

# Japan's Nuclear Power and Anti-Nuclear Movement

## from a Socio-Historical Perspective

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### 1. Introduction

The March 2011 earthquake disaster and nuclear power plant accident have drawn attention to the place held in society of nuclear power plants. This paper will examine Japan's nuclear power and anti-nuclear power movement from a historic and social perspective.

To state my conclusion, Japan's nuclear power shows a microcosm of the social structure built from the 1960s to the 1980s during the period Japan was referred to as "Japan as Number One." In addressing the issue of nuclear power, it behooves us to rethink this history.

### 2. Industrialized Society and Nuclear Power

Construction of nuclear power plants in Japan peaked from the 1960s to 1997. The various economic indicators show that Japan's economy peaked in the latter 1990s. Retail sales and publications peaked in 1996, while in 2000 the volume of domestic freight transported and new automobile sales peaked. "Cool Japan" was no exception to this trend, with the most popular manga magazine *Shōnen Jump* recording a circulation of 6.53 million in 1995, while it fell to 280,000 in 2008.

In addition this trend is related to the expansion of the income gap and the increase in poverty. Deflationary tendencies continue, with consumer prices falling and starting salaries for university graduates hardly rising since 1995. With the increase in the number of temporary workers, the average annual wages of workers in Japan had decreased during the past 20 years, from 5.2 million yen to 4.6 million yen (c. \$ 63,000 to c. \$ 56,000). This indicates that the gap between the earnings of university graduate permanent employees and other workers is expanding. Whereas in 1995 those on social welfare numbered 880,000, by 2011 the number grew to 2 million.

These circumstances show that Japan has changed considerably since the days of "Japan as Number One." I will organize my points on these matters from the perspective of the "shift from an industrialized society to a post-industrialized society."

When can we say Japan became an industrialized society? It was 1965 when the number of manufacturing workers overtook the population involved in agriculture, forestry, and fisheries. In 1994 the population of service workers became larger than that of manufacturing workers. Naturally, Japan's manufacturing industry is still very strong, but we can say that from 1965 to 1994 Japan was a manufacturing-centered society. That period was also the peak period for Japan's nuclear power plant construction.

What about in the United States? In the past 30 years, American manufacturing workers have decreased some 5 million, and the share of laborers in this sector has gone from 20 percent

in 1979 to 11 percent. This is due to the weakening of the manufacturing industry as a result of the two-fold oil shocks of the 1970s. Construction of nuclear power plants in the U.S. has hit a downturn since the mid-1970s, and the Three Mile Island accident in 1979 made this trend decisive.

Though the timing may have been different, in both Japan and the U.S. the peak for nuclear power plant construction was during the period of the industrialized society. As huge plants that require massive investments, nuclear power plants are a symbol of the industrialized society.

Along with their timing, the nature of the industrialized societies of Japan and the U.S. differed. This correlated to the difference in the forms of the anti-nuclear power movements. To put it simply, in Japan the involvement of the government in its economy is very large. This can also be said of nuclear power.

### **3. The System of Nuclear Power Promotion in Japan**

Japan is an Asian country that industrialized through government-led development policies. It had a long period of restricted political freedom and democracy while industrial policies were undertaken with the slogan “enrich the country, strengthen the military” (*“fukoku kyōhei”*).

A discussion about Japan’s nuclear power must begin with the history of the Second World War. As war preparations proceeded in the 1930s, electric power came under governmental control in order to stabilize the supply of electricity to the military industry. Until that time, electric power companies competed freely in a disorderly manner without any consistency in power generation or transmission. In 1939 the government-controlled Japan Electric Generation and Transmission Company (Nippon Hassōden Kabushiki Kaisha) was established to monopolize the transmission network; and in 1942 the 152 electric power companies throughout Japan were merged into nine companies that each held a monopoly over its own district. Japan Electric Generation and Transmission Company was dismantled after the war and the ownership of transmission facilities of the nine electric power companies were divided up, allowing the districts’ monopoly structure to remain. This was the origin of the monopoly structure of electric power utilities which continues to this day.

State regulation of the electric power utility was implemented in the form of “government policy, private management” rather than as a state-owned enterprise. Contrary to the general perception, the Japanese government is rather small among the developed nations in terms of both the number of civil servants and the ratio of government spending to GDP. The strength of the Japanese government is the strength of its administrative guidance. The basis of Japan’s industrial policy is to decrease governmental spending by making private companies shoulder the burden of business while manipulating the private companies with administrative guidance.

As an example, in Japan broadcast companies require licenses, and as a result, even commercial television stations are reluctant to criticize the government for fear of losing their broadcast licenses. The advantage to the television stations is that the government restricts new companies from becoming broadcasters.

For Japan’s electric utility, while it cannot go against the government’s intentions, it receives the advantage of approval to be a regional monopoly that can raise electric utility rates at will. Japan’s electric utility rate is set by the Electricity Enterprise Act passed by the government at 4 percent over the cost of electricity generation. The profits of electric power

companies rise the costlier the power plants. As the construction cost for nuclear power plants is high, they are attractive to electric power companies. Due to the regional monopoly enjoyed by the electric utility companies, until recently consumers had no choice but to pay their utility rates even if high because they could not buy electricity from other suppliers.

The construction of nuclear power plants requires authorization by the government. Construction of electric power plants, including nuclear plants, is determined by the government's long-term energy supply and demand forecast and the Long Term Plan for the utilization of atomic energy (revised in 2005 to the Framework for Nuclear Energy Policy). This is submitted by the advisory panel of the Minister of International Trade and Industry (from 2000 the Minister of Economics, Trade and Industry), for cabinet decision without going through parliamentary deliberations in the Diet. Based in this plan, the government provides various subsidies and social economic infrastructure construction, and the electric utilities pursue their business. Japan's system of "government policy, private management" is not like that in France or Russia where the national enterprise builds nuclear plants nor like that in the United States where private enterprises have a certain level of decision-making authority.

A key feature of this system is evident in the Act on Compensation for Nuclear Damage of 1961. In the case of a nuclear plant accident, compensation is to be paid from insurance contributions of the electric power company; but at present the limit is a mere 120 billion yen (c. \$ 1.5 billion). The total damage from the Fukushima Dai-ichi Nuclear Power Plant accident is said to amount to at least several trillion yen (tens of billions of dollars). The Act on Compensation for Nuclear Damage states that in the case of an accident that goes over the limit of the liability, the government "may" provide necessary assistance. The electric power utility expects the government to give assistance, but the government does not guarantee that it will bear this responsibility. For this reason, it had been considered taboo to examine the possibility of the occurrence of a serious accident before the Fukushima Dai-ichi accident.

