

# Nuclear Power Programme in Korea and Public Information Endeavors

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## **1. Introduction**

Is it really necessary to have a wide range of public nuclear information programmes? Is it really necessary to carry out public nuclear information programmes with much efforts and budget? Can we display a visible outcome from the public information activities? A very well known expert on public nuclear information responded this question. He once said that all public information activities are simply useless and unnecessary. Because, although the nuclear industry has great dedication to promote better understanding about nuclear energy to the public, oppositions are never fade away and what is worse is that the oppositions are ever-strengthened, particularly when an issue occurs. If the public information activities were successful, there should be no oppositions. But, in reality, there are always oppositions by anti-nuclear environmental groups. Therefore, it could be said that although public information programmes are active, they cannot ease the oppositions and then why such endeavors are needed? The assumption is that public information activities are not required and useless.

Why oppositions are ever so strong? What are the reasons? A lot of experts stressed that such oppositions could be calmed down when a society would remain stable situation. If the society is not in a stable situation, there will be a lot of oppositions by the population to attack the government and to destroy the established system. Nuclear energy is always one major target for such attack. Therefore, if a society is in a stable situation, the population accepts nuclear energy without any serious arguments. On the contrary, if a society is in incredibly unstable situation, then the population does not

accept nuclear energy and creates a lot of arguments. Therefore, in order to obtain public acceptance successfully, at first, the society should be stable enough.

How can a society maintain stable? The answer is quite simple. When a country's political situation is stable, the society becomes stable. Then again, how can a country's political situation become stable? Many people say that a great political leader can make a nation's political situation stable. This simple philosophy can equally be applicable to nuclear programme of a country. If a great political leader of a country has great enthusiasm on the nation's nuclear programme, the nuclear programme will be a success. If I may just name a couple of such persons, he must be the Prime Minister Nakasone Yasuhiro (1918- ) of Japan or the Prime Minister Jawaharlal Nehru (1889-1964) of India. Acceptance of nuclear energy will not be a serious matter under the great leadership of dedicated political leaders. Anyhow, although I mentioned public information work is useless and not needed, I also believe that it should be continued because it is still useful and necessary.

## **2. Chisholm's Law**

To keep continuing public information works as desired, I believe we should at first recognize the nature of information and acceptance of the public. There is a good saying about this issue. Chisholm's Law says that 'There must be someone who opposes what everybody else fully support'. Chisholm further said 'There must be someone who misunderstand what everybody else fully understand.' These sayings simply demonstrate how much public information work is difficult and there will be no complete acceptance by the public on a certain nuclear issue.

## **3. Korea's Nuclear Power Programme**

The topic of this session is 'Public Information Strategies for Developing Nuclear Power'. Korea is regarded as a nuclear power developing country. But, I believe Korea still has a long way to go to be a nuclear power advanced country. However, Korea's decision to introduce nuclear power well before the oil crisis was wise choice. As a country having completely no natural resources, the decision was a must.

Korea began its nuclear power programme back to late 1960s. Construction of the first nuclear power plant in Korea began in 1971. It went into commercial operation in 1978.

At present, Korea has a total of 18 nuclear power plants in operation. Four more units are under construction. Korea plans to have a total of 28 units by 2015. This is a very ambitious plan. At present the nuclear share among total electricity generation accounts for over 40%. By the year of 2015, it is expected to reach some 45%.

In terms of nuclear power technology, Korea has achieved almost entire self-reliance. However, with regard to obtaining public acceptance, particularly by local population, as I mentioned previously, Korea has still a long way to go. Of course, Korea has a lot of success stories to demonstrate. But at the same time, Korea has many painful failure stories. Therefore, I can say something about public nuclear information programmes to those countries intending to introduce nuclear power and launch public information programmes.

