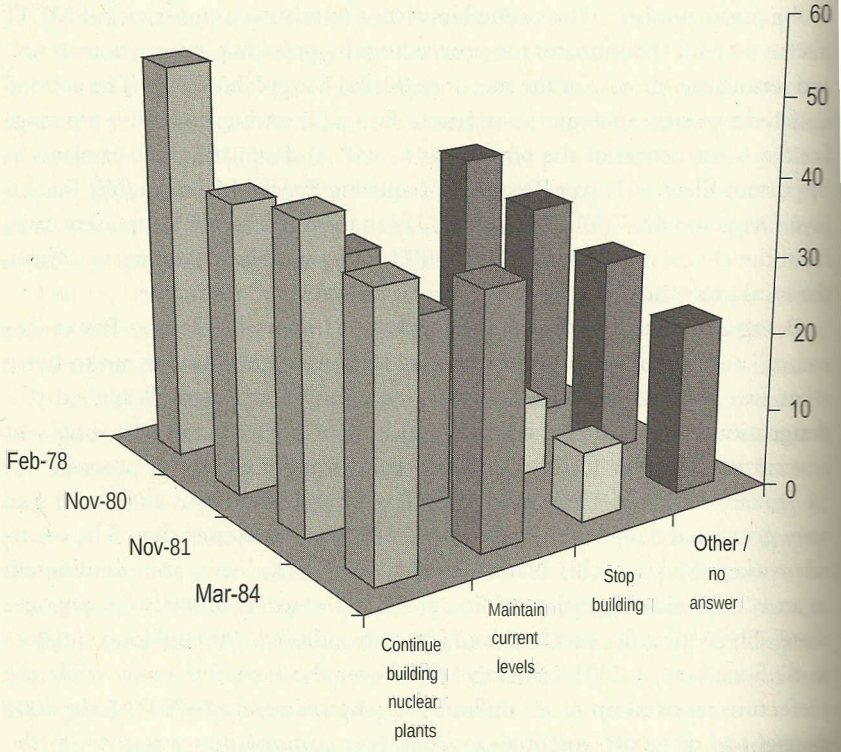

Figure 13. Decreasing public support for nuclear power in the 1970s and 1980s. Percent of respondents who said that Japan should. . .
Source: Management and Coordination Agency *(S011luclto)* surveys (1978,1980, 1981,; 98-

maintenance fees, for host communities, but the Ministry of Finance rejected the plan as unfair because of its single-minded focus on nuclear power-plant communities alone *(AS)* 28 December 1979).

After Three Mile Island, overall support for building new reactors in Japan plummeted. As seen in figure 13, polls in 1980 showed that only 30 percent of citizens were willing to continue building plants-down from 50 percent in February 1979, before the accident. Even though only 10 percent \Nere in favor of stopping current construction, the public was showing widespread concern about nuclear power and a desire to slow Japan's commercial nuclear program.

Containing a Meltdown: The 1980s to the Present

Recent decades have witnessed a drastic increase in the lead times necessary for construction in Japan, along with many failed siting cases. In the villages of

Koza, Hidaka, Kumatori, Hikigawa, and Nachi-Katsuura, among others, planners who had assessed these communities as suitable for nuclear power plants found that sentiment against the plants prevented their construction. The late 1980s and early 1990s brought a flood of lawsuits that targeted not just the private utility companies but also the central government (Kaido 1999). Citizen referenda stalled some previously approved plants that had been counted in official energy projections. One analyst writing in 2002 concluded, "In Japan today, the general public has a negative view of nuclear power development" (Baba 2002, 16).

As increasing numbers of voices in civil society spoke out against nuclear power in the late 1970s and early 1980s, the Liberal Democratic Party created several organizations dedicated to facilitating the siting of plants and hence increasing Japan's production of nuclear energy. In 1979 the LDP formed the 'Conmlittee for the Promotion of Power Sources' and a year later established the Power Source Siting Promotion Headquarters at its party offices in Tokyo. Operating under the prime minister, the Promotion Headquarters included a former **MITI** minister and other high officials. For over two decades the committee sought to construct more nuclear power plants, arguing, for example, that Japan "should promote the siting of nuclear power plants as a national policy from the viewpoints of stable energy supply and environmental protection" (NGSK 43/9 [1999]: 5). LDP politicians also visited local communities to stress the importance of nuclear power plant construction. In 1981, for example, several of them, including the party's secretary-general and the chief of the Promotion Headquarters, went to Kubokawa to try to stop the recall movement against its pro-nuclear mayor. LDP speakers emphasized the 3 billion yen ($14 million at 1982 exchange rates) in grants that the local communities would receive should it be constructed *(Nikkei,* 17 March 1981; NGSK 3 [1981): 35).

