

FLAMBOYANT REPRESENTATION OF NUCLEAR POWERSTATION VISITOR CENTERS IN JAPAN: REVEALING OR CONCEALING, OR CONCEALING BY REVEALING?

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1. INTRODUCTION

Every nuclear power plant in Japan has its visitor center. There are 50 operating nuclear plants at 18 different sites from Hokkaido to Kagoshima, Kyushu; of these, 47 are for commercial purposes owned and operated by 10 electric power corporations, and three are for experimental use by the central government. This paper is based on my research at all these visitor centers, except for one which was closed for renovation during my research period which started in May and ended in December, 1996. During the period, I also went to interview at three prefectural governments' nuclear public relations centers, in Fukui, Fukushima, and Miyagi. In addition, I visited the main offices of three different power corporations, Hokkaido Denryoku, Kansai Denryoku, and Kyushu Denryoku, to interview about PR policies at energy production sites.

Japan's first commercial nuclear power plant started its operation in 1966 at Tokaimura, Ibaragi Prefecture, some 100 miles northeast of Tokyo. Throughout the 1970s, there was very little anti-nuclear sentiment, and some 23 nuclear power plants had been completed in Japan by 1980 without resistance. However, the world first major accident at the Three Mile Island plant (TMI) in the US in 1979 and the worst accident ever at Chernobyl in 1986 drastically changed the social climate for the peaceful use of nuclear power in Japan as well as in the world. More and more people, most of whom had just been indifferent, became doubtful and anxious about it. Yet, the central government and commercial electric power producers continued to believe that their mission was to maintain a stable supply of electricity. Along with the rapid industrial development of Japan and the increasingly convenient living conditions in Japanese households, Japan's electric energy consumption has increased steadily each year, despite the nation-wide energy saving efforts after two oil supply crises in 1973 and 1979. To accomplish their mission, the government and the electricity suppliers believed that nuclear power was a crucial energy source since Japan has very few natural resources.

There are some sociological and anthropological studies on nuclear power, but very little attention has been paid to the function of the visitor center, except for one brief introductory study of U.S. visitor center by Danilov (1991:52-66). This only introduces a variety of centers where the power plant visitor center was just one kind. Moreover, no study has been done in Japan; mine is virtually the first one. The visitor center deserves special attention, especially in Japan, as Japanese power producers have begun to spend large sums of money, from 3 billion to 10 billion yen, for the construction of each new visitor center since the mid-1980s, whereas, the early versions built in 1970s were all small-scale, low cost and humble looking. This paper deals with the meaning of this dramatic historical change. I especially want to show that the visitor center has increasingly been a strategic tool to gain or perpetuate partnership with local residents of the power plant locations in Japan. Drawing upon the Gramscian concept of hegemony and Jacobsonian communication ideas, I analyze in the paper how the tool works for that end.

Before the TMI and Chernobyl accidents, most small towns and cities where nuclear power plants are located now either welcomed or even lured electric power companies to build power plants within their town/city limits, in sharp contrast to the recent nuclear-avoidance trend all over Japan. Such small towns and cities, with populations ranging from several thousand to 70 thousand at most, usually located away from major metropolitan areas and facing the Japan Sea or the Pacific Ocean, suffered from depopulation and a stagnant economy. On June 6, 1974, a set of three interrelated laws, known as *Dengen Sanpo* was passed, according to which a large grant goes to the local government via the electric power corporation from consumers' electricity payments. (See the detailed system in the Genshiryoku Pocket Book 1996: 126.) The fixed property tax on the plant is also a major income source. For example, Kashima-cho, population about 9000, in Shimane Prefecture, as two nuclear power plants receive about 3.8 billion yen in total for each plant for five years after the start of the plant construction. As soon as the building is completed, the town receives 3.9 billion yen in the first year and 2.2 billion yen in the next year; the amount decreases each year as the property is depreciated. The revenue amount is large, as the town's total budget is about 4 billion yen a year. The adjacent towns and cities also receive lower but significant grants. The law prescribes that the grant be used to improve the public infrastructure of the town. Therefore, in each town and city, such public facilities as roads, school buildings, gyms, hospitals, welfare facilities for the aged and so forth are disproportionately elaborate and often large.

On top of these benefits, the local residents benefit from job opportunities. For instance, in Tomioka-cho, Fukushima Prefecture, about 40% of the working population of the town have power plant related jobs. In Genkai-cho, Kyushu, another small town of about 7400 in population, it is believed by the local people that because of the jobs and benefits offered by the power plant, the depopulation process has been stopped for many years.

However, the nature of these benefits, except for employment opportunities, is short-lived, only lasting several years after the completion of the plant construction. According to my interviewees, i.e., officers at visitor centers and representatives at the department of nuclear issues in the main offices of the electric power corporations, the initial sense of benefits coming from nuclear plants is fading in local people's minds. Now the local government and even the central government seem to share an idea that the local residents should continue to receive some sort of benefits permanently, though not necessarily monetary ones. It is reasonable to think that the nature of the visitor center changed dramatically, especially after the late 1980s in this context. In short, with two major accidents abroad, the meaning of the nuclear plant changed into a fearful, anxiety-producing facility in the public consciousness. It became more and more difficult for electric power companies to reach an agreement with the local people to add a new plant on the same site, and much more difficult to build a new plant in a different town. I will show in detail later that in contrast to the one-time, short-lived monetary benefits, newly-built or renovated visitor centers are offering long-lasting benefits catering to a variety of the needs of local residents.

Another important change that the visitor center has undergone since the late 1980s is that it has started to reach a more diverse population, especially women and children. In the 70s, the visitor center was not only small and humble, but it

basically assumed male adults who were supposed to be local political voices, as visitors, although other kinds of visitors were not excluded. However, after the two major accidents abroad, it was women, especially mothers having small children, who were more and more active about nuclear issues. (See Hasegawa 1991.) Many of those I interviewed at visitor centers and main offices of the companies agreed that it was very important now to bring a sense of security to women in general, especially those with small children, because they now had so much influence over their husbands' opinions of nuclear issues. Besides, all the interviewees also agreed that it was important to familiarize people from childhood as future decision-makers with nuclear power plants.