#### **4. Korea's Capability for Nuclear Power Programme**

In the middle of 1990s, Korea successfully achieved self-reliance of nuclear power reactor designing technology. Based on this achievement, Korea now can design the nation's own nuclear power reactor which is called the KSNP or Korea Standard Nuclear Power Plant. It is the PWR with 1,000 Mwe class. Among more than 30 countries in the world having nuclear power plant, only 9 countries can design nuclear power reactor; more technically the NSSS (Nuclear Steam Supply System). They are USA, Russia, UK, France, Germany, Sweden, Canada, Japan and Korea.

Korea already operates 4 KSNPs (plus 2 KSNPs in the North Korea) and 2 more are under construction. Korea further developed APR (Advanced PWR) with 1,400 Mwe class. The APR1400 will shortly be constructed. Korea is also developing SMART reactor. This 330 MWt reactor will have dual purpose as power generation one hand and seawater desalination on the other hand. APR1400, SMART....these new approaches explicitly show Korea's firm intention to go on nuclear power programme.

#### **5. Contributions by Nuclear Power**

Why Korea pushes so vigorously the nuclear power programme? Because, Korea has no other choice. Electricity consumption is soaring up year by year. But, very drop of oil and every tank of natural gas that would be burned for electricity generation should be imported. For Korea, nuclear power is an absolute necessity, not an alternative.

But, there are also great advantages having nuclear power programme. I do not want to list down all the benefits and advantages here. But, if I may just mention some of the salient contributions by nuclear power, it provides national pride, contributes to improve peoples' living standard, contributes to national economic development, provides various spin-off technologies, creates new job opportunities, supports local communities located nearby nuclear power plants to become most developed villages in the nation, and contributes to the environment protection. Now, I like to explain the contributions one by one for your recognition, but very briefly.

#### **6. Provide National Pride**

Operating a nuclear power plant provides a very satisfactory pride to the mind of the people. In fact, having a nuclear power plant means that the country can be regarded as an advanced country. The late Lord Walter Marshall once said that 'Countries that can control electrons are advanced countries. And countries that can control nuclei (atom) are big powers (great countries).' Now, you will realize the meaning behind having a nuclear power plant.

#### **7. Improve Living Standards**

It is obvious that in the near future the mankind will face three major crises; food, energy and the environment. How to cope the crises? Nuclear energy has the answer. Nuclear energy is significantly contributing to solve agricultural and food problems. I do not want to elevate this topic because a lot of people already recognize the contribution by nuclear technologies to food preservation, mutation breeding, insect sterilization, animal production, and so on.

The other crisis, the energy, can easily be solved by further exploiting nuclear power plants. Again, I do not want to explain details of the benefits generated from nuclear power. Because, I believe that only anti-nuclear groups are pretending not to know the necessity of nuclear power to solve the energy problem. Anyway, anti-nuclear groups are not my target audience.

Likewise, it is widely recognized that nuclear energy is contributing to reduce the greenhouse gases emission. Our environment, protected by nuclear energy, can

contribute to the increased production of crops and livestock. When we solve the major three crises, our living standards can also be greatly improved.

### **8. Contribution to the National Economic Development**

I do not want to make a rhetorical explanation on this subject. Instead, I want to talk a very brief fact finding story. From 1997 until good part of 1999, most of Asian countries experienced terrible financial chaos that was called 'IMF bailout system'. In 1997 alone, total nuclear power generation was 77 billion KWh. The nuclear fuel cost for this generation was some 245 million dollars. If Korea generated the same amount of electricity by burning imported oil and natural gas, the country should had to pay 3.7 billion dollars. Therefore, even during the IMF period, nuclear power generation demonstrated the same effect to save some 3.5 billion dollars.

In 1998, Korea had two more nuclear power plants newly operated. Total generating capacity of the two units is 1.7 million Kwe. Because of these two new nuclear power plants, Korea could save 590 million dollars per year. What else can we explain about the contribution by nuclear power to the nation's economy?

### **9. Spin-offs from Nuclear Power Technologies**

Another important contribution is spin-offs derived from nuclear power technologies. Not to mention, nuclear power technologies are highly advanced modern technologies. Instrumentation and control technology based on computer science, artificial intelligence, robotics, development of new materials....while applying these technologies to nuclear power plant, many other valuable technologies are also available for application to other fields.