The early 1980s saw the deepening of another tool of soft social control:. official visits to local communities. **MITI** officials decided that their presence, somewhat rare in the affairs of communities far from Tokyo, would make the siting process of unwanted projects more legitimate. Therefore, they began to visit targeted localities to explain national energy needs and to warn of coming power shortages if nuclear power plants were not constructed (OECD 1984). For example, negotiations in Kaminoseki between landowners, fishermen, and the utility dragged on in the 1980s, so **MITI** officials arrived to give a series of talks about the need for the plants within Japan's overall energy plans. In 1991, **MITI** began distributing 500,000 copies of a 100-page pro-nuclear brochure in an attempt to "target the moderates" (Perry 1991,37). In 1992 it raised its electricity discounts for host communities from a range of 10 to 15 percent to 30 to 50 percent *(Nikkei ffiekly,* 5 October 1992).

Major nuclear accidents in the late 1980s and mid-1990s, however, pushed public sentiment even more solidly against nuclear power. Some saw the Soviet Chernobyl disaster in April 1986 as a turning point in anti-nuclear public opinion (AS News Service, 23 April 1993). One observer noted that although "the accident *did* not directly lead to higher levels of radioactivity in Japan, the discovery of radioactive food imports from Europe generated tremendous concern among much of the Japanese public" (Dauvergne 1993, 577). Cnell.."\.oo}'\ forced .Japanese plal.'l..uers t.o appt:eci:at.e hovv D"'"\.uchUl.-pacr foreign accidents would have on nuclear power in Japan (Pickett 2002,1350). In 1988, 20,000 anti-nuclear protesters gathered in Tokyo's Hibiya Park for a CNIC rally against commercial nuclear power. Figure 14 shows how, over time, more respondents in Japan were willing to abolish nuclear plants, and fewer were willing unconditionally or even conditionally, to build more. In 1988, with organized protests increasing, MITI opened a public relations

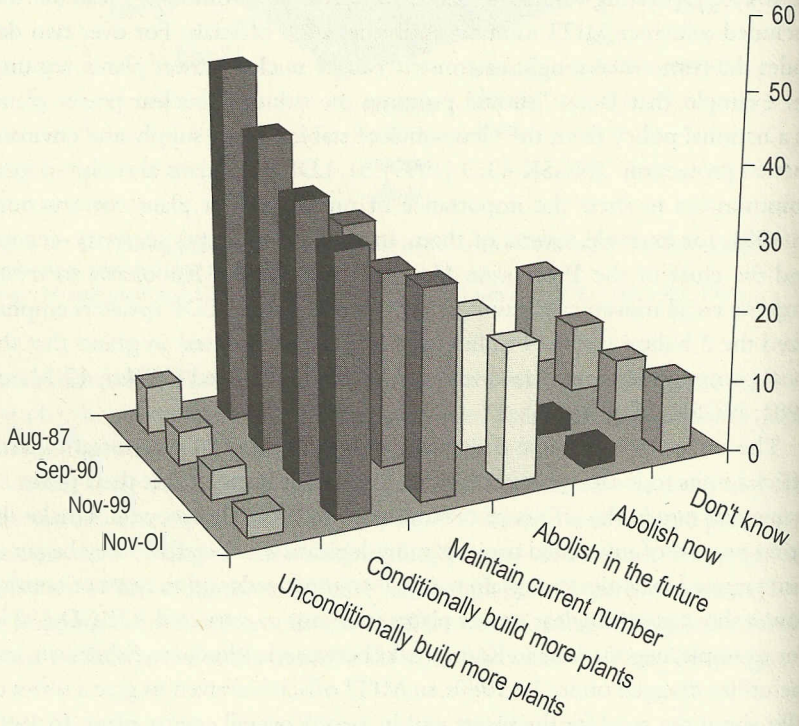

Figure 14. Deepening opposition to nuclear power in the 1990s. Percentage of respondents who said that Japan should. . .
SOl/ree: Management and Coordination Agency *(Solllll/ellO).* surveys (1987,1990,1999); 2001 survey by Agency for Natural Resources and Energy (ANRE,, *Shigfrl. enewgi elLo).*