These historical changes are in parallel with a slogan, "*Chiiki Kyosei*"-symbiotic relationship with the locals- shared by all electric power suppliers in Japan. The slogan appeared in the late 80s. The corporations' appeal to the local people is not limited to the function of the visitor centers, but the latter seem to play a significant role.

While most of Japan's mass-media seem to be anti-nuclear and tend to report anti-nuclear movements by the local residents, rather than the pro-nuclear activities, in many of the visitor centers I visited, especially in the new, large-scale ones, I saw a large number of people, including families, enjoying themselves. It is also a reality that in a few areas, the local representatives go to the company to request that they build another nuclear plant as soon as possible. I think that to ask why the residents accept the nuclear power facility is as important as to ask why and how people oppose it. This paper is an attempt to answer the question.

2. THEORETICAL CONSIDERATIONS

Why do the local residents accept such a potentially life-threatening facility as a nuclear power plant? Such residents' consciousness can be understood with the help of the Gramscian concept of hegemony. According to Joll (1978: 136), for Gramsci, hegemony of a politically dominant class meant that the class succeeded in gaining agreement with their own moral, political and cultural values from other classes in the society. Joll, still citing Gramsci's work, said that hegemony is characterized by the combination of both force and consent. Similarly, June Nash said,

Hegemony is, in Gramsci's...terms:

...an order in which a certain way of life and thought is dominant, in which one concept of reality is diffused throughout society in all its institutional and private manifestations, informing with its spirit all taste, morality, customs, religious and political principles, and all social relations, particularly in their intellectual and moral connotations.

Hegemonic control rests on persuasion as well as force, gaining consensus through concessions [1989: 11].

Nash, thus, suggests not only that hegemony is established by consent through persuasion as well as force, but also that hegemony is a holistic process involving political, moral, cultural, and social relational issues. Although I am fully in agreement with Nash's idea that hegemony is a holistic process, due to the limitation

of my data so far, I focus only on the function of the visitor center as a tool for constructing hegemony.

Another important point in Gramsci's concept of hegemony is that, as Bockok (1986) suggests, it is wrong to perceive that in the hegemony building process, one dominant class one-sidedly works upon other classes through persuasion and force. Rather, it is a two-way process of communication. As Bockok says,

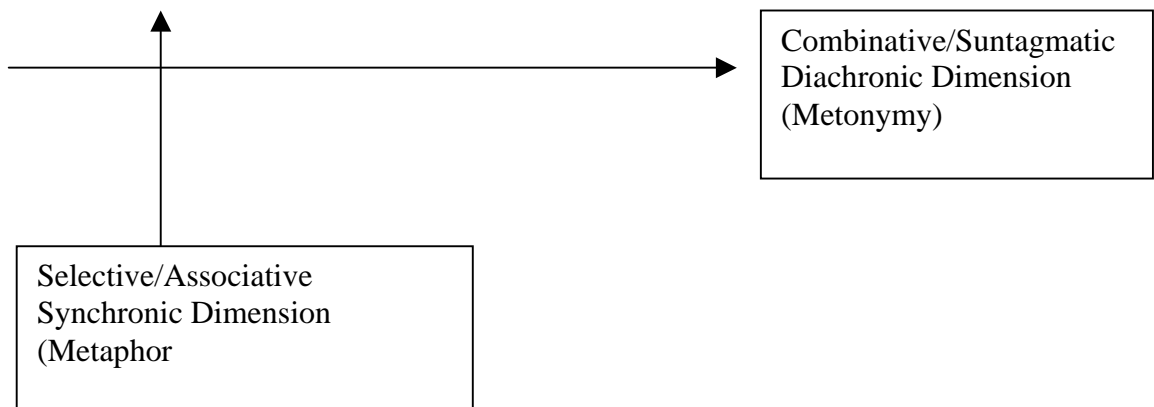
Althusser and his critics, such as Foucault, emphasized one side only of the continuum of constituted-constitutive subjectivity. In these theories subjects were seen as constituted by processes which they could not control. ... Gramsci had emphasized both the constituted and the constitutive aspects of human agencies of change in Marx's work [1976: 16].

The idea of mutual influence helped me understand the meanings of the dramatic historical change in the visitor centers.

Another set of theories that I draw upon is communication theories. What visitor centers are trying to do is communicate; they are trying to get their messages across. The function of the visitor center is not just to give information, but, more importantly, to deliver a message, to persuade visitors to accept the nuclear power plant as safe and non-controversial by lulling them into a sense of familiar safety without any doubt and beyond any question. Unlike other museums, public or corporate, nuclear power plant visitor centers are charged with this special mission. Therefore, communication or presentation is a very important aspect of the facility. To analyze how messages are presented by visitor centers, I draw upon Roman Jakobson's famous theory of communication, especially his idea of poetic function.

The poetic function deserves special attention in viewing the visitor center as a strategic tool for building up hegemony in Japan. According to Jakobson, the poetic function consists of two kinds of operations which are occurring synchronically. The first operation is to "draw attention to its *own nature*, its own sound-patterns, diction, syntax, etc..... As a result it systematically undermines the sense of any 'natural' or 'transparent' connection between 'signifier' and 'signified', sign and object" (Hawkes 1977: 86). In other words, the poetic function is to blur the relationship between the signifier and the signified by drawing special attention to the signifier.

The second operation in the process of the poetic function is to construct the new relationship between the signifier and the signified, whose relationship we, as common readers of a poem, do not normally take as natural. Yet a good poem makes us feel as though our emotional or intellectual internal world has been enriched by accepting the unusual relationship which the poet offers to us. Jakobson tried to explain this process by drawing upon Saussure's famous idea on the nature of language.