### **10. Create Job Opportunities**

When constructing nuclear power plants (2 units at the same time), approximately 4,000 employees are needed. When a nuclear power plant goes into commercial operation, some 150-200 professionals are needed. New jobs are additionally created whenever a new nuclear power plant constructed and operated.

In addition, in order to support safe operation of nuclear power plant, more researchers

and engineers are needed. This includes regulatory staffs. Naturally, manufacturing companies also need more employees.

Also, new venture companies is greatly encouraged thus create more job opportunities. As a simple example, recently several new venture companies have been opened under the full support by KAERI. They are an NDT specialized company, a laser optics company for medical purpose, a carbon filter manufacturing company, a waste food treatment company, toxic material cleaning robot manufacturing company, and so on.

#### **11. NPP Communities can be most developed**

Another benefit having nuclear power plant is that the communities located nearby nuclear power plant can be developed significantly through various support programmes. In Korea, 'NPP Neighboring Community Support Law' has been effective since 1989. Income increasing programmes, public works programmes, educational programmes and information programmes are actively being carried out subject to the Law. The government together with the utility company (owner of NPPs) plans to support the NPP neighboring communities to become the most developed communities in the nation.

Why such support programmes are needed? The government has unlimited responsibility to compensate the local populations psychological burdens that could be created by the operation of large scale nuclear facilities in their communities.

#### **12. Contribution to the Environment Protection**

In this regard, I would simply like to state that most developing countries in Asia would ultimately face international pressure to join in the avoidance of greenhouse gases emission if they keep using fossil fuels such as coal, oil and natural gas and even wood.

I just mentioned some of the significant contributions by nuclear power to the country, to the society and to the people. If there are any other currently available energy resources that can far exceed the advantages of nuclear energy, I wish anti-nuclear environmental groups could explicitly state.

The reason why I am elaborating the contributions is that you could use the same

messages when you need.

### **13. Nuclear related Organizations in Korea**

Now, before explaining public information activities of Korea, I would like to give you general outline of Korea's nuclear related organizations. Systems can help understanding the policy and the programmes.

The Atomic Energy Commission (AEC) is the highest policy making body. The Ministry of Science and Technology (MOST) is responsible for nuclear R&D and regulatory and licensing works. The Ministry of Commerce, Industry and Energy (MOCIE) is responsible for planning, constructing, operating, maintaining and decommissioning nuclear power plants. Radioactive waste management is also MOCIE's responsibility.

The KNEF (Korea Nuclear Energy Foundation) is totally responsible for overall public nuclear information in the nation. It is under the control of MOCIE and directly reports to the KHNP (Korea Hydro and Nuclear Power Company).

Among the nuclear related organizations, KHNP and its NETEC are incredibly active in public information programmes. The KAERI (Korea Atomic Energy Research Institute) has long been associated with public information activities and always remains as a think tank for the nation's public nuclear information endeavors.

### **14. Korea's Public Nuclear Information Policy**

Having a policy when implementing national programmes is, not to mention, good and desirable. In order to carry out the nation's public nuclear information programmes effectively and successfully, a policy has been set up. The basis of Korea's nuclear programmes including public information activities is the Atomic Energy Law. The Law stipulated a mandate to formulate 'Integrated Nuclear Promotion Plan' every five-year. The Plan has greatly emphasized the need of public nuclear information. Recommendations by the Plan have well been reflected when making new nuclear policy.

The recently adopted Plan (2003-2007) reiterated the need to strengthen public nuclear

information activities. The Plan again stressed that without public favorable acceptance, the nation's nuclear power programme cannot successfully be carried out. On the other hand, it also mentioned that the nation's nuclear power programme could be implemented without any difficulty when obtaining the public's acceptance.