center promoting nuclear power generation (Tabusa 1992,334). In 1992 the agency began to set out safety measures to be utilized in case of an accident, overturning "the government's long standing position that serious accidents cannot occur at nuclear plants in Japan" (*AS* News Service, 29 May 1992). By moving away from its "unrealistic" position, MITI hoped to defuse worries about major accidents.

In the early 1990s, MITI began to use yet another tool of soft social control: placing advertisements in national papers in the form of articles. At first there was little to indicate that these articles had been authored by MITI, let alone that they were really advertisements; when anti-nuclear groups discovered them, they protested what they saw as subterfuge (*AS* News Service, 23 April 1993). In 1994, expanding the available incentives, MITI began to eliminate ceilings on subsidies offered to host communities (*AS* News Service, 27 June 1994).

On 8 December 1995, less than a decade after Chernobyl, Fukui's Monju reactor suffered a major coolant leak. Although the leak itself did not kill anyone, anti-nuclear groups pounded the government for covering up the danger and refusing to admit its seriousness: the Power Reactor and Nuclear Fuel Development, a state-owned corporation that manages Monju, released doctored video footage of the accident and did not report it immediately. The resulting "public outcry and calls for a permanent closure of Monju" (Terazono 1996,4) were so great that the government was not able to relaunch the reactor until 2005.

Central government bureaucrats still held the tool of expropriation in their toolkits but, in the face of antinuclear unrest, did not seek to use eminent domain because they feared a backlash from wider civil society. Civil servants within ANRE came closest to using it in the late 1990s in the Maki-machi struggle: many years into the siting process of a nuclear power plant there, local citizens successfully brought about a referendum that prevented the sale of land. In 1971, Tohoku Electric Company's announcement of its intent to construct a plant (*Nikkei Weeki)'}* 12 August 1996) mobilized more than 600 furious activists who had attended a meeting they hoped would prevent the invitation (CNFC 15 [Autumn 1996]: 16). The subsequent violence brought out the riot police (*AS,* 19 December 1977). In late summer 1981, when Tohoku attempted to hold public hearings about the reactor, 8,000 demonstrators showed up, and 2,000 riot police were brought in to maintain order (Kyodo Newswire, 28 August 1981). Despite local protests, fishermen's cooperatives in the area signed an agreement transferring fishing rights to Tohoku Electric in return for 3.9 billion yen (approximately $17.5 million at 1981 exchange rates), but the plan stalled because the company was able to acquire

only 95 percent of the land it needed for construction. Mayor Sato, elected in 1986, first took a cautious attitude toward nuclear power and then promised to freeze it during his run for reelection in 1990.

In [illegible] 1994, however, Tohoku Electric had purchased 97 percent of the property it needed and sought to acquire the remaining land [illegible] billion of dollars in property taxes and subsidies once the plant was completed (*Daily Yomiuri* 4 August 1996). Despite this inducement, in late 1994 local residents sought to recall the then pro-nuclear mayor through a petition with more than 10,000 signatures, and Mayor Sato resigned rather than face recall. On 4 August 1996 anti-nuclear residents successfully carried out a referendum-the nation's first involving nuclear power-against plant siting under Mayor Takaaki Sasaguchi, who had been elected in early 1996 on the basis of his commitment to a referendum. Of 20,503 voters (88.29 percent of the eligible Maki residents), 60.86 percent voted against the nuclear plant (Enerugi saga suishin iinkai 2002, 19; CNIC 55 [September/October 1996]: 2).

