

RADIOACTIVE WASTE DISPOSAL AS A SOCIAL ISSUE*

KYONG-DONG KIM**
Seoul National University

Based on a multidisciplinary, social science study, analysis is made of the widespread misperceptions, misinformation, and misguided and largely negative attitudes toward nuclear power in general and radioactive waste in particular, and of their social, political and economic roots. Distrust of the government and nuclear power authorities, caused by their past mistakes, instigation of radical anti-nuclear forces, the overall democratization trend causing the nimby phenomenon, and the keen but differential interests of the various local groups involved are found to be responsible for misleading notions and attitudes. Furnishing the right information and gaining the trust of the people are suggested to be the key to finding the appropriate site for radioactive waste disposal, badly needed in Korea.

THE SUDDEN AWAKENING

When the ordinary people in a small quiet island village off the west coast of the Korean Peninsula fiercely fought the police force trying to put down the riotous rally, the news hardly came as a surprise, viewed as just one of those incidents interspersed in our contemporary history. Another similar event occurred months before that in a coastal village on the opposite side of the peninsula, which was not widely publicized. These things could have happened over and over again without drawing much attention of ordinary social scientists, who are quite ignorant about and indifferent to the issue of finding a site for radioactive waste facilities.

It came as a sudden awakening only after we had been asked to look into the matter seriously for its social, economic, and political implications. A

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** I would like to express my appreciation to Minister Chin-Hyon Kim of the Ministry of Science and Technology for providing me with such an unusual opportunity to study this matter. My thanks also go to all my colleagues in the research team, but especially to Professors An-Je Kim, Won Kim, Doo-Seung Hong, and our consolation to Professors Chae-Chang Ka and Chae-Gong Pak for their undeserving suffering. I cannot acknowledge all the individuals and institutions here but special thanks go to the presidents of four provincial universities that have provided cooperation and those officials and staff of the Ministry of Science and Technology and the Korea Atomic Energy Research Institute.

sudden awakening in that those incidents were not just the usual ones, to be readily ignored without necessarily arousing a feeling of concern. As we proceeded with our research project, we have come to have a firsthand feeling of the deep sense of anxiety, agony, and frustration of the people involved in this whole complicated matter. The tangle in which everybody concerned has been caught up in has become much clearer to us. I should confess that by now the issue has become part of our own problem, with or without the association established by our undertaking of this specific task. I would, therefore, like to share with readers some of our professional and personal experience of involvement in the issue of radioactive waste disposal.¹

MISPERCEPTIONS AND MISGUIDED ATTITUDES

We have approached the matter from an objective vantage point, by means of questionnaire surveys and personal interviews where possible, and we have come to the realization that the core of the problem lies with the perceptions of the people. First of all, people have very limited knowledge about atomic energy itself, let alone radioactive waste and its disposal. To cite one finding from our national survey of adult population, for instance, only one quarter of the sample (1,528 cases) knows that almost a half of the total electricity in Korea is generated by nuclear power. More than four out of ten respondents (43%) have little or no idea about what radioactive waste is.

Second, whatever information they have tends to be either wrong or distorted in the direction of negative images of atomic energy and waste management. For example, according to the relative size of response rates, atomic power generation is viewed as the second largest source of environmental pollution, the coal-burning method being the first villain. Or, radioactive waste is perceived to be the third most serious factor contributing to environmental destruction, following industrial waste and household garbage. For the largest proportion (53%) of the sample, the word "atomic power" arouses a negative image, whereas it suggests a positive image only to 10%. Moreover, there are

¹I am referring to the research project "Toward Selecting the Sites for Radioactive Waste Disposal and Deriving Regional Development Strategies," conducted by twenty members from five university research institutes in the social science fields. The five universities include Seoul National Univ. covering the national survey; Chungnam National Univ. in charge of Chungchong Provinces; Chonbuk National Univ. taking care of Chulla Provinces; Keimyung Univ. working in Kyongsang Provinces; and Kwandong Univ. looking into the East Coast of Kangwon Province. The team was composed of four sociologists, four experts in demography and medical sociology, four in regional-community development and urban planning, two in public policy and administration, one each in economics, human geography, and communication science. In addition, we had two atomic energy professors and one geologist in the group, to inform us on technical matters. We conducted one national survey, four provincial surveys, and organized six open forums, completing only four successfully.

almost three times more people (42% vs. 16%) who believe the nuclear power plant is dangerous than those who see it as safe.