In the U.S., though the overall system is one of "national policy, private management," in 1957 a law was enacted that stipulates that the government will pay whatever compensation is over the private liability amount. This is because as the government's guidance is weaker than Japan's, the electric power companies must construct nuclear power plants regardless of the cost and risk.

#### **4. Nuclear Plants as Rural Development Policy**

The first nuclear power plant began operations in 1957. For about ten years after that time, there were strong hopes for nuclear energy as a "dream energy." Nuclear plants were a symbol of industrialization.

With President Eisenhower's call in 1953 of "Atoms for Peace," the term used in Japan was "atomic power plant" instead of the term "nuclear." Although the ruling Liberal Democratic Party (LDP) and the opposition parties fiercely opposed each other on many points of contention, they were not in disagreement on the issue of economic development using nuclear power plants.

It appears that the Japanese government had planned to develop nuclear weapons. Prime ministers in the 1950s to the 1960s have left statements supporting nuclear weapons. This tendency grew stronger in 1964 after the success of China's nuclear experiment. During this time,

the government decided on a reprocessing plan to extract plutonium and on the promotion of space development centered on rocket technology.

In 1968, however, the Nuclear Non-proliferation Treaty (NPT) was put in place under a compromise between the U.S. and Soviet Union, and Japan was pressed to participate. Japan signed the NPT in 1970, but a 1969 Foreign Ministry document stated, "For the time being Japan's policy is not to have nuclear weapons, but we will always retain the economic and technical potential to manufacture nuclear weapons." The Diet did not ratify the NPT until 1976. Even after ratification, Japan did not stop extracting plutonium despite pressures from the U.S. government. These relationships between nuclear development policies and the promotion of nuclear power plants are still shrouded in mystery. The intention to develop nuclear weapons for a new age of affluence was created.

This situation gradually changed. Initially, there were suggestions to build nuclear power plants in cities. However, a 1960 secret calculation concluded that should a major accident occur, the surrounding area would have to be vacated in perpetuity and that over half the national budget would be needed to deal with the aftermath. This led to the enactment of the Act on Compensation for Nuclear Damage and the realization that nuclear plants could only be built in depopulated areas.

Eventually, the rapid economic growth of the 1960s brought about severe environmental pollution, and with it the anti-pollution movement of the latter 1960s. By 1969, a majority of the respondents to a survey by the Prime Minister's Office indicated opposition to construction of nuclear plants where they lived. Nuclear plant construction continued in areas already designated; and in 1970 Japan's first commercial nuclear power plant began operation. Fukushima Dai-ichi Nuclear Power Plant followed in 1971. In the face of this, the Japan Socialist Party (JSP) shifted its position in 1972 and began to support local opposition movements.

This was the setting in which the 1973 oil shock occurred. Apprehensive about the stable supply of oil, the Japanese government set its course to support nuclear power. Yet the opposition movements in the prospective construction locations were deep-seated.

The Prime Minister at the time was Kakuei Tanaka. He had risen to the post of prime minister with just a primary school education. He was from the mountains of Niigata Prefecture, an area of heavy snowfalls. This was becoming a depopulated area as young people rushed to the cities during the period of Japan's rapid economic development. His wish was to bring affluence to the depopulated areas such as his home town.

From before the time of the oil shock, Tanaka had promoted his "plan to remodel the Japanese archipelago." His plan called for connecting major cities and depopulated areas by constructing high speed railways and highways throughout Japan; and utilizing this transportation network to bring factories and industry to rural areas.

Tanaka focused particularly on road construction. In 1953, Tanaka had introduce a bill in the Diet to tax gasoline and create a system for those funds to be earmarked for road construction. In 1970, he introduced an automobile weight tax, also earmarked for road construction. Under this system, the automobile owners undergo a bi-annual inspection of their cars at government designated stations, receive proof that the automobiles are in compliance with government safety standards, and pay the automobile weight tax. This guarantees a permanent revenue source for road construction as long as people buy, drive, and put gasoline in their cars. Road construction all over Japan, just as with electric power plant construction, is approved by cabinet decision on

the government's five year plans without parliamentary deliberations; and the budget needed is allotted to construction contractors.

The policy Tanaka advanced on nuclear power took the same form as for roads. In order to placate the opposition movement and promote nuclear plants, he enacted a law to take the tax from the electricity rate and earmark it for the plant site areas. This meant the tax was levied on the electricity consuming areas of cities and industrial districts and sent to the depopulated areas where the nuclear plants would be sited. Under this method, the greater the amount of electricity used, the more the subsidies for construction of nuclear plants would be guaranteed. Tanaka is said to have declared, "We're building something that can't be built in Tokyo. We'll build them and make Tokyo send lots of money [to the depopulated areas of nuclear plants]" about this nuclear plant subsidy system.

Under this system that Tanaka implemented, road construction in the rural areas progressed to the point that the construction industry overtook the agriculture-forestry-fisheries industry to become their major industry. At present, the labor population in the construction industry is 2.5 times that in the agriculture-forestry-fisheries industry; and around the year 2000, consisted of 11 percent of the nation's work force. Subsidies to the local governments of the sites for nuclear power plants made possible the construction of many public buildings. These allowed the local residents to gain a real sense of benefits while at the same time bringing prosperity to construction companies. Tanaka and other LDP politicians deployed those in the construction industry as their election campaign workers.

In addition, the electric utility companies donated large sums to the regional governments of the nuclear plant sites, and promised funds for education and medical care for the elderly. As these donations were calculated to be part of construction costs, the profitability increased the more donations were given, allowing the electric utility companies to raise their rates.

This uniquely Japanese system was effective in quelling the protest movement. In the areas where nuclear plants were to locate, the agreement to site plants allowed the area the prosper due to large subsidies and increase in jobs from the construction boom. Residents who were opposed were silenced, and public hearings addressed only general purpose issues.

The Tōhoku (Northeast) region, where the Fukushima Dai-ichi Nuclear Power Plant is situated, was a holdout that supported the Shogunate against the Meiji government in the mid-nineteenth century. As Japan modernized, this region's development always lagged behind the rest of the country. It is not an overstatement to say that in the postwar era the role of the Tōhoku region has been as a supplier of labor, food, and electric power.