In the diagram (taken from Hawkes 1977: 78), the horizontal axis represents sentences, spoken or written. The sentences are meaningful only when the words and the phrases within the sentences are combinatively, syntagmatically, and diachronically related to one another. The vertical axis, on the other hand, represents a sort of stock of words and phrases. The totality of the words and phrases on the vertical axis in the diagram does not make synthesized meaning, but a speaker withdraws appropriate words and phrases from the stock upon communication. Therefore, the words and phrases on the vertical axis could be said to be related only “metaphorically”. In other words, no intrinsic relationship between the words and the phrases has to exist, as they only constitute the stock of signs to draw from.

Whereas, the words on the horizontal line have to be “metonymically”, or inevitably, related to one another; otherwise, there is no meaning to be conveyed. (See also Leach 1976: 9-16.)

Drawing upon Saussure’s idea, Jakobson maintains that “the poetic function projects the principle of equivalence from the axis of selection into the axis of combination” (Hawkes 1977: 79). In other words, the poetic function establishes the new relationship between the sign and the object that the sign indicates. More importantly, the poetic function may be powerful enough to make even a metaphoric, i.e., not intrinsic, relationship act as though it was a metonymic, or inevitable, one.

In short, the poetic function blurs the arbitrary relationship between the signifier and the signified by drawing disproportionately special attention to the signifier, and it simultaneously joins the signifier with another signified, while it still keeps its old relationship with the original signified. As a result, Jakobson says, poetry gains “thoroughgoing symbolic, multiplex, polysemantic essence” (Hawkes 1977: 79; see also Ikegami 1984).

The historical change of the nuclear plant visitor center seems to show a process similar to the poetic function. The trend of the visitor center since the late 80s is that it has become more and more flamboyant in terms of the building size and design, the variety of displays, and also the new facilities added to the center.

The multiplex meaning of the modern visitor center extends toward hegemony build-up. This paper tries to show that hegemony rests upon the communication process, especially the poetic function of the visitor center.

3. WHAT HAS CHANGED AT THE VISITOR CENTER?

In this section I present an overview of the conspicuous characteristics of the historical change that took place in the latter half of the 80s.

The first obvious change is the building itself. As Chart 1 shows, the early versions of the visitor center in the 70s are all small, usually flat-roofed, one-story, square buildings. Although the record of the cost of building is not necessarily available, it can be assumed by looking at some of the remaining buildings formerly used as the visitor center in several plant sites that not much budget was allocated to the building of such facilities. It was also usually located at the edge of the premises of the power plant, which itself was located at a remote, not easily

accessible area. The yearly number of visitors ranged from less than 10000 to 20000, with two exceptions, Genkai, Kagoshima, 90000, and Mihama, Fukui, 143000. (See Chart 2.)

CHART 1			
	Built		Plottage/ Floor Area (SQm)
Visitor Centers	(Rebuilt or Renovated)	Building/Maintenance Cost (¥)	
Tokaimura (Ibaragi Pref.)	1964 (1980/1993)	No record	
Ooarai (Ibaragi Pref.)	1970 (1985)		
Shimane (Shimane Pref.)	1970 (1987)	No record	
Fukushima Daiichi (Fukushima Pref.)	1971 (1986)	(142 million)	/1650
Hamaoka (Shizuoka Pref.)	1972 (1989)	(238 million)	34,000/1135
Mihama (Fukui Pref.)	1972 (1983/7)	No record	6116/815
Genkai (Saga Pref.)	1973/4 (2000)	(200 million/)	??/1090
Ikata (Ehime Pref.)	1978/6(1994/10)	(500 million, 350 million/)	
Kashiwazaki (Niigata Pref.)	1979/9 (1983,90,94)	(?/200 million)	
Sendai (Kagoshima Pref.)	1980/1()	(1 billion/0.09 billion)	
Onagawa (Miyagi)	1983/4()		
Mihama (Fukui Pref.:renovated)	1983/7()		6116/1456
Fukushima Daiichi (renovated)	1986/()	(64 million for renovation)	/1650
Tsuruga (Fukui Pref.)	1987/()	(0.9 billion/0.07 billion)	
Shimane (rebuilt)	1987/()	(2.6 billion/0.2 billion)	10500/2020
Fukushima Daini (Fukushima Pref.)	1989/7()	(1.2 billion/)	7300/2259
Hamaoka (rebuilt)	1989/()	(5.5 billion/0.2 billion)	40000/6995
Tomari (Hokkaido)	1991/6()	(3 billion)	25670/5300
Ooi (Fukui Pref.)	1992/7()		8900/2020
Donen Atom Plaza (Ibaragi Pref.)		(1 billion+/0.05 billion)	
Donen Atom World (Fukui Pref.)			
Tokai (Ibaragi Pref.:rebuilt)	1993/()	(2 billion+/0.2 billion)	??
Kashiwazaki (Niigata Pref.: renovated)	1983,90,94	(?/0.2 billion)	28493/6995
Alice-kan, Shika (Ishikawa Pref.)	1994/4()	(2.4 billion/0.1 billion)	
Ikata (Ehime Pref.: renovated)	1994/10()	(0.35 billion for renovation only)	
Genkai (Saga Pref.: planned to be rebuilt)	2000()	(10 billion)	100000/12000

In contrast, all the visitor centers built since the late 80s or going to be built in the near future are costly, 0.9 billion yen at the least and 10 billion yen at the most; the rough average cost among nine new centers is over 3 billion yen. Even if price differences between the two time periods are taken into consideration, the electricity companies have still spent more and more money to improve the quality of the visitor centers. My interviews with the heads of all the visitor centers reveal that this is due to the necessity to appeal to public. Both the plottage and the total floor space of the building have also dramatically been enlarged, with a few exceptions. The buildings have also become taller and multi-storied with an observatory on top. Along with the increased size, more and more visitors have come. Especially in the 90s, several hundred thousand a year at the least, and up to over 300000 visitors are recorded each year consistently. The new visitor centers also tend to move outside the plant premises in search of larger available space, more easily accessible place, and/or an area having a good view.