The referendum encouraged Mayor Sasaguchi to sell the 743 square meters of village-owned land that Tohoku still needed to more than twenty anti-nuclear residents for approximately $143,000. Pro-nuclear groups in Maki brought a civil suit against the mayor for doing so but failed to persuade the Supreme Court (Reuters, 24 December 2003). The mayor thus effectively shut down the possibility of plant construction unless the state approved expropriation of the land. ANRE bureaucrats insisted that the referendum's outcome would have no effect on siting plans (*Enerugi saga suishin iinkai* 2002, 16), and Tohoku Electric itself demanded that the mayor "promptly restore the sold land to its previous state" (NGSK 43/11 [1999]: 13). Internal MITI memos indicate officials' agreement that the plant would fit under the definition of "public enterprise" and hence the contested land could be expropriated legally; nevertheless, concern over the possible negative reaction, combined with the difficulties in convincing the legal authorities that the plant could not have been located in another spot, prevented them from using the power available to them. In interviews, officials stated their belief that if they had expropriated land for the Maki reactor, they would have alienated future mayors who might otherwise be more amenable. By maintaining that communities choose freely to host nuclear plants and avoiding obvious coercion, authorities hoped to draw more support from rural communities.

During this same period, plans for siting that had been approved by the central government, incorporated into electricity production forecasts, and seemingly supported by local communities were then shut down by local opposition. The TEPCO negotiator in Higashidari reflected on almost tilled

decades of bargaining: "The days when communities invited us to build nuclear power plants to help combat the effects of depopulation are gone. We must offer something useful" *(Nikkei VVeekly,* 5 October 1992). In Ashihama, for example, some thirty years after the nuclear power plant plans were announced, thousands of anti-plant demonstrators gathered at the Nagoya headquarters of Chubu Electric Company, while others carried out sit-down strikes nearby *(AS,* 10 and 11 February 1994). Announced in 1963, the Ashihama plant was to have been located between the towns of Nanto and Kisei in Mie prefecture. Nanto's town assembly voted against the plan a year later, while Kisei voted for it (CNIC 76 [March/April 2000]: 3), and the conflict continued for decades. In 1996, Mayor Inaba of Ashihama gathered approximately 810,000 signatures on a petition against the proposed plant and submitted it to the prefectural governor *(Mainichi,* 1 June 1996). In February 2000, half a year after the T6kaimura accident, the governor announced that he was effectively terminating the plan, and soon Chubu Electric acknowledged that it was seeking a new location *(Ise Shinbun,* 2 February 2000).11

Not long after the failure at Maki, MITI asked for 5.09 billion yen (approximately $47 million at 1996 exchange rates) for its 1997 budget to develop new long-term subsidy programs for host communities (Japan Economic Newswire, 21 August 1996). That same year, ANRE began to put out pro-nuclear television commercials in the prefectures-namely, Ishikawa, Yamaguchi, and Mie-where plants were under attack or had been slowed by anti-nuclear forces. These thirty-second spots were shown more than 5,000 times *(AS,* 28 August 1996). MITI began focusing on the environmental aspects of nuclear power, arguing that "relying on fossil fuels will increase the amount of carbon dioxide emissions, but nuclear energy will help prevent global warming" (Terazono 1996,4).

In 2000 the MITI minister publicly stated that citizen opposition had made him doubt the government's projected goals of constructing sixteen to twenty new nuclear reactors by 2010 *(Engineering News Record* 2000). Analysts argued that whereas nuclear power had once looked promising, "a series of accidents and scandals have turned public opinion against it" *(Nikkei VVeekly,* 10 July 2000). By the turn of the millennium even some high courts were beginning

11. Even after Chubu's announcement, some local fishing cooperatives in Kisei pushed to site the plant solely in their village (Naito 2000). Chubu shareholders soon sued the company for paying 200 million yen to local fishermen for the "future fishing losses" expected to result from the plant (which was never built), claiming that the money should be viewed as a bribe (Kyodo Newswire, 19 March 1998). In the spring ot 2000, Chubu announced that it would seek to recover 1.5 billion yen from the local fishermen's cooperatives, as the "money was paid on the assumption that marine research would be undertaken" *(Yomiuri,* 21 March 2000).

to acknowledge the negative externalities accompanying nuclear power plants, though continuing to rule that safety processes were appropriate and sufficient (*AS*, 29 October 1992). On 9 September 1998 the Kanazawa branch of the Nagoya High Court stated on the record that nuclear power plants form a "negative legacy" but did not rule in favor of the local anti-nuclear groups that were seeking to suspend the operations of the Shika reactor (CNIC 68/69 [1998]: 11). In 2000 the Atomic Energy Commission's long-term plan, the first since 1994 and the ninth overall, did not specify numerical targets for new nuclear power plants and did not layout a timetable for developing fast breeder reactors (*Mainichi*, 27 July 2000; *Nikkei*, 26 July 2000). The plan called for the project that by 2010, sixteen to eighteen reactors would be using mixed oxide (MOX) fuel, which blends plutonium and uranium (*Yomiuri*, 20 July 2000)—part of Japan's overall plan to construct a closed nuclear fuel cycle in which spent fuel is recovered and reprocessed into MOX fuel. This process reduces the amount of high-level waste but simultaneously creates radioactive materials that contains four to five times as much plutonium as traditional fuels.