Since the period of rapid economic growth, a large number of young people migrated to industrial areas in Tokyo and other locations. The oversupply of rice, the major agricultural product, caused the government to order limitation of its production in exchange for subsidies starting in 1970.

Japan's automobile manufacturing industry and electric products industry, which grew rapidly in the 1960s, built plants in depopulated regions such as the Tōhoku area to deal with labor shortages. But many of the factories built in the Tōhoku region were small-scale parts makers. A typical small business was made up of someone who had gone to work in an urban factory and learned the technology who then returned to his village and started a parts factory with a few workers to make parts to deliver to large companies. The labor was provided mainly by non-permanent workers who were middle-aged farming women who had finished raising their

children. The hourly wages were barely at the government's minimum wage standards, but in the villages there were limited sources of employment.

The government had attempted to create industrial zones by developing roads and ports, even before Tanaka's time. The spent nuclear fuel reprocessing plant at Rokkasho-mura in Aomori Prefecture now in use was built where a 1969 plan to invite plants to locate in a large-scale industrial complex had failed.

Eventually, Tōhoku and other regions in Japan came to rely on government subsidies. These can be seen in the rice subsidies to limit production and the construction companies that built roads and other structures from public investments. This situation started in the 1960s, but became a large-scale phenomenon in the first half of the 1970s under the Tanaka Cabinet.

## **5. Japanese Style Industrialized Society**

In order to explain the societal position of nuclear power in Japan, it is necessary to look at the overall picture of the Japanese style industrialized society that came about in Japan since the 1970s.

It was not just the rural areas that came to rely on government subsidies in the first half of the 1970s. Dissatisfaction had built up among those who had been left behind during the period of rapid economic growth, including small and medium enterprises, self-owned businesses, workers who migrated to urban areas, residents of cities and industrial zones affected by pollution, and particularly women and the elderly. With these people as their supporters, the Japan Communist Party (JCP) increased their representation in the 1972 elections. Several Communist and Socialist (JSP) governors were elected in urban areas, including Tokyo.

With the high economic growth rate of the 1960s, Japan rapidly transformed into an industrialized society. The Liberal Democratic Party (LDP), which relied on an agricultural base of support, received fewer votes. The LDP was afraid that its political power would be threatened by the Socialist Party and the Communist Party whose support base was urban workers unless it dealt with the situation.

Faced with this crisis, the LDP formed an investigative group led by Kakuei Tanaka to engage in urban policies to deal with pollution and urban environmental issues. With Tanaka as Prime Minister, welfare budgets were greatly increased, and public works projects increase dramatically in rural areas. At about the same time, systems were put in place for protection of certain economic sectors under bureaucratic guidance to aid small and medium enterprises and self-owned business, as well as the enactment of the Large-Scale Retail Store Law to limit the opening of large-scale chain stores. This law does not allow a large-scale retail store to be opened without agreement from the local chamber of commerce made up of store owners in that commercial district.

This was a measure to keep people who had become marginalized in Japan's industrialized society and had been unable to reap the benefits of the high rate of growth tied to the LDP. With these sorts of measures the LDP regained support.

Subsidies to the nuclear power plant sites were part of this policy. Nuclear power was a shining symbol of the industrialized society until the 1960s. After 1973, when the high rate of growth ended with the oil shock, nuclear power transformed into a way to distribute the economic pie from the industrialized society's center to its periphery.

This policy inevitably led to budget deficits. Yet, in those days, the aging of Japan's population had not occurred, and expenditures for social welfare were not that great. As long as the economy was growing, the budget deficit issue was not as serious as it has become.

The period of rapid economic growth ended with the oil shock. In contrast to the 10 percent average growth rate from 1960 to 1973, the average rate decreased to 4 percent from 1974 to 1991. Even so, compared to the U.S. and Western Europe, whose economies stagnated due to the oil shocks of 1973 and 1979, the Japanese economy continued to grow and its unemployment rate stayed low. The end of high rate of growth resulted in a contraction of domestic demand, and Japan's manufacturing industry shifted its focus to exports.

This was the period when the phrase "Japan as Number One" was heard. What made this possible? I will discuss my thoughts on this in brief.

The manufacturing industries in the U.S. and Western Europe weakened after the oil shocks. Within the OECD nations, from 1979 to 1993, an average of 22 percent of manufacturing employment was lost, with a shift to service industries.

Increases in oil price and labor costs caused the manufacturing sector of the developed nations to move out to the developing countries. In addition, advances in automation technology meant that fewer workers were needed in the manufacturing sector. Due to this, unemployment rose with a subsequent rise in shifts from long-term stable employment to short-term non-permanent employment. The middle class with its core of male permanent workers shrank; due to the decrease in wages for males, the employment rate of females rose, along with the divorce rate. These phenomena indicate the shift from an industrialized society to a post-industrialized society.

In Japan, however, it was after 1992 that the worker population in the manufacturing industry began to shrink. This is some twenty to thirty years later than the shift that occurred in the U.S.

It could be interpreted that because Japan was a late-developing country, the decline in its manufacturing industry was also delayed. In actuality, one-fourth of the U.S. trade deficit with Japan in 1984 was due to the exports of U.S. companies located in Japan and the exports of parts and OEM contracts ordered by U.S. companies. In other words, Japan at that time was, like China is today, the country to which the American manufacturing industry had relocated.

The Cold War also worked to Japan's advantage. China was aligned with the Eastern bloc, whereas the Asian countries in the Western bloc were pro-American dictatorships typical of the Cold War order. Their political status was unstable, and education level low, making them unsuitable for locating U.S. manufacturing plants. Under the "new Cold War" of the Reagan administration, with the dollar remaining strong against the yen, Japanese companies lacked a motive to expand into Asia.

But it was Japan's domestic social structure that was the greatest factor. Faced with the oil shock, Japanese corporations promptly began to automate and succeeded in cutting costs for oil and for workers. The image of "Japan as a high tech country" grew in this period, and the level of productivity of Japan's manufacturing industry outpaced those of other countries. The reason unemployment was kept in check was because this burden was borne by those who were vulnerable in Japanese society: women, rural areas, and small and medium sized businesses.