CHART 2
HISTORICAL CHANGE IN THE AVERAGE NO.# OF VISITORS A YEAR

	1970-80	1980-85	1985-1990	1991-1996
Tokai (Ibaragi Pref.) 1964-1980	20,000	x	x	x
Mihama (Fukui Pref.) 1967-1983	143,000	80,000	x	x
Ooarai (Ibaragi Pref.) 1970-	not open to public	not open to public	6,000+	6,000+
Shimane (Shimane Pref.) 1970-1987	20,000	20,000	25,000	X
Fukushima Daiichi (Fukushima Pref.) 1971-	9,500	9,500	37,000	22,000-32,000
Hamaoka (Shizuoka Pref.) 1972-1989	24,000	20,000	19,000	x
Genkai (Saga Pref.) 1973-	90,000	70,000	70,000	70,000
Ikata (Ehime Pref.) 1978-	x	45,000	80,000	80,000
Kashiwazaki (Niigata Pref.) 1979-	x	50,000	60,000	50,000
Sendai (Kagoshima Pref.) 1980-	x	75,000	70,000	55,000
Tokai (Ibaragi Pref.) 1980-(1993)	x	20,000	40,000	(60,000+)
Onagwa (Miyagi Pref.) 1983-				
Mihama (Fukui Pref.) 1983-	x	x	120,000	120,000
Tsuruga (Fukui Pref.) 1987-	x	x	80,000	50,000
Shimane (Shimane Pref.) 1987-	x	x	85,000	100,000
Fukushima Daini (Fukushima Pref.) 1989-	x	x	x	75,000
Hamaoka (Shizuoka Pref.) 1989-	x	x	180,000	300,000-
Tomari (Hokkaido) 1991-	x	x	x	140,000+
Ooi (Fukui Pref.) 1992-	x	x	x	100,000
Alice-kan, Shika (Ishikawa Pref.) 1994-	x	x	x	200,000+

On top of the building size, the second characteristic of the new visitor centers is that many new buildings are highly conscious of aesthetics. The visitor center in Shimane Prefecture is located on the top of a hill overlooking the Japan Sea and the famous Okinoshima Islands. The building is a pyramid shape, 26 meters high. The design of the building is said to come from the famous Izumotaisha Shrine in the prefecture, one of the oldest shrines in Japan. The only nuclear power plant visitor center in Hokkaido, nicknamed Tomarinkan, is 40 meters high, a five-story, large-scale modern grand building which stands on vast flat land in the middle of

nothing. The second visitor center of Tokyo denryoku in Fukushima Prefecture is located in town next to a large supermarket four miles away from the power plant site. The facades of the three connected buildings came from the houses where Einstein and Marie Curie were born, and Edison's laboratory building. The design stands out in the scenery of the small town, whose surrounding area used to be called "Tibet in Tohoku". The visitor center in Shizuoka Prefecture stands near the plant site just off the Pacific Ocean. The building is 62 meters above the sea level. With no other tall buildings nearby, its observatory overlooks a long distance in all directions. The Hokuriku Denryoku's visitor center in Ishikawa Prefecture, nicknamed Alice-kan, is located a few miles from the plant site. It stands in the middle of vast lot, and is large, modern dome shaped, fancy looking, 20-meter high building having an observatory on the top. The newly-planned visitor center to be completed in 2000 in a small town in Kyushu, a 10 billion yen project, is going to have two main large scale halls, both of which have a futuristic appearance. Such large-scale buildings for visitor centers could not be found before the mid-80s.

The third characteristic might be the fact that after the late 1980s, exhibits and added facilities which have virtually nothing to do with the nuclear power of plant have been increasingly installed. (See Chart 3.) Conspicuous examples of such exhibits and facilities are the video game corner for children, the outdoor open grass space with a small swimming pool, field athletic facilities and so on, where special events of entertainment especially for children are occasionally held on weekends and during long vacations. In addition, the visitor center in Hokkaido has a 25-meter long indoor heated swimming pool available throughout the year. The center also has a museum of the archaeological findings of the Jomon Period of the area. The Tohoku Denryoku's visitor center in Miyagi Prefecture has an orchard next to the building open to the public. The visitor center in Shimane has a baseball stadium with lighting facilities, which is used more than 300 times a year for a low admission charge. The center also has tennis courts open to the public. The newly planned visitor center in Kyushu mentioned above is also going to have baseball stadium and tennis courts. One of three Kansai Denryoku's visitor centers in Fukui Prefecture is going to open to public from the Spring of 1998 the company-owned vast wooded region adjacent to the power plant facing the Japan sea as a natural park and camping site.

All these exhibits, facilities, and services are a new trend and located in small country towns with about 10,000 in population. The indoor swimming pool in Hokkaido as was opened in June 1991. In the five years until now, nearly 1,500,000 people have used it, and that number is not counted as visitors to the center. Special events, such as swimming class, underwater aerobics class and so on, are also held there.

Events especially to entertain children are also another trend. In Alice-kan in Ishikawa Prefecture, for example, nearly 30 times a year the staff plan and hold special events, such as film shows for children, doll-making class, painting class, a small athletic competition. When I visited there on a Sunday in May, a large number of families were enjoying picnics and events organized by the staff on the grass yard surrounding the visitor center building. Within the visitor center, I found many children enjoying video games; they said that they came often just to play the games. In many other visitor centers, as well as in Alice-kan, a variety of events are held.