In addition, 55% of the national sample hold the view that people in the vicinities of a nuclear power plant are subject to a greater risk of cancer than those in non-nuclear areas. Almost a half of the respondents expressed the fear of possible explosion of the atomic power station, 42% has the idea that the ocean near the plant is already polluted, and 41% insist that radiation actually leaks from the power plant. These negative images and this distorted information tend to be more exaggerated in our surveys of the rural areas where there already exists an atomic power station or where the authorities have once attempted to locate the prospective waste disposal facilities.

Based on such findings, one could surmise that people's attitudes toward nuclear energy in general and on the issue of locating radioactive waste disposal facilities in particular would be rather negative, too. To begin with, only less than a quarter of the national sample consider atomic energy to be the most desirable type. A majority favors "alternative" forms of energy such as the sun, wind, and water power (including tidal and hydroelectric projects). The proportion of those who favor atomic energy drops to 12~14% in the surveys conducted in the localities where nuclear power stations already operate.

Nonetheless, even in one area near a plant, six out of ten admit that our country cannot provide sufficient supply of electricity without resorting to atomic energy. And, interestingly, 72% of the sample in the national survey hold the view that additional construction of nuclear power plants should be carried out, but with utmost care. In a sense, we find a certain degree of ambivalence in the attitudes of the people.

Such ambivalence also may be detected with respect to the people's attitudes to waste disposal. In the national sample, 53% believe that the management of radioactive waste in the nuclear plants is poor, but about the same proportion, 54%, agree that the matter of selecting the site of power plant or waste disposal facilities should be left to the experts in the field.

The attitudes turn much more sour and negative when it comes to the people in areas where facilities have attempted to locate and those who have some experience with either existing power stations or waste disposal facilities. I do not wish to go into details of figures in this regard and will simply summarize them verbally. First, their confidence in the safety of the waste disposal facilities is very low, and their level of fear of the environmental damages or other health hazards caused by the facilities is very high. Second, however, at least close to or more than a half of the people asked agree that it is all right if the government chose some safe places, mostly in isolated islands or in the bottom of the deep sea, to dispose of the radioactive wastes.

Third, most outstanding, is the opposition to any attempt to locate the waste

disposal facilities in their own localities, and the behavior of some of the people in these places have been quite violent and irregular. To begin with, the opinion surveys we have tried in these areas were of limited success. In all of these areas, direct access to the village people directly involved in the matter was met with deliberate acts of obstruction on the part of some radical members of local committees designed to block construction of waste disposal facilities in their localities. In a couple of provinces, the surveys were completed in spite of open harassment and threat of physical violence. In the other two sample areas, the interviews were only partially completed because of negative emotions. This indeed is a sad memory recorded in my thirty years of survey research, for I have never experienced such adamant opposition to, and organized obstruction of, the survey itself by any sample individuals or groups.

Our team also attempted to discuss these matters in a series of open forums with a view to informing the local people as well as the general populace about the need and safety of radioactive waste disposal facilities, on the one hand, and to listening to the grievances and demands on the part of the people with some direct interest in the attempted program of securing a site for waste disposal, on the other. Of the total six sessions we have held, including four in provincial cities, four were completed with some tension in the air and occasional disturbances. In two cases the gathering itself was blocked from the beginning by collective action of a group of local representatives led and agitated by a few organizer-agitators believed to be outsiders.

To mention more concrete, personal, and damaging experiences, one of our members in the region where the open forum was completely interrupted has been receiving threatening phone calls since that day when the local newspaper reported some mistaken information claimed to be released by this professor. Another member happens to come originally from the local area where he has been trying to conduct the survey. And, in the course of this study, he has tried to provide correct information to his old neighbors and friends, and to persuade them to reconsider their opposition. Some of the radical members of the local opposition group finally caught up with him and began to call him names and even burnt his effigy in a local rally staged later.

In these forums, however, one very poignant yet interesting phenomenon emerged. Every time we invited some individuals from the local areas where the issue is of immediate concern to speak in the discussion session, all of them explicitly said something to the effect that "If you want to locate the radioactive waste disposal facilities you experts all claim are so safe within the boundary of our country, why don't you take some of them to your own backyard (or to the Blue House, the presidential residence)", or "We have no objection if you bury them in some place outside our province (naming the other provinces one by one)." This has not only reminded us of the usual *nimby* phenomenon,

but the deep-rooted regional antagonism in this country mainly created by the political problems in the past decade or so.