Japanese companies prioritized women in reducing employees. Women who were encouraged to retire upon marriage or bearing children were wives of male workers. The rate of women in the workforce was higher in Japan than the U.S. until the 1960s, but this was reversed

in the 1970s. In Japan 1975 was the peak year for stay-at-home housewives. These women who became housewives were not counted among the unemployed. When they had finished with child-rearing, women supported the Japanese economy by becoming non-permanent workers earning \$ 2 - \$ 3 in hourly wages in manufacturing and service industries.

Women workers in manufacturing in the rural areas, especially, supported Japan. From the 1960s married women whose husbands labored in agriculture or construction worked for hourly wages of a few dollars at the small and medium sized subcontracting factories in areas such as the Tōhoku region. Though their wages were low, they were not among the unemployed. The improvement in efficiency of Japanese manufacturing, such as Toyota's just-in-time method, was enabled through forcing strict criteria on the small and medium sized companies that were its subcontractors.

Three reasons can be attributed to problems not surfacing despite these conditions. First, the prosperity and employment of the major enterprises were stable. When the major enterprises were prosperous, the subcontracting companies benefited from this state. When the employment and wages of the male employees of the major companies were stable, problems did not arise even when their wives were stay-at-home housewives or working for low wages.

Second, the Japanese population was young. Manufacturing companies reassigned their male permanent employees from the manufacturing division to the sales division, allowing for reduction in the manufacturing division and maintenance of employment. As Japan's labor unions were not structured along work categories but, rather, company unions, they cooperated with the redeployment of employees, unlike in Europe and America. Even so, there were idle employees, but as the average age of workers was young, their wages were low, and not likely to cause problems. With the aging of the working population, companies were forced to cut the number of employees or abandon wages based on seniority, and the situation of low wages for women would become unsustainable; but these conditions were not to develop until the 1990s.

Third, policies for subsidies were instituted from the time of the Tanaka administration. Public works and construction projects were allocated to regions with low wages; and protections for small and medium sized companies were put in place by such laws as the Large-Scale Retail Store Law. Nuclear plants were brought into the poorest areas. Welfare budgets began to be constrained from the 1980s, but in 1985 preferential tax benefits and preferential pension plans were put in place for stay-at-home housewives who were caring for elderly family members inside the household. As long as the major corporations prospered and economic growth continued, tax revenues would increase and budget deficits would not be serious. If the employment of male permanent employees of major companies could be maintained, housewives would be able to concentrate on caring for the elderly.

This was the way the "Japanese style industrialized society" was built from the 1960s to the 1980s. In hindsight, we see that this was the peak time for nuclear plant construction in Japan. In the 1990s, however, this societal structure lost its foundation, and sank into a dysfunctional mode.

## **6. "Japanese Style Industrialized Society" in a Dysfunctional Mode**

First and foremost, what changed was the international situation. With the end of the strong dollar policy and the Cold War, Japan's manufacturing industry moved to Korea, China, and Southeast Asia where the political situation had turned more stable. Just before and after 1990,

during Japan's economic bubble, strong domestic demand was good for the manufacturing industry, with the labor population increasing until 1992. When the bubble burst, however, the manufacturing industries accelerated the relocation of plants abroad in order to cut costs, resulting in a 32 percent decline in workers in Japan's manufacturing industry between 1992 to 2009.

As Japan shifted to the post-industrialized society, and it faced a prolonged recession, the problems that had been hidden in the 1980s began to rise in a chain reaction. No longer was it possible to maintain employment of male permanent workers; reduction in employees and wages based on seniority began to be reconsidered. In addition, with hiring freezes, the ratio of young people hired as permanent employees decreased.

This meant that women had to find work, leading to an increase in the rate of female workers. Yet, with the exception of a small group of young, highly educated women, most of the female workers were non-permanent employees. Troubles were rife between anxious men and tired women, resulting in concerns over the breakdown of the family.

Along with this, the American demands for market access from the latter 1980s led to deregulation and elimination of subsidy policies. The Large-Scale Retail Store Law was revised in 1999 and abolished in 2000. Between 1991 and 2007, the number of retail stores was reduced to two-thirds. Moreover, with the liberalization of sale prices for cosmetics and pharmaceuticals and the abolition of import regulations, the major retail store chains increasingly sold cheap Chinese products. The self-owned old retail shops that sold more expensive domestic products failed, leaving the regional shopping districts areas full of streets with shuttered stores.

With the end of the Cold War, the Japanese economic recession began, impoverishing rural economies. The government increased investment in public works, which peaked in 1998, with 11 percent of the labor population engaged in construction work. Unable to withstand its high budget deficit, in 2000 the Japanese government turned to cutting its public works projects to half of the amount during its peak.

Ironically, one cause of this outcome was demand from the U.S. Suffering from trade deficits with Japan, the U.S. government demanded that Japan open and liberalize its markets as well as expand domestic demand by increasing public works. As a result, Japan made a public commitment to the U.S. and instituted a basic plan for public investment of 430 trillion yen (\$ 4.3 trillion) during the ten year span from 1991. This plan was shifted to an economic recovery measure; in 2002 the extension of this plan was scrapped.

In Western Europe, while wages do not rise with seniority, university education is free and there are housing subsidies. Instead of such a system, in Japan those who were permanent employees had wages that rose with seniority so that when they reached an age when their family expenses became high they would be earning a high amount. However, when young people couldn't become permanent employees, and even if they did, if life-time employment and the seniority-based wage system were to be abolished, this kind of premise breaks down. It is said that nowadays it costs 30 million yen (\$ 360,000) to 60 million yen (\$ 720,000) to raise one child through college; with three children, one would become bankrupt.

Men and women in their thirties who can't get married, can't have children, and live either with their parents or in rentals are increasing, with the resultant tendency for late marriages and declining birth rate. With the low income level class unable to send their children to higher educational institutions, there is a trend for them to be stuck in the cycle of poverty.

The population is aging and social security costs are rising. In the initial budget for fiscal year 2011, 34 percent was for social security and 37 percent to pay down the national debt, making these debts comprise over half of the budget.

The foundation of Japan's social security system was laid from the 1960s to the first half of the 1970s. The present problem is that over 70 percent of the budget goes to medical care for the elderly and to pensions, with not enough funds to support the unemployed who are middle-aged and younger and single mother families. The assumption for this system was that younger people could work and could find jobs.