In 2001, the government-controlled Electric Power Development Corporation Ltd. (EPDC, Dengen Kaihatsu Kabushiki Gaisha), established in 1952, finally admitted it had made no headway in its attempts to construct a reactor at Oma in Aomori prefecture. Initially, the plant was to be a demonstration model of an advanced thermal reactor, but EPDC downgraded its plans and agreed to construct an advanced boiling-water reactor that would use solely MOX fuel. Proposed in 1979, it was still at a stalemate after more than twenty years of negotiations with local landowners who refused to sell 1.2 hectares of land to the company. In December 1984 the Oma town assembly had agreed to invite the plant into the community (NGSK 1 [1998]: 19). When hanba (seaweed) fishermen became concerned about the possible damages to their crops resulting from warm discharge water, authorities "asked these fishermen to go and observe other places where there was already a power plant" (CNFC 3 [Spring 2001]: 16). Ultimately, this soft social control strategy of habituation failed because no other host communities produced seaweed as a primary product. Drawn-out negotiations with these local fishermen's cooperatives, which began in 1985, concluded in May 1994 with each member being granted the unprecedented sum of about 9 million yen (approximately $88,000 at 1994 exchange rates) (CNIC 41/5 [1994]: 9); by 1998, the cooperatives had received three compensation packages worth a total of 15 billion yen (approximately $114 million at 1998 exchange rates) (*Mainichi Daily*, 16 August 1998).

As plans for the reactor changed so that the planned project would take in more cooling water, compensation to the fishing cooperatives was increased

m additional 3.60 billion yen ($27.5 million) (NGSK 9 [1998]: 10). Despite progress with the fishermen, in 1994 a local anti-nuclear group, the Peace Labor Union Congress, utilized a *hito~tsubo* strategy that involved dividing up land 100 meters from the reactor core's planned location (CNIC 56 [November/December 1996]: 9). A landowner holding land directly under the planned core itself refused to negotiate; according to one report, "In May 2000, the owner built a greenhouse for strawberries to express his strong will not to sell the land" (NGSK 7/84 [2001]: 16). Despite initial hopes that construction would have begun by 1998, the plan for a reactor in Oma remains in limbo.

Recognizing the potentially paralyzing power of citizens' referenda, the government responded to recent votes against nuclear plants by increasing its presence on the periphery. METI, established in coordination with officials from other ministries, set up a liaison conference in May 2001 to focus on the city of Kariwa's rejection of a proposal to use MOX fuel in reactors. METI distributed flyers to each household in the village in the name of Minister Takeo Hiranuma, assuring residents that MOX was safe (NGSK 45/6 [2001]: 7). In 2002, ANRE opened a local office in Kashiwazaki City after a referendum voted down the use of MOX fuel. The referendum, held on 27 May 2001, focused on the plan to use MOX fuel in Kashiwazaki-Kariwa Unit 3 operations, but after anti-nuclear groups obtained 37 percent of eligible voters' signatures on an initial petition, 53 percent of the voters (approximately 1,900 people) voted against MOX use. Central government administrators admitted, after seeing the results of the referendum, that they "needed to get to know the public better" (NGSK 46/4 [2002]: 15).

Ministry officials from local branch offices, such as those in Hiroshima, now regularly travel to, or invite bureaucrats and citizens from, towns targeted for nuclear power plants to discuss implementing the planned project. Beginning in 2001, teams of three or four METI officials began visiting host communities in the prefectures of Fukui, Fukushima, and Niigata-those with the highest concentration of nuclear power plants-to carry out ongoing public relations activities. Also in 2001, METI again revised the *Dengen Sanpo* to increase the incentives offered to host communities.