In spite of all this surface animosity and anxiety, we have also found in our surveys, conducted under very difficult conditions, that the attitudes of the local people are not at all in complete agreement to the prospective location of the facilities. Even in one survey (which was taken under the most hazardous conditions), it indicated that many of the local people immediately concerned are willing to accept the government's proposal if certain demands for their livelihood and/or local development programs are agreed upon. This is the place where a violent protest occurred a year ago and the effigy of our friend was burnt in their first anniversary gathering of the incident. In the region where the forum was disturbed, a large number of local people are also ready to give in to the government's proposals if certain conditions are met.

It has, therefore, become necessary for us social analysts to carefully discern the social elements and the socioeconomic characteristics of those who genuinely oppose the proposal and those who openly oppose it but who do not really hold with the opposition. The reason why the latter shows that they are against the proposal stems from the group pressure the core members of the opposition group exert on them. Even if one has a different opinion or wishes to pursue one's own interest, it is difficult for an individual to deviate from the group norm, especially in a small, traditionally closely knit rural village. And we have evidence in the form of personal letters that there do exist such individuals in these areas.

MISMANAGEMENT AND MISTRUST

There must have been some causes for all these complex reactions. It was one of our tasks to identify them, if at all possible. Above all, it has become clear that the people have not been informed sufficiently and correctly. The government ministries and electric power and atomic energy authorities have not fared very well in providing the necessary and correct information to the people and even made some mistakes in persuading the people.

Second, we have come to a point where, even if a very efficient way of public information is attempted, the authorities are not going to get the necessary trust. Without trust, persuasion is impossible. Our surveys and the many opinion surveys conducted by some of us have repeatedly revealed that the level of people's trust in the government and other major socioeconomic and political institutions is extremely low. The source of such mistrust lies in the mistakes made by these institutions and their members. I will not go into any detailed analysis of the broad historical background of such a phenomenon, but confine myself to the case of mismanagement directly relevant to the atomic

energy.

One of the problems exists in the government bureaucracy's inherent authoritarianism and insensitivity to the needs of the people that have colored the state administration throughout our nationhood. We discovered that the root of the failures encountered by the government in those regions where the initial attempts had been made for the location of waste disposal facilities, was that there were such authoritarian approaches used, that there was lack of concern, that secret decisions were made without any prior notice, and that the consensus of the people was not garnered. In fact, outright disregard of the needs and the grievances of the people were made light of, and one-sided action was used to begin the project, even in the face of opposition by the fearful, threatened, perplexed rural people.

Another problem has existed ever since nuclear power plants came to these local areas. The fundamental error on the part of the electric power authorities was to discriminate against the local people in various social and economic spheres. Despite the claim made by the electric power authorities and the local government that remunerative assistance has been constantly provided to the localities and people in them, the people themselves have seen little effective improvement in their own livelihood. Rather, they have not yet overcome the fear and the belief that their life has been threatened, and that it has been actually negatively affected by the location of the plant.

Moreover, there is a kind of segregation between the plant site's staff and employees and the people of the community. There are obvious differences in the standard and pattern of living between them and the local people around the site, which have created an atmosphere of discrimination and social distance. To make the situation worse, some of the individuals related to the plant, whether they live behind barbed wire or some unseen walls, have made mistakes in everyday conduct, causing deep psychological damages to the people outside the complex. These sorts of social mistakes have created deep-seated antipathy between the whole community and the power plant and its authorities.

Third, in the process of political democratization and societal liberalization that was started suddenly in the summer of 1987, some social forces and psychological trends have contributed to the behavioral tendencies of some of these people involved. As we can find in any situation where hitherto suppressed grievances and frustrations are abruptly unleashed, this liberalization process has left the ordinary people with the impression that collective action demanding government response reaps quick results and that that is democracy. Of course, the whole matter is much more complicated than this simple assessment. Especially, the impact of the long history of active and often violent student movement in this country has affected the process to a great extent.

Into this picture comes another set of social forces to affect the nature of the process, and that is the so-called radical elements backing the anti-nuclear movement. These are the forces that have been systematically feeding the people concerned a horde of negative and sometimes misleading information about atomic energy itself and the whole matter of nuclear power and its waste. Not only that, they have also provided manpower and strategies for organized protest and opposition. It should be emphatically noted here that their popularity and legitimacy, however, was a function of the lack of legitimacy and popularity of the government and its outlying agents. These forces insist that they have been constantly shut out by the government from an open forum where the whole issue could have been rationally discussed. And, to the eyes of the ordinary people, their claim has certain truth in it.