There certainly are jobs available, but the number of permanent employment jobs are decreasing while low-wage, non-permanent employment is increasing. In 2010 several cases made headlines when middle-aged children of those listed in the register as being over 100 years old hid the fact that their parents had died in order to keep receiving their pensions.

Pensions for the elderly are generous for permanent employees, but the basic pension for self-employed and non-permanent workers is a mere 60,000 yen (\$ 700) per month, increasing the number of impoverished elderly people. Public assistance has increased drastically since 1995, but it is difficult for middle-aged and young people to qualify, and over half of the recipient households are those of the elderly, in particular the single elderly. In 2011, the population of those below the relative poverty line set by the OECD rose above 16 percent, second only to the U.S.

As major companies moved their factories to China and other countries during the economic downturn, the subcontracting factories in Japan have faced hardship. A small business factory destroyed by the tsunami in a Tōhoku town had hired farming women to make electric parts for 300 yen (\$ 4) per hour. They had agreed to lower their wages as a way to prevent the company that ordered the parts from placing orders to a factory in Peru. This is below the legal minimum wage, but in this area where there was no employment, they couldn't even file a complaint with the supervising authority.

The owner of this factory also operated a general contracting company and was a supporter of the LDP. By decreasing public works expenditures, the LDP administration lost its support base, and compounded by the economic crisis from the Lehman shock, the governing power shifted to the Japan Democratic Party (JDP) in 2009.

With no jobs available in the rural areas, people have concentrated in the urban centers. In regional areas, it is not uncommon for over half the population of a prefecture to reside in the prefectural capital city. And from there, many migrate to Tokyo.

A study that was done in 1989 at a public housing project in Sapporo City, the capital of Hokkaido prefecture, shows the early effects of this situation twenty years ago. Women who had lost their jobs in regional areas were gathered in public housing, and their life histories were remarkably similar. The pattern was poverty of their birth families, their own lack of education, weak family ties, migration to the city, unstable employment, marriage to a similar background man and childbirth, the husband's gambling and debts, domestic violence and divorce, repeated changes in jobs and housing, finally arriving at public housing. In single mother households, life became unsettled and in many cases their children stopped going to school.

What is noticeable in this instance is that the poor single mother households in this area did not necessarily appear to be poor. The public housing was a modern, planned housing project of concrete buildings constructed with public works investment. Quite a few of them had new electronic appliances and clothes, and comic books were abundant in the small living quarters.

But these women were tired from low wage labor and often fell ill and suffered from nervous imbalance; most of their food consisted of instant food items. They were seen as buying electronic goods and manga books due to the stress of an unstable life with no vision of the future and to their feelings of social inferiority. In many cases, they faced hardships in repaying loans taken out to purchase these items. In 1989 this problem was thought to be an exception in a regional city, but now it is more widespread and cannot be ignored.

The Tōhoku disaster area was forecast to lose 20 to 30 percent of its population by 2030; it was a region of depopulation and an increasingly elderly population. Many of the victims of the tsunami were elderly. There are no major industries, and even in the largest industrial city of Kamaishi, steel hadn't been produced since 1989. Steel from outside was processed into high grade wire, and employment was a mere fraction of what it had been at its height. Local governments were burdened with welfare for the elderly, causing large budget deficits. From the 2000s, public works projects decreased, with a worsening of the economic conditions. In this situation, only the towns that had welcomed nuclear power plants were well off due to subsidies.

## **7. Nuclear Power Plants in the Post-Industrialized Society**

The increase in construction of nuclear power plants ended in 1997. This was influenced by criticism aimed at the JCO criticality accident at the Tōkaimura nuclear plant in 1999 and the 2002 revelation of cover ups of accidents, and increase in construction costs due to the international concern about the safety of nuclear plants. An even more major reason is the shrinking of the Japanese economy from its peak coupled with advances in energy conservation technology, which led to demand for electricity not expanding.

The relocation of manufacturing industries to foreign countries and the decline and streamlining of retail stores had been occurring since 1992. This shrinking tendency was not noticeable until the mid-1990s due to the fact that the shrinkage was not that great and that public works projects had covered for this. However, with the Asian currency crisis of 1997 and the financial crisis that occurred in Japan, many of the economic indicators began to show a decline. Demand for electricity and power plant construction were no exceptions.

Criticized for its excessive stockpiling of plutonium, Japan made an international commitment that it would not keep surplus plutonium during the 1993 Japan-U.S. negotiations. In 1995, an accident occurred at the fast breeder reactor Monju which used plutonium as fuel. The severity of the accident was covered up, but it came to light with on-the-spot investigation by local government staff. Since then, repair costs equivalent to 50 million yen (\$ 600,000) per day have been expended without a restart of the reactor.

The year 1995 was also the year when criticism grew regarding the lack of transparency of the government handling of the Great Hanshin Earthquake and the tainted blood AIDS case. Due to this situation, the nuclear power administration was forced to disclose its meeting minutes and invite comments from those opposed to nuclear power at its meetings. This course was hastened by the Information Disclosure Law of 1999.

From the latter 1990s to the first half of the 2000s a movement by those in economic circles dissatisfied with high electricity rates and reformers in the Ministry of Economy, Trade, and Industry (METI) urging the cessation of fast breeder reactors and plutonium extraction that had no economic practicality and calling for the liberalization of the electricity market gained

prominence. This movement was based on the significant lowering of communication rates after the 1985 liberalization of the communications industry.

The electric power industry quieted the dissatisfaction of the economic leadership by liberalizing only the rates to companies and large scale consumers of electricity. Furthermore, the reformer bureaucrats lost their battle against the forces that were intent on protecting the existing policies and vested interests. These were the conditions under which the framework of a nuclear power policy for a large scale increase in construction of nuclear plants was set in 2005.

The first half of the 2000 decade was a time of reforms that attempted through market liberalization to relieve the inefficiencies of Japanese style industrialized society with policies such as major cutbacks in public works projects and the privatization of postal services. This was the same for nuclear power plants; but the conservative faction that wanted to maintain the structure of Japanese style industrialized society won out for a time. Accidents such as at the Kashiwazaki nuclear power plant at the time of the Chūetsu earthquake in 2007 were covered up, the effectiveness of nuclear power to counter global warming was publicized, and it seemed that the promotion of nuclear power seem to be on course.