The state has never stood idly by, allowing its various incentive and soft social control strategies to remain frozen in place. The *Dengen Sanpo* incentives were first institutionalized in 1974, but within two years MITI began to update them to meet new community demands (*AS*, 6 July 1976), such as public hearings and environmental assessments. By 2002, of the twenty subcategories of grants and subsidies of *Dengen Sanpo* available to communities hosting power plants, all but one were available only to those hosting nuclear

plants; (Keizai Sangyosho shigen enerugi cM 2002b, 7). In 2001, in addition \<> \.h~ 'TboXee Power Source Development Laws, the Diet provided subsidies for road, railway, and port development ana "'ffi."p,-=<:>"~~enQIoiects in areas siting nuclear power plants (NGSK 45/1 [2001]: 12).12

MITI has also increased its public relations campaign work through various associated quasi-governmental organizations. The Japan Atomic Energy Relations Organization (JAERO) handles publicity, and public relations campaigns for the general public; the Center for the Development of Power Supply Regions (Dengen Chiiki_ Shinko Senta) handles policy instruments focused on host communities. Among other activities, the center publishes montWy bulletins on changes in programs that can assist host communities, and it holds

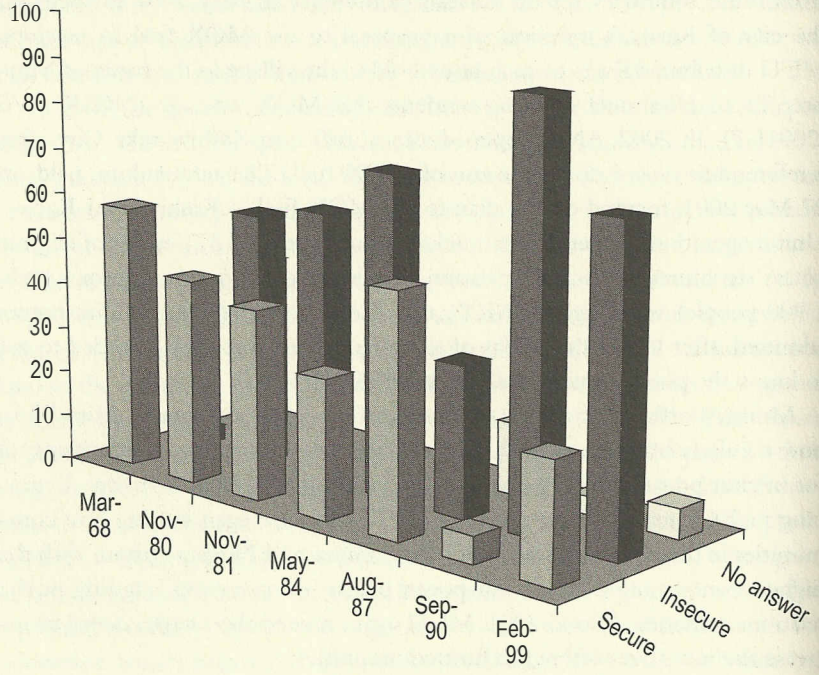

Figure 15. Declining trnst in Japanese nuclear power.. Percentage of respondents_ who feel secure / insecure about nuclear power
SOllrce: Management and Coordination Agency *(Siill1/1chii)* surveys (1968, 1980, 1981, 1984, 1987, 1990, 1999); categories "secure" and "somewhat secure" were combined, as were "insecure" and "somewhat insecure."

12. See Aldrich (2005a) for a full description of the changes in incentive structures.

an annual symposium on the development of regions that have power plants. It also publishes large-scale advertisements in popular business magazines such as *Nikkei Bijinesu* (Business Japan), emphasizing the economic benefits for companies that relocate to nuclear power host communities (Dengen Chiiki Shinka Senta 1997,2002).

Yet 2003, despite increasing government outlays for host communities, the mood among private utilities had become grim. One utility manager was quoted as saying, "If we could, we would like to withdraw" from nuclear power generation (*AS,* 19 August 2003). The central government continued to emphasize and promote the use of nuclear power as a vital energy source, despite sagging public support and major scandals involving cover-ups of cracked assemblies at many nuclear facilities (Kyodo Newswire, 14 July 2003). Figure 15 displays the loss of trust in nuclear power from the late 1960s until the late 1990s. The enormous drop between 1987 and 1990 in the percentage of respondents who felt secure or somewhat secure shows how seriously the Chernobyl accident affected trust in nuclear power.