Fourth, on the local level, we have also been able to detect a very delicate working of vested interests. For example, in the form of survey responses, a clear majority of the people in the areas where waste disposal facilities are planned or such plans have been considered express opposition to those plans. And the findings indicate that the poorer, the less educated, and the older the respondents were, their attitudes tended to be against the project.

If one cares to dig one layer deeper, however, one finds not one common opinion, but two different views, standing in opposition to each other, and perhaps another rather ambivalent additional perspective inbetween the two. There is a segment of the populace which makes it plain that they do not want any garbage "period", and their posture is staunch enough to be convincing. There is another widespread layer of sentiment that casts doubt about the opposition itself and even welcomes the project of building the facilities. This sentiment, while perhaps representative of a majority of the ordinary people, is hard to express openly, and thus, appears to be fragile and whimsical.

What essentially makes the difference in this direction happens to be in the vested interests. Most of those who have no fundamental objection to the project are the poorer local residents who have chiefly agricultural occupations. They have little to lose by the project, and many may harbor the idea that they may benefit from it. The real opposition comes from those economically better off, with land investment in the area or with some relatively flourishing business of some sort, those with restaurants, shops, and tourist attractions, mostly in the coastal resort centers. They believe they have much too high a stake at risk if such hated facilities invade their loci of livelihood, prosperity, and influence. Primarily for this reason, these more well-to-do people and their backers, in the community or outside of it, feed the distorted information to others, appealing to the local sentiment of "love of home town", branding potential proposal supporters as traitors betraying "our ancestors buried in these sacred grounds", and organizing various opposition rallies. Some even collected a

large sum of money for the anti-nuclear movement from the poorer rural people who may not be genuinely against it at all, but act as if they are under group pressure.

Of course, politicians of local origin have a very real stake in this, too. And so far, the elected officials of national and local assemblies have sided with the opposition rather than with the authorities. In some areas, even the government bureaucrats, police chiefs and others, have stood on the side of the anti-nuclear faction.

CLOSING THOUGHTS

It is, therefore, incumbent upon the government in charge of atomic energy and electric power authorities to resolve the tangle. First, they will have to use the most appropriate means to inform the people correctly and persuade them on that basis. It is high time that the authorities concerned should seek more humane and efficient ways to inform and persuade the people regarding the need for and the technically feasible means available for the insurance of safety of atomic power plants and their waste disposal systems.

Second, in order to be effective in this regard, the government and the relevant authorities have to exert the utmost effort to regain or attain the confidence and trust of the people, especially those with immediate interests in the matter. This is not a task to be accomplished overnight. Even if it takes a much longer time and greater effort than expected, still it is the essential, and perhaps, the only right approach to this whole matter. We are glad to have been able to help in terms of building, albeit slowly and painfully, this trust by means of going directly to the people with open minds and with a neutral stance.

Third, as for the phenomenon of *nimby* on the part of the people, it should be emphasized that there are certain things that the whole nation should cooperate on, even at the sacrifice of individual communities or groups. They may have all the right to claim proper compensations, but no single community or group has any right to refuse such national high priority programs. If they are not persuaded, they should at least give the authorities a chance to explain the situation and the urgency of the program.

In all these efforts, intellectuals, mass media, and the educational institutions must take their share of responsibilities and help the society work. It is not just the radioactive waste that awaits proper management; a whole array of wastes require rational management. And, the demand is ever increasing as we undergo further economic growth and technological advancement. It, therefore, is the responsibility of everybody.

Most of all, however, the government and the electric power authorities ought to humbly reflect upon their past orientations and actions, and to consider

themselves the people's servants, so they can be accepted and trusted fully by the people. The thorny issue of locating future atomic power plants and future radioactive waste management centers then will be resolved without much difficulty, but with the consent of the people concerned. While we have become fully aware of the nature and degree of seriousness of the problem through our experience of conducting our social scientific research, we have also learned that there are ways to overcome problems and proceed with urgently needed programs with the cooperation of the people, if such conditions as we have enumerated above and other related innovations are provided appropriately.

Finally, let me say that this research experience has opened a whole new set of possibilities for collaborative research involving social, policy, and various technological sciences, benefiting each other in the course of carrying out projects. And, it is hoped that as the world turns more complicated on the global scale, the need for cooperative research calls upon us so that together we may contribute to world development with a human face.

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*** All written in Korean.