But the real conditions of the nuclear power industry were becoming more difficult. The Japanese economy became more stagnant after the Lehman shock of 2008. The electric power demand that had weakened since before that time started to decline, decreasing by 7 percent between fiscal years 2007 and 2009. A half century after the start of nuclear power plant operations, safety and technical issues such as the disposal of nuclear waste had not been resolved; the nuclear plants constructed around 1970 were deteriorating with no prospect of new construction or upgrades; and with successive accidents the rate of operation had fallen to 60 percent of capacity.

Construction of the spent nuclear fuel reprocessing plant (facility to extract plutonium) at Rokkasho-mura in Aomori Prefecture began in 1993 notwithstanding Japan's international commitment that it would not keep surplus amounts of plutonium. Despite spending 2.2 trillion yen (\$ 26.7 billion), three times the initial planned amount, technical problems have not been solved, with the plant still only doing test runs.

Since the 1960s Japan has persisted in following its “nuclear fuel cycle plan” for reprocessing and fast breeder reactors, and no disposal facilities have been prepared for spent nuclear fuel. Continuing on this course, if reprocessing reaches a dead end, and even if reprocessing is possible, if the fast breeder reactor that uses plutonium reaches a dead end, then Japan's nuclear power policy itself will reach an impasse. To avoid this state, the pluthermal plan in which the extracted plutonium is used as fuel for nuclear power plants, was promoted. Implementation was considerably delayed, with the Fukushima Dai-ichi Nuclear Power Plant beginning commercial operation in October 2010.

The change in government to the JDP in 2009 resulted in little impact on nuclear power policies. In an effort to break out of the stagnant economic condition, and because domestic nuclear plant construction had reached an impasse, a policy of exporting nuclear power plants was adopted with government support, and negotiations were started with Vietnam, Thailand, and India—countries on their way to becoming industrialized societies.

Due to the liberalization of the electric power market for large demand customers, although 60 percent of Tokyo Electric Power Company (TEPCO) electricity was sold to these large demand customers, profit from this sector was only 10 percent. This led to a distorted structure wherein most of TEPCO's profits came from residential electricity sales for which it was a

monopoly. From the latter 2000s, TEPCO began a campaign for “all electric” household energy use, expanding to use of electricity for heating and cooking.

Donations and subsidies to local areas where nuclear plants were sited came from these profits. Although the peak period of construction was over, the economic plight of these regions had deepened with decreases in public works projects, and many of the local governments requested enlarging the nuclear plants. It was clear, however, that criticism would rise if attention were drawn to this situation.

It was under these conditions that the Fukushima Dai-ichi Nuclear Power Plant accident occurred in 2011.

## **8. Social Basis for the Anti-Nuclear Power Movement**

Japan’s anti-nuclear power movement began in the latter 1960s. Those who led this movement can be divided into several categories according to historical changes in Japan’s social structure.

The first level includes those in the farming and fishery industries in the regions where the nuclear power plants are sited. Japan’s nuclear plants are constructed on the sea coast in order to use water for cooling purposes. This means there are often issues not only on land rights with farmers but also with fishermen on fishing rights. Unless they are able to transfer land and fishing rights, nuclear plants cannot be constructed.

The second level is made up of labor unions and the Japan Socialist Party, as well as intellectuals. In particular, the labor unions, Socialist Party members, lawyers, educators, students, and scientists from the neighboring regional cities supported the movement of the farmers and fishermen. This group had also participated in Japan’s labor movement and peace movement.

These two groups are traditional social strata from the time that Japanese society still had characteristics of a developing country. The strength of their movement corresponded to traditional society: the farmers and laborers had a base of community ties while scholars and lawyers had a base of intellectual authority. In the 1970s the anti-nuclear power movement tended to be seen as parallel to the Minamata mercury poisoning suits and the movement against Narita airport in part because the social strata of participants were similar.

Most of Japan’s nuclear plants are built in locations that were designated by the 1960s. Once a local government accepted the plant, it requested additional construction to receive further subsidies. In the poorest prefecture, Aomori, in order to make it accept the plutonium extraction factory in the 1980s, the electric power industry set up a system to distribute donations not only to the local government but also to all the towns in the prefecture, and thus quieted what was a strong opposition movement. But this system was not something that could be extended to all of Japan, and there were few locations that accepted new construction after the 1970s. This was a major achievement of the movement at that time.

To frame the issue to spread the movement to areas other than plant sites, it was effective to emphasize the desire for peace and opposition to nuclear weapons based on Japan’s wartime experience and anti-capitalist and anti-environmental destruction stance.

The approach to nature up until the 1970s differed somewhat from that of today. Until 1965, Japan was a nation where the population that worked in agriculture, forestry, and fisheries was

larger than the manufacturing population; and many of the urban dwellers were former farmers. To them, construction of nuclear plants and airports looked to be bulldozers trampling the farming villages. The often-used slogan “protect our home town” attests to the fact that their feelings went beyond mere love of nature.

These first and second social levels were the main force in the movement until the mid-1980s, but are now waning. One factor is the decline in the traditional society which was their foundation. Agriculture and fishing industries declined as the tendency to rely on nuclear plants grew. The solidarity and organizational rate of labor unions lessened as the influence of the intelligentsia waned. The second factor at work was the profit-led system of the Japanese style industrialized society. Subsidies and donations to farmers and fishermen turned them away from the movement; and the labor unions compromised with management under the policies aimed at efficiency after the oil shock, refraining from political action in order to protect employment.

Those involved in the anti-nuclear power movement after the latter 1980s were urban housewives who were part of the third level of society. They were relatively well-educated, in their late 30s or early 40s, and had finished the bulk of child-rearing. After the Chernobyl nuclear plant accident in 1986, it was this group that formed the core of the anti-nuclear power movement. These women had time, knowledge, and energy to engage in issues of their interest, such as food safety and radiation pollution.

To fully understand this phenomenon, it is necessary to point out that in 1970s and 1980s Japan male employment and wages were stable. From the 1970s in the U.S., male employment and wages have been unstable, and the number of stay-at-home housewives has dramatically decreased. As stated above, this period showed the highest rate of stay-at-home housewives in Japan. Betty Friedan’s book *The Feminine Mystique* describing the void felt by white, suburban, middle-class housewives was published in the U.S. in 1963, and became widely read in Japan in the 1970s and 1980s.