Targeting Demographic Subgroups

Government authorities seeking to achieve Japan's nuclear power goals had more people to convince than the general public. In Japan, the success or failure of siting attempts rests on the response of key groups within local civil society; fishermen, farmers, students, and local politicians can stop the process through resistance and sabotage. The central state, while wooing the broader population and seeking to prevent ordinary folk from allying with local anti-nuclear groups, focused its strategies on these relevant subgroups to preempt or absorb their resistance. Relying primarily on social control strategies, the state hoped to win over local veto players to ensure its national energy goals (Perry 1991,37).

Fishermen

Early on, government officials recognized the power held by existing networks within local civil society. Because Japanese utility companies use ocean water for cooling nuclear reactors, the cooperation of fishing cooperatives was vital to the successful planning of the nuclear power industry. Japanese law requires companies that impinge on a cooperative's fishing areas to purchase its rights in those waters. Transfer of rights requires a two-thirds majority of the cooperative's members, and they must approve compensation plans before

on an overnight trip to the Onagawa nuclear power plant facilities (Kawai Kikaku ka 2001, 10-11).

The state has also worked to alleviate the livelihood concerns of both farmers and fishermen targeting additional soft social control strategies. The Center for the Development of Power Supply Regions, a MITI-affiliated, quasi-governmental corporation, set up the popular annual Electricity Homewwn Fair (Denki no Furusato Jimanshi) which showcases products from power plant host communities at the Makuhari Messe Convention Center outside Tokyo. In a clever reversal of fears that the presence of a nuclear plant would drive away customers, this fair heightens awareness of local brands from these communities and thus increases their profits. Instead of seeking to hide the source of these vegetables, fruits, fish, and other products, the fair celebrates them as contributing to the overall good of Japan. The annual fair brings in as many as 138,000 visitors to see and purchase the goods from more than 270 local groups displaying their wares (Okawara and Baba 1998,9).

Students

Government officials concerned with nuclear energy have spent much of their time on education. As early as 1958, authorities realized that local communities could be wary of, if not opposed to, the idea of atomic power, and they began providing information about it to reduce those fears. The government set up educational centers to do so. Lectures by government expem along with slide shows and movies promoted nuclear power to schools across the nation.

In the early 1970s, JAERO began offering 300 or so free classesand seminars a year to local communities and schools that can guarantee attendance of fiIT or more people. Given three weeks' notice, JAERO will send its trained cadre of teachers to schools, houses, hospitals, and public facilities to provide one- to two-hour seminars on the safety and necessity of nuclear power (JAERO 2002). And, both directly and through JAERO, MITI provides materials ane programs for secondary students, ranging from syllabi on nuclear energy ane atoms to field trips to nuclear power plants. To teach younger children, JAERO supplies primers that recount events from Japan's history of nuclear power, along with weekly comics (often reprinted or serialized in national neVts-papers) and thick comic books *(manga).* In addition to offering pro-nuclear information for students, JAERO conducts seminars for local government officials. Its records show that in 2001, for example, educators provided classes and seminars to more than 4,500 people across Japan, ranging from Hokkaido in the north to Yamaguchi prefecture in the south (JAERO 2002).

Beginning in October 1988, soon after Chernobyl, governmental authorities extended nuclear-related educational programs to include teams of nuclear experts, scientists who offer lectures around the country. The government refers to these dispatched lecturing teams as a form of "grassroots public relations" (Science and Technology Agency 1996,36). Similar teams are sent out after accidents or leakages to explain to the press and the community exactly what happened and why citizens should not be concerned about health consequences. In the late 1980s, as computer use became more common, the Science and Technology Agency developed the so-called "STA Village," an online database accessible to citizens containing information about nuclear power *(Financial Times,* 25 April 1991). In 2001 the MITI branch in northern Japan began to sponsor a national "energy quiz" for high school students from prefectures that were hosting nuclear power plants. Each year, thirty-five students from around the country converge to answer questions about energy use.