CHART 3

ADDED NEW FACILITIES UNRELATED TO THE NUCLEAR POWER

Visitor Centers	Prefecture	Electric Games	Outdoor Space	Events	Other Facilities
Tokai 1964-1993	Ibaragi	x	x	x	x
Shimane 1970-1987	Shimane	x	x	x	x
Fukushima Daiichi 1971-	Fukushima	x	x	x	x
Genkai 1973-2000	Saga	x	x	x	x
Ikata 1978-1994	Ehime	x	x	○	x
Kashiwazaki 1979-	Niigata	○ recently	x	x	
Sendai 1980-	Kagoshima	x	○	x	x
Mihama 1983-	Fukui, renovated	○	x	○	large art exhibition
Onagawa 1983-	Miyagi	○	○	○	orchard
Tsuruga 1987-	Fukui	x	x	○	
Shimane 1987-	Shimane	○	○	○	3D theater, baseball stadium
Fukushima Daini 1989-	Fukushima	○	○	○	science theater
Hamaoka 1989-	Shizuoka, rebuilt	○	○	○	OmniMax theater
Tomari 1991-	Hokkaido	○	○	○	indoor swimming pool, archeological museum, local products shop
Ooi 1992-	Fukui	○	x	○	natural, camping park
Tokai 1993-	Ibaragi	○	○	○	
Alice-kan, Shika 1994-	Ishikawa	○	○	○	the whole facility is recreational in nature
Ikata 1994-	Ehime, renovated	△	x	○	a large local products shop
Genkai 2000-	Saga Planned to be rebuilt	○	○	○	museum of traditional arts and crafts, baseball stadium, green house

Many visitor centers are now also linked with local commercial products stores. The commercial products are primarily those of the sea, such as dried fish and processed products, as all nuclear power plant sites are located facing the ocean, where the most common major local industry is fishing. Independent product stores owned and run by the local “third” sector, i.e., half government and half private ownership, are located on the premises of the visitor centers in Hokkaido, Shimane, and Ehime. Such small kiosk shops within the building were also found in some other visitor centers. Modern buildings with high-tech facilities do not seem to fit well with traditional, local products, but the local government and public commercial organizations expect the visitor centers to accommodate them. A notable example can be found in Kyushu. As has been often mentioned so far, a new large-scale visitor center is planned to be completed in 2000 in northern Kyushu. The population of the town is about 7,400. Since there is very little to attract them, the town has very few tourists. However, the adjacent town is famous for some historic sites, such as the old castles with Toyotomi Hideyoshi and the samurai lords built as a base from which they sailed to attack the Korean Peninsula some 400 years

ago. This town receives 700 to 800 thousand tourists each year, and the town of the nuclear plant wants to attract them to their community. Partly to respond to this local request, the Kyushu Denryoku, the owner of the power plant, decided to wholly rebuild the visitor center so that it will be a new tourist center. As part of the visitor center, a large museum named Kyushu Furusato-kan (Homeland or Birthplace Pavilion), which will exhibit traditional crafts and products from all over Kyushu Island is planning. This hall alone is estimated to cost about 2 billion yen, 20% of the whole project.

The fourth characteristic of the new visitor centers is that they utilize a variety of high-tech media to explain about the nuclear power plant. In the old visitor centers built in the 70s, the two major points of exhibition were the plant's operation and the special concern for safety. The primary exhibits were panel explanations and models such as a cut or full-scale reactor model, and perhaps, an audio-visual explanation would also be used in a small theater. All these were so modest and unattractive that they were unable to draw the attention of children, much less those who were indifferent to nuclear power.

Although I think that the contents of explanation have changed very little, in the new visitor centers, the means by which the message is to be conveyed has been much more diversified in order to attract more people of all generations, especially the younger ones. Panel explanations are now only minimally used. The overall interior is elaborate and more colorful. High-tech is used all over the place. At the visitor center in Shizuoka, for example, such explanations as how nuclear fission works in the reactor, where water runs, and how the reactor stops operation in an emergency, are given with the use of a full-scale reactor model, colorful lights and audio-visual monitor, as if the visitor were watching a spectacle. This is a hard-to-forget, overwhelming experience, even though it is hard to remember the detailed contents. It is true that an old visitor center in the city of Sendai, Kyushu, built in 1980, also exhibits a full-scale reactor model and the explanation is more or less the same as in Shizuoka, but the exhibit is very static and plain, using very little high-technology, little lighting, and no audio effect. The visitor could get a sense of how large the reactor is, but would not be overwhelmed at all. Although I have no data on the responses from actual visitors to the centers, which is an assignment for the next stage of my research, it can be assumed that it is not the content but how it is exhibited that matters in terms of the visitor's impression.

The fancy looking visitor center for the second nuclear plant site in Fukushima Prefecture features great scientists and inventors, such as, Einstein, Marie Curie, and Edison. In the theater on the second floor, larger than life size models of these figures appear. They move and speak about their great findings and inventions in a manner that makes the viewer close to the great world of science. Einstein, for example, confides that he went to the same grade for two years in Elementary School, because he was not so smart. This kind of self-abasement seems not only to encourage children, but it also increases intimacy with the audience. In many other visitor centers, old and new, the photos or illustrations of the main scientists related to nuclear energy are shown on panels, but no other place is more impressive than this visitor center in Fukushima in terms of nuclear power as a scientific achievement.

The Alic-kan, the Hokuriku Denryoku's visitor center in Ishikawa Prefecture, as the name indicates, presents the cartoon characters from "Alice in Wonderland" as

media to explain about the nuclear plant. Unlike the general dark image of nuclear power, the whole building and the displays are designed and decorated to give a fantastic atmosphere. For example, to explain about the “Merits of Nuclear Power”, about a one-meter high Dodo Bird doll directs a large white egg to break so that a big TV monitor shows up, and the explanation starts. Regardless of the content of the explanation, the staff of the visitor center said that children enjoy this show-like presentation. In the same center, a 1/25 cut model of the whole nuclear plant of that site is set on the 7.5 meter wide stage, called “Fantasia Theater.” As a visitor presses a button to start a show, a high-tech system, called ‘magic vision’ starts; cartoon rabbits show up and escort the viewers to show them how the plant works to produce electricity. Also, to explain how to control nuclear fission in the reactor, Alice and cartoon animals play music using a pipe organ which is likened to the nuclear fuel core; the control rods go up and down, as the music is played. In some other visitor centers, cartoon characters are utilized, but nowhere else are they massively used as in the Alice-kan, which receives over 200,000 visitors a year.

Another important aspect of the diversified media is that the visitor is no longer a one-sided listener to the explanation. With a variety of participative and interactive machines and facilities, the visitor can experience, even if to a minimum degree, such operations as real handling of nuclear fission control by pressing buttons and turning knobs and wheels. Such facilities not only help visitors understand the mechanism of the power plant, but, more importantly, also seem to make visitors feel that the nuclear plant is fully under the control of human hands. In other words, grasping those knobs and wheels is almost like literally “grasping” control of the plant and intellectually grasping the meaning of those signifiers that the plant wants to be understood.