The housewives who joined this anti-nuclear power movement were women who, despite being well-educated, were unable to find good employment because of gender discrimination or had been forced to resign from their jobs for child-bearing and child-rearing. Furthermore, as they were married to well-educated husbands whose earnings were high, they had economic means and time on their hands when they were finished with the time-consuming stage of raising children. Moreover, they were still young and energetic; many had experience in the student movement of 1968 and were searching for a place to express themselves that suited them.

These women were part of the social group that appeared in the structure of the Japanese style industrialized society at the time of “Japan as Number One.” They took the place of students and workers who had lost political interest when Japan became wealthy, and they took the lead in participating in various social movements, not only the anti-nuclear power movement.

These women did not ascribe to the traditional social value perspective of those in the first and second societal groups. The style of their movement was not to rely on communal groups or authority, but rather to form a horizontal connection between individuals without placing importance on a unified organization or approach. This style was described as the “stop nuclear power plants new wave” at the time, and had similarities to the “new social movements” in America. Forming wind power generation start-up businesses through joint investment based on the housewives’ experience of organic produce cooperatives was a style that had previously not been tried.

The framing of the movement emphasized the approach of working with natural environment causes such as food safety and alliances with organic farmers. This approach of valuing nature was less an effort to preserve a concrete “home town” that was seen in the 1970s, and closer to an idealized environmental movement.

These women also framed their concerns tying the view that as “economic power Japan” it was destroying the natural environment of Asian countries and engaging in “economic invasion” in place of the military invasion of wartime. As women, they were also highly sympathetic to the plight of “comfort women” from the Asian continent supplied to Japan’s military during the war.

This group later became less active. The fading of the shock of the Chernobyl nuclear plant disaster was one reason; another was that in the post-industrialized society since the 1990s, this group lost its social foundation.

In present day Japan, most young Japanese men cannot support stay-at-home housewives. Many of the young middle and lower class females are working as non-permanent workers. In the higher social strata, gender discrimination has eased somewhat increasing the possibility for well-educated females to rise in the societal realm.

This means that the stay-at-home housewives with education, time, and economic leeway are mostly those who became housewives by the 1980s, and are now in their latter forties and older. There are still women who are active in the movement among them, but after the 1990s their concerns have shifted to their own aging issues and the more critical problems for them such as caring for elderly family members and the issue of military comfort women. The passage of the Long-Term Care Insurance Law in 1997 owed much to the actions of this group of women. From the start, the nuclear power plant issue was an option they selected, unlike the residents who objected to the local governments of the nuclear power plant locations.

## **9. Anti-Nuclear Power Movement in the Present Day**

A fourth group surfaced after the 2011 Fukushima Dai-ichi Nuclear Power Plant accident. They were “free” workers centered on those in their thirties, who had increased greatly in number since the 2000s.

It was activists around thirty years old who were on the periphery of the movement to improve conditions for young, non-permanent workers who called for a demonstration in Tokyo’s Kōenji area in April 2011, shortly after the nuclear plant accident. Many of them had been unable to gain permanent employment due to the economic recession despite relatively high levels of education. They had societal experience and knowledge, and their political awareness was far greater than that of inexperienced students.

There was no organized mobilization for the demonstration; the 15,000 men and women in their twenties to forties who gathered were informed about the first demonstration they were to attend by Twitter and Facebook. There has not been an official study of the social strata of these participants, but from their clothing and hair styles, they looked to be “free” workers and not at all like businessmen employed by major corporations. Non-permanent workers can be freer in their clothing and work hours than permanent company employees; they can also participate more readily in these kinds of demonstrations.

From the 2000s, even permanent employees of new types of businesses have started to have greater freedom in terms of flex time and work clothes. In addition, there are greater numbers of

women in their thirties who are not married or do not have children. Even if they do have children, a larger number of women have chosen not to become stay-at-home housewives as they can use childcare services which have become more prevalent. The societal group that has attained the freedom to participate in this type of demonstration has increased overall.

During the height of the Japanese style industrialized society, many of the men and women in their thirties were suit-wearing businessmen or stay-at-home housewives; only some of these housewives who had finished their child-rearing could afford to join social movements. But in 2011, there was an influx into the anti-nuclear power movement of a new “free” worker group that had emerged in the post-industrialized society.

There was also participation by foreigners. A major reason was the increase in the number of foreigners who live in Japan. The website of the group that called for the Kōenji demonstration translated its messages quickly into English, Chinese, and Korean. The group members’ foreign language abilities were better than the previous generation’s, but they also had Chinese and Korean friends they had met through their non-permanent work, as well as American students who could translate the messages.

The framing of their movement was also different from those in the past. Until the 1980s the anti-nuclear power movement was a denial of nuclear power plants as symbols of industrialized society, and often framed in terms of protecting home towns or organic agricultural produce. But the new movement did not attract these groups. Organic produce is a luxury item for these non-permanent workers, and such a cause would result in a backlash from them.

What these demonstrators who were non-permanent workers sympathized with were the circumstances of the nuclear plant workers who were also non-permanent workers forced to do dangerous work. To them, the electric power companies on the one hand treated the plant workers as disposable, while on the other hand treated the permanent employees well, reaping profits from their monopolies—a symbol of Japanese companies of the previous period. They called for the liberalization of the electric power market and the use of renewable energy to abolish nuclear power plants.

In order to understand this framing of their concerns, it is necessary to realize that they themselves are victims of post-industrialization and liberalization while at the same time being victims of the conservative stance of Japanese style industrialized society. Many of them were capable, but had lost their chance to gain permanent employment due to the economic recession when they graduated from university. The custom of Japanese companies to employ only the newly graduated as permanent employees forced them to seek non-permanent work.

The major companies in Japan are dealing with post-industrialization within their organizations by maintaining the hiring for lifetime employment of new graduates—a characteristic of Japanese style industrialized society—while increasing non-permanent employment on the periphery of the organizations. Therefore, their anger is directed not at liberalization itself, but the conservatives who are protecting the vested interests of Japanese style industrialized society. They see the electric power companies and the nuclear power plants as symbols of this state.

This has resulted in a situation in which this group and the new elite that propounds neo-liberalism have formed an alliance to criticize nuclear power. They have given plaudits to the action of the president of Softbank, a new business started with the liberalization of the telecommunications market, who resigned from the Keidanren (Japan Business Federation) in opposition to nuclear power plants and entered into a solar energy generation business. They also

showed support for the Governor of Osaka Prefecture, who advocated reduction in the number of civil servants and increase in free competition, when he criticized the electric utility companies and called for eradication of nuclear power plants. Conversely, Occupy Tokyo held in October 2011, which, in sympathy to Occupy Wall Street in the U.S., called for criticism of neo-liberalism and the newly wealthy class, gathered only a handful of people compared to the anti-nuclear power demonstration.