Local Government Officials

Because they envisioned nuclear power plants as generating new taxes and creating new jobs, many local politicians were initially enthusiastic about hosting them in their communities. But when, like representatives in the village of Kubokawa, they discovered that strong anti-nuclear movements could derail their political lives through recall petitions, fewer and fewer volunteered to host new plants. Responding to this reticence, MITI designed and improved several policy instruments to persuade local officials. *Dengen Sanpo,* which can "function as financial incentives for local governments to promote nuclear power" *(Nikkei,* 23 July 1985), gave the state additional leverage to convince officials of the merits of hosting. In 1983, to recapture the support of nervous local politicians, MITI and the prime minister's office began a program to celebrate and reward those local government officials who cooperated with siting efforts. This program, called the Dengen Ricchi Sokushin Korosha Hyosho, or Citation Ceremony for Electric Power Sources-Siting Promoters, occurs each year, usually in July (Keizai Sangyosho shigen enerugi cho 2001). The winners meet with the prime minister at his residence in Tokyo and receive their rewards directly from him in front of the national media *(AS,* 28 July 2000). MITI created this soft social control program to encourage mayors from towns targeted for reactors to do all they could to assist the nation in its push for indigenous power supplies *(Denki Shinbun,* 28 July 2000).

Along with praising cooperative local politicians and structuring programs to benefit their communities, MITI began educating and training local government leaders to convince citizens of their important role in the larger

energy program. In the 1980s the central government began to invite government officials from areas suitable for nuclear power plants to attend three-day seminars where organizations such as JAERO provide information to the politicians who will decide whether to invite a plant. Along with detailing the funding available, JAERO lays out arguments for the plant and ways to handle negative public reaction. Likewise, MITI set up a Junior Leaders Conference that facilitates the passing of information to town politicians and bureaucrats. Such conferences also bring in leaders from "failed" siting attempts who can explain what went wrong and how to avoid similar problems.

The Ministry of International Trade and Industry holds the same coercive tools of expropriation and police violence in its toolkit as its counterparts in the Ministries of Construction and Transportation, who utilize these policy instruments when siting dams and airports. But it never uses these tools when siting nuclear power plants. Japanese citizens knew firsthand of the dangers of radioactivity from their experience during World War II and the Lucky Dragon incident. Groups within civil society protesting nuclear power were larger and better organized at the regional and national levels than their anti-dam and anti-airport counterparts. Assisted by older groups such as Gensuikin and Gensuikyo, the Citizens' Nuclear Information Center and the National Liaison Conference of the Anti-Nuclear Movement organized local-level groups in potential and actual host communities; they also provided support and information, and helped mobilize allies throughout Japan.

Faced with widespread and long-term resistance from both host communities and larger segments within regional and national civil society, the bureaucrats handling nuclear plant siting moved beyond the policy instruments that had facilitated much of the state's progress in dams and airports. Rather than relying on standard operating procedures from other ministries, civil servants designed new programs specifically targeting farmers, fishermen, students, and local politicians. When fishermen and farmers feared that radioactivity would have negative effects on their crops, the bureau created a yearly fair guaranteed to provide more profits for their products. Nervous local political officials were given new ways to present nuclear power to their constituents and publicly rewarded for their cooperation if they assisted the state. For students, science class curricula focused on the safety and necessity of nuclear power, and communities were visited by white-coated scientists reassuring them that Japan's nuclear program would provide benefits, not harm. The Japanese government thus actively sought to penetrate civil society by flexible and adaptive means.

Interestingly, though, despite years of such programs and enormous expenditures on soft social control instruments and incentives, citizens have become increasingly immune to such techniques. More active and better organized citizens' movements have utilized voter referenda, mayoral and town council recalls, and information dissemination to combat siting efforts by the central government and utilities. Lead times for nuclear power plants have increased threefold since the mid-1970s (Aldrich 2005c), and industry and government alike recognize the likelihood of future siting difficulties. Only about half of all siting attempts within the nuclear power field have succeeded, compared with nearly 80 percent for dams and 95 percent for airports. Nonetheless, for a nation that has experienced major nuclear calamities, Japan's relative and absolute successes at siting nuclear power plants must be attributed primarily to the strategies and tools that state agencies have developed to manage contentious civil society.

Unlike the Japanese state, which has never relied on police force or expropriation in responding to anti-nuclear movements, the French state regularly engages in these hard social control and coercion strategies in pushing its nuclear agenda because of the short-lived and fragmented nature of anti-nuclear opposition in that country.