The visitor center in Shimane has a box with sound and visual effects in which a visitor sitting on a chair feels as though he or she is going out into space and being exposed to space radiation. In almost all visitor centers, there is a box called the “Spark Chamber” in which sparks appear as the radiation from space spears through the ceiling of the building and goes through the box. Such exhibits are meant to show that a small amount of radiation is everywhere in nature and we are constantly exposed to radiation from space. Along with this, it is also explained that radiation also comes from the earth and foods and drinks we take daily. All these explanations imply that it is not just the nuclear power plant that contains radiation. Although this may be true, what seems to be cloaked by so saying is the critical difference between the nuclear state in everyday nature and its state in the plant. In nature, the radiation does no harm to human body.

In addition to these new media, such visual technology as a 3D Theater (in Shimane) and a Max Theater (in Shizuoka) also delivers a spectacular, surprising as well as fun experience, since what is seen is vivid, because of the three dimensional view and/or, as in the Max Theater, because the viewer’s whole visual range is covered with the big screen on the dome-shaped ceiling. Besides, what is shown in the 3D Theater is an original film on the natural beauty of the area and the traditional events and rituals of the whole Chugoku region to which the power company provide electricity. The film is so beautifully made that it seems to render the love of the birthplace, *furusato*, of the local people. I myself, not being a local person, felt that the Chugoku region had many attractive places and traditional events for tourism. In almost all the visitor centers, there is such a film, which reminds the viewers of

the love of their birthplace. The films seem to be designed to have an emotional impact with music as well as pictures. As one of my informants said, such a film is expected to make local residents proud of their home place when the visitors from outside the local area watch the film. In old visitor centers, such films also exist, but the 3D and Max theaters in the new centers seem to have more powerful effects.

The visitor centers' association with the concept of *furusato* seems very important. The center represents not only the plant, but also the whole local area to outsiders by showing its nature and traditions in all their beauty and splendor. Such films seem to conceal or obscure the fact that the nuclear plant itself has very little to do with the everyday life of the local residents who consume very little of the electricity that the plant produces. Such concealing effects are found in many other facilities unrelated to the plant, which will be discussed below.

4. EXPLANATION, EXHIBITS AND ADDED FACILITIES AS CONSEQUENCES OF COLLABORATION

The explanation and exhibits that could be found commonly in almost all nuclear power visitor centers concern energy supply and consumption circumstances in Japan and the world, the nuclear fission mechanism, nuclear fuel and the recycling system, the security system of the nuclear power plant, handling of nuclear wastes, radiation, and full-time monitoring of the system of radiation in the surrounding area. The explanation of each of these sections is given with the use of a variety of media. But of great importance is that the explanation is given so that it points toward the legitimization of the nuclear power plant. The rhetoric of this legitimization in brief based on my interpretation is:

It is reconfirmed that Japan is extremely poor in natural resources for electric energy. Most of the electric energy resources, i.e., oil, coal, and natural gas, come from abroad. As has been seen in two major oil crises in the 1970s, since most crude oil producing nations which Japan has to depend on are located in politically unstable areas, it is not a good idea to continue to rely on them. It is also estimated that oil, the major fuel for the production of electricity, which will be wholly exhausted by the middle of the next century, if it is consumed at the current pace. On top of that, the combustion of oil and coal produces carbon dioxide that contributes to the warmer climate of the earth. A hydraulic source of power could contribute only a small percentage to electricity production. Such "clean" energy sources as wind and solar power could be alternative choices, but technically, these sources are not yet reliable enough to meet the energy demand in Japan.

Under these circumstances, nuclear power is a good alternative. Its fuel, uranium, comes from the U.S.A. and Australia, who are both politically stable, and keep amicable relationships with Japan. The fuel, if it is handled properly, does not negatively influence the environment at all. Uranium will also be exhausted, but it can be used over again through recycling processes. In terms of cost also, nuclear power is the cheapest means of producing electricity per kilowatt in Japan.

In the case of security, the plant is designed to stand intact in a major earthquake and typhoon. The nuclear fuel core is covered in total by five thick metal and concrete walls in order to contain the radioactivity. Both the power plant and the local government have independent monitoring systems to check the radiation level in the environment 24 hours each day. Even with an accident, there is a system

automatically controlling the nuclear fission in the reactor. Besides, to avoid human errors, the operating staff is constantly under training. The law requires that the plant stop operation, every 12 months for a regular check-up, which can last as long as 3 months for a detailed examination.

As for radioactivity, it exists everywhere in nature. It comes from space spearing through our body constantly; it comes from the earth, and also from the food we eat. Each of us receives on average 1.1 milisiebelt of radioactivity wherever we live in Japan. This amount does not harm our health at all. In some part of Brazil, an individual receives 10 times more natural radioactivity than in Japan, but still it has no effect on the local residents. The radioactivity level around the nuclear plant is no greater than anywhere else in Japan.

Such is the common message conveyed by all the visitor centers in Japan. The message's logic is so plausible that I myself had to fee that nuclear power was a useful and reliable source of electric energy. Of importance, however, is that much of the content of the explanation and the ways in which the explanation is given are conscious responses to possible questions and especially to vague anxieties based on the preconceptions that visitor center is not designed to answer the highly specialized technical questions which people who are strongly against nuclear power may have. The informants agreed that the center assumes that visitors are ordinary people who have only a vague anxiety about the nuclear plant, and not those who are radical opponents, although such people are not refused entry to the center.

In contract to general museums, whether public or corporate, which have a great degree of liberty as to what is exhibited, the nuclear plant visitor center has to be highly concerned with the visitors' consciousness, as it has a mission to influence the visitors' view of the power plant. In this sense, it could be said that the visitor center is a collaborative work of both the plant owner who promotes a point of view and the visitors who accept it, although the visitors have not actually participated in the making of the center.