Among the elite permanent employees, those who work at new businesses, such as IT-related companies like Softbank, tend to have more freedom in terms of workplace dress and working hours. Unlike the businessmen wearing suits who are employed by companies represented by the old conglomerates, those in the new businesses have a greater cultural affinity with the non-permanent workers. This group backs economic liberalization while at the same time shows interest in high-priced organically produced foods as well as concern for radiation contamination of foods.

It is the nascent intellectual specialists in non-profit organizations (NPOs), rising from the 1998 NPO Law (Law to Promote Specified Nonprofit Activities) and the 1999 Information Disclosure Law (Law Concerning Access to Information Held by Administrative Organs), who are providing the framing structure to these activists. Volunteer activities became recognized after the 1995 Great Hanshin Earthquake, leading to the enactment of the NPO Law by the government. The government had expected to nurture NPOs that would ally with government agencies to deal with massive needs anticipated by such laws as the Long-Term Care Insurance Law. The NPO Law led to establishment of tax exemptions for donations and other factors that allowed citizens' groups that formerly did not have a solid financial basis to train staff who had specialized knowledge. This made possible the emergence of groups that proposed policies critical of the government.

These specialists also served the function of bridging the non-permanent worker group and the new business elite. Many of the young staff at NPOs were highly educated and very competent, and they often condemned the abuses of Japanese style industrialized society; they were a far cry from the "businessmen in suits" in their thinking, as well. In this regard, they had an affinity with the new business elite group. Yet, as they had lost the chance to be hired upon graduating from university, or had left their company mid-career, they had no hope of ever being hired by a major company as a permanent employee. In this aspect, they had an affinity with the non-permanent worker group, particularly those who were well-educated. These three social groups were unified in terms of being the "free" worker group that rose from the shift toward the post-industrialized society and in terms of their critical view of the abuses of Japanese style industrialized society.

Those anti-nuclear power movement participants of the first through third strata who had been active in the past returned to the movement. The demonstrations held in Tokyo from March to May 2011 showed the differentiation among these groups. Because the groups calling for action were disparate, different groups of supporters joined different activities.

For instance, the demonstration called for by the traditional anti-nuclear power movement groups and the Japan Council Against Atomic and Hydrogen Bombs (Gensuikyō) attracted elderly activists and labor union members who had been part of the movement from the 1960s to 1980s. They carried banners and placards displaying anti-nuclear power slogans and union names. Present at the demonstration called for by groups involved in environmental issues and the promotion of organic foods were many middle class families. Specialists who advocate

liberalization of the electric utility market gave speeches, and an orderly march was held with participants waving rape blossoms, as this plant is known to be effective in soil decontamination. The demonstration called for by the non-permanent worker group had people marching to rock and rap music; at the appeal before the march began, a speaker shouted, “We’re poor so we’re used to having our electricity cut off, so we won’t suffer at all without nuclear power plants.”

After these initial disparate actions, the groups calling for activities began to coordinate with each other, leading to the mingling of these social strata. The anti-nuclear power demonstrations held in 2012, while still tending to divide by groups, are starting to co-exist. There are also actions rooted in regional localities. In Kōenji, where the initial gathering was held, the demonstration held in February 2012 was planned at a preparatory meeting at which a wide range of people from young to old gathered, and, with the cooperation of the local government, an elementary school playground was used as the gathering place.

Will we see the rise of a Green Party in Japan, as there is in Germany? As Japan’s electoral system is not a proportional representation system, it is not as easy as in Germany for a minority party to gain seats in parliament. Some are of the opinion that just as the “stop nuclear power plants new wave” disappeared without gaining tangible results, the current movement will also follow the same course. But present-day Japan’s societal conditions have become similar to those in 1980s Germany.

With economic recession following the double oil shocks, decline in manufacturing and unstable employment had become acute in Germany in the 1980s. Under these conditions, when mid-range nuclear missiles were deployed and the Chernobyl nuclear plant accident occurred, the perception that modern industrialized society had reached a dead end became widespread. This societal background worked to gain support for the Green Party. In contrast, the period when Japan’s anti-nuclear power movement’s rise in the 1980s ended for a time, not only was the Japanese nuclear power industry still on the rise, Japanese style industrialized society was also at its height. Hence societal conditions and perceptions differed from those in Germany.

One example of this is the differing ways Ulrich Beck’s *Risk Society (Risikogesellschaft)*, a bestseller in 1986 in Germany, was read in Japan and Germany. This book has the heightened worry about radiation risk in food in Germany after the Chernobyl nuclear plant accident as its background and deals with the rise in instability and risk in all societal areas, including employment, families, and education. In Germany a wide range of readers identified with this perception.

It was translated and published in Japan in 1988 as a work which showed the rise in the German environmental conservation movement after the Chernobyl nuclear plant accident. In so doing, however, the chapters on instability in employment, families, and education were cut, and as the term “risk” was considered unfamiliar to Japanese, the Japanese title became “Dangerous Society” (*Kiken shakai*) This is an indication that at the height of Japanese style industrialized society at that time, there was no societal background to understand instability in employment or families or the concept of “risk.” But now the situation in Japan is entirely different.

In Japan today, public opinion seeking the phasing out of nuclear power plants has climbed to 70 percent. Among the intellectuals, not only are there those who were critical of nuclear power from the past, but also many who oppose nuclear power among economists who favor economic liberalization.

It is the older generation who were at the center of the Japanese style industrialized society—the government administration, the political arena, the Keidanren whose members are

large businesses, and the conservative mass media—that have not backed down from their supportive stance promoting nuclear power plants.

Although there may be a swing toward nuclear plants due to the work of the core group in political and economic spheres, undoubtedly nuclear power will disappear from Japan in the mid- and long-term. This is inevitable as the societal structure changes. The problems faced by Japan as it makes this unavoidable transformation are: how to keep the costs that Japanese society must pay to a minimum, and how to strive for the democratization of politics and the galvanization of social movements. This is nothing short of a test of whether Japan can break away from nostalgia for the “Japan as Number One” era and step out into a new period for itself.

(Translated by Beth Cary)