The notion of collaboration could also be extended to the new visitor centers built since the late 1980s which have facilities not related to nuclear power. Such added attractions as swimming pool, public park, baseball stadium, museums, and local products shops were built because either the local residents requested them or the plant owning company assumed that the facilities would contribute to local people's support. Whereas the contents of the explanation about nuclear power respond to the intellectual needs of the visitors in general, these added facilities and occasional events at the new visitor centers are in response to the recreational and commercial needs of the local people.

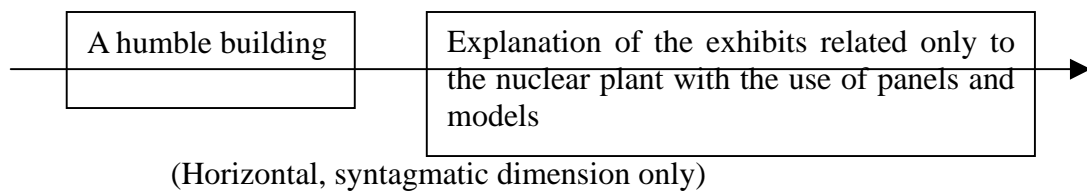
5. THE POETIC FUNCTION OF THE NEW VISITOR CENTERS

As was discussed above, the poetic function, according to Jakobson, is to obscure the relationship between the signifier and the signified by drawing attention to the former, retaining the latter, and then establishing new relationships so that the whole message can be multiple and profound. This process could be applied to the analysis of the new power plant visitor center. For example, at one of two visitor centers in Fukushima, three most famous physicists and inventors were drawn from the storage of signs representing the world of science and technology. These figures are brought close so as to draw visitors into the glorious history of science

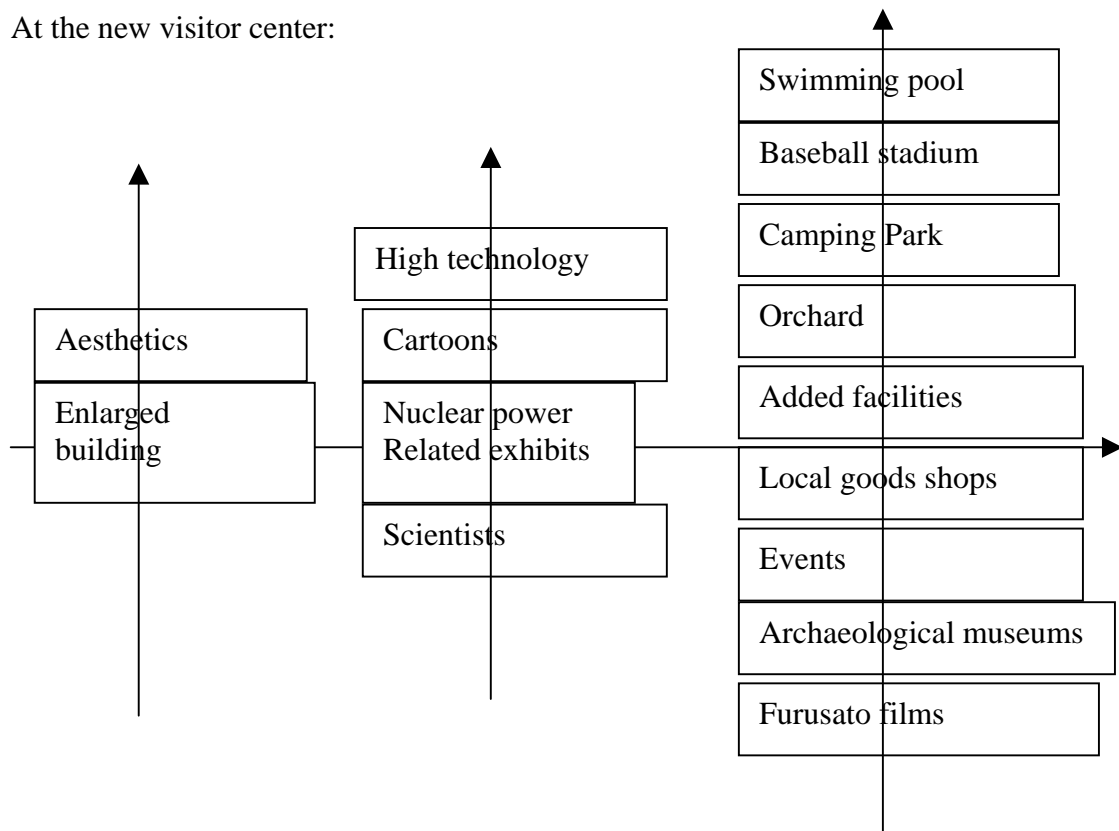
since the late 19th century. As a consequence, such negative aspects of scientific development as nuclear weapons, dreadful radioactivity, environmental pollution and so on are largely toned down. In common consciousness, nuclear power has two contradictory connotations: useful power and an anti-life, destructive power. By bringing close the great figures in science, nuclear power as a consequence of the glorious history of science tends to get rejoined with only the positive connotation, i.e., useful tool. The same positive connotations emerge with the use of the cartoon, the use of recreational culture, and that of the local tourism industry.

Below are the schemes of how the message is conveyed in the old and the new visitor centers.

At the old visitor center:



At the new visitor center:



(Three vertical lines represent stocks of signs from which a visitor center selects the appropriate ones.)

The old visitor center was, as it were, the signifier only for the nuclear power plant. However, in the 80s, the destructive, anti-like connotation of the nuclear plant dramatically increased, and the new or renovated visitor center had to borrow

many different signifiers, whether related to nuclear power or not, whereby it drew the attention of a wide variety of visitors to those new signifiers. As a result, the relationship between the visitor center as a signifier and the nuclear plant as a signified was blurred. Instead, the new visitor center now becomes the plant and what it means. It is also a large-scale recreation center and/or the center for tourism. As a consequence, by recombining with the new signifiers, the visitor center is intended to rejoin and communicate only the positive connotation of the nuclear plant.

The old visitor center was, so to speak, a small keyhole through which the real nuclear power plant was to be seen. It could be said that the enlarged new center not only guides us to the plant, but also influence visitors in the way that they look at the plant in the plant tour. At all visitor centers, the whole tour starts with the visitor center, and then proceeds to the real plant. It is true, as the staff of the visitor centers say that it is more helpful to understanding the power plant for the visitors to go through the visitor center first. I do not distrust the sincerity of the staff's statement, but my own impression is that after having gone through a magnificent visitors' facility, the visitor is already biased when actually looking at the real plant. The tour in the plant is now a sort of reconfirming process, reconfirming what the visitor learned or felt in the visitor center. When the visitors go into the plant after seeing the center, they "see" the plant intellectually as the same as the plant in the center. The identity is precisely what metonymy accomplishes. In addition, at some plants such as the ones in Fukui and Niigata, what is called "see-through" facilities are equipped specifically for visitors to the plant buildings. Pretty pathways looking like those of a fine hotel, and several designated rooms with thick glass windows through which the visitors are able to see the inside of the plant have been built. Such facilities are intended to produce cozy tours for the visitors, who formerly in the old plants had to wear hard hats, change shoes, and take other precautions. Now the visitors can walk in the plant just the way they are. These facilities may also help make the visitors feel that the plant environment is as safe as an everyday environment. At many plants other than in Fukui and Niigata, efforts were observed to make visitors, even children feel comfortable. For example, colorful cartoon characters are drawn on the walls on the route, and photos or illustrations of the operators of the plant are also hung in the control room with information such as their hobbies, which seem intended to increase the sense of intimacy to the visitors.

6. CONCLUSION

In this paper, I have shown an organizational attempt to establish hegemony at the nuclear power plant sites. Hegemony construction is a highly complex process, and I do not yet have enough data to discuss the whole process. Nevertheless, very special attention has been paid to the visitor center as a hegemonic tool. Although a visitor center alone cannot construct hegemony, the facility is most probably the easiest medium to approach and influence the common people for the electric power suppliers, because it can be fully under the control of corporate management as well as because it is immediately associated with the power plant.

As I have shown, in my example, hegemony building rests, in a way, upon collaborative processes without the use of force: the collaboration between the

electric power producers and the visitors especially the local residents. As the visitor center gets equipped with information and facilities which the visitors want to know and utilize, both the power suppliers and the visitors become the constitutive-constituted agents for hegemony building. However, in this process, the residents' consciousness tends to be oriented toward consent to the plant, which is the major purpose of the suppliers.

As more and more flamboyant, multiple media are used; the visitor center represents not just the nuclear plant itself, but also the local recreational center and the tourist center, which are intended to serve as long-lasting benefits for the local people. As a consequence, the association between the visitor center and the nuclear plant, above all, the negative aspect of the plant is obscured. It could be said that the new visitor center, as a magnified, multiple signifier is concealing the negative association by revealing its multiple roles splendidly. This concealing by revealing could be the poetic function of the trendy, modern visitor center in Japan.

Although I focused in this paper on the relationship between hegemony and communication represented by the function of the visitor center, hegemony building concerning the nuclear power plant has a multiple aspect, which must be studied holistically. The relationship between the company, the local political leaders and the residents is to be seen as a political process. The grants based on the set of laws, the fixed property tax, employment opportunities, and the tourism industry constitute the economic aspect. The logic and the rhetoric in the explanation given in the visitor center to legitimate nuclear power represent the moral aspect. And, the added facilities unrelated to nuclear power, *furusato* films and the variety of events hosted by the visitor center represent the cultural aspect of hegemony building.

References Cited

- Barke, R.P. and Jenkins-Smith, H.C. 1993
Politics and Scientific Expertise: Scientists, Risk Perception and Nuclear Waste Policy.
- Bockok, Robert 1986
Hegemony. London: Tavistock Publications.
- Danilov, Victor J. 1992
A Planning Guide for Corporate Museums, Galleries and Visitor Centers, New York: Greenwood Press.
- Hasegawa, Koichi 1991
Han Genshiryoku Undo niokeru Josei no Ichi (The Status of Women in Anti-Nuclear Movement). Reviasan
- Hawkes, Terence 1977
Structuralism and Semiotics. Berkeley: University of California Press
- Ikegami, Yoshihiko 1984
Kigoron eno Shotai (Introduction to Semiotics). Tokyo: Iwanamishinsho.
- Jasper, James M. 1990
Nuclear Politics: Energy and the States in the United States, Sweden, and France. Princeton: Princeton University Press.
- Joll, James 1978 (1977)
Gramsci. Translated by Kawai, Hidekazu. Tokyo: Iwanami Genndai Sensho.
- Leach, Edmund 1976
Culture and Communication. Cambridge: Cambridge University Press.
- Nash, June C. 1989
From Tank Town To High Tech: The Clash of Community and Industrial Cycles.

- Albany: State University of New York Press.
- Kagaku Gijutucho, ed. 1996
Genshiryoku Pocket Book. Tokyo: Nihon Genshiryoku Sangyo Kaigi.
- Patterson, P.D. 1987
How Television News Covers Technological Crises. Ph.D. dissertation at the University of Oklahoma.
- Smellie, R. L. 1988
Political and Governmental Aspects of Major Technological Risks. Ph.D. Dissertation at Victoria University.
- Tabusa, K. 1992
Nuclear Politics: Exploring the Nexus between Citizens' Movements and Public Policy in Japan. Ph.D. dissertation at Columbia University.
- Tanaka, Yasumasa 1982
Genshiryoku no Shakaigaku (Sociology of Nuclear Power). Tokyo: Denryoku Shinposha.
- Wolfe, A. K. 1986
Risk and Confidence in Industrial Communities: A Comparative History of Perceptions of Industrial Pollution in Oak Ridge and Rockwood, Tennessee. Ph.D. dissertation at the University of Pennsylvania.

Article published in *Agora: Journal of International Center for Regional Studies*, No.1 (2003), pp.11-29.
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