Based on the recommendations by the Plan, the nation's public nuclear information policy has been addressed. The spirit of the policy is very simple. It is 'Nuclear Programmes together with the Public.' It further added that when carrying out public nuclear information programmes, consideration should be given to fulfill the 'Right to Know' of the public. As to the government and the nuclear industry, openness and transparency were stressed. Also, public's participation in major nuclear decision-making process was highly encouraged.

#### **15. KNEF Programmes**

Bearing the fundamental philosophy of embracing the public as a most important stakeholder in mind, the nuclear industry has been carrying out various information programmes. The KNEF (Korea Nuclear Energy Foundation) plays a pivotal role for increasing the public's awareness. Major endeavors of KNEF are media programmes, publication programmes, advertisement programmes, cyber programmes and exhibition programmes. KNEF is a dedicated public nuclear information organization established in 1992. It was established right after the nationwide strong opposition to the radwaste management site selection.

#### **16. KHNP Programmes**

The KHNP (Korea Hydro and Nuclear Power Company) is the nation's sole utility company responsible for planning, constructing, operating, maintaining and even decommissioning nuclear power plants. KHNP operates visitor's centers at each nuclear power plant site. At present, there are 4 sites throughout the country. Each nuclear power station is managing various community support programmes.

#### **17. NETEC Programmes**

The NETEC (Nuclear Environment Technology Institute) is responsible for the nation's radwaste management. At present, NETEC is an affiliate of KHNP. The nuclear power

plants of KHNP produce more than 90% of low and intermediate level radwaste.

Selection of a site for permanent disposal of radwaste has been a long wish of Korea. The first practical attempt was made in 1990. Oppositions by local population stimulated by the anti-nuclear environmental groups were extremely severe. The government withdrew the plan. Since that time, several attempts have been made. But, they failed. In July 2003, the government finally announced a site for permanent disposal of radwaste. NETEC has been making every possible information effort while oppositions have been even stronger and militant.

#### **18. Women are Good Communicators**

Women are good communicators. This is particularly so when women talk to other women or children. Some 10 more years ago, there was a talk among the women nuclear professionals in European countries that women could contribute to promote a better understanding about nuclear safety, radiation use, nuclear power, etc. to the general public, particularly to other women and children. They established Women In Nuclear (WIN) Global. In 2001, right after WIN-Japan established, Korea established WIN-Korea as a national organization of WIN Global.

In the meanwhile, back to 1995, women who have great enthusiasm in nuclear energy organized an independent organization. It is the WIIN (Women Interested In Nuclear). The main activities of WIIN are increasing awareness about nuclear energy. Both, the WIN-Korea and WIIN are very active in contributing to the public nuclear information programmes.

#### **19. Arguments by Opposition Groups**

Now, I like to talk about what the opposition groups are insisting. What are the arguments? To know their arguments is a pre-requisite for carrying out public information programmes. It is because that the opposition groups (anti-nuclear environmental groups) are constantly providing fabricated and false information to the public. Therefore, to develop counter-logics is a necessity.

What are the arguments by the opposition groups? It can be explained on four categories. They are traditional arguments, relatively new arguments, new arguments and non-

scientific arguments.

There are hundreds of different arguments developed by the opposition groups. I do not want to explain every detail of the arguments instead I just want to show some of the typical arguments for your awareness. One very typical and traditional argument is about the radiation effect to the human body. Opposition groups are insisting even the smallest amount of radiation when exposed can cause cancer. They are stressing that even though nuclear power plants are releasing very negligible amount of radiation to the environment (they know the amount is far below than natural environment radiation), it can cause cancer and kill the workers and neighboring villagers. The nuclear industry has to develop proper explanation to this groundless argument. And what is important is that the counter-logics should be very informative, persuasive, reasonable and justified. In summing up, arguments by opposition groups are mostly touching basic human emotion and basic human requirements. This is a very important point in dealing with public nuclear information programmes.

## **20. Messages by Nuclear Industry**

On the contrary, messages by nuclear industry are relatively noble and academic. Noble means arrogant and academic means too technical. The nuclear industry is trying to provide high profile information based on their yardsticks. For example, redundant mechanism of nuclear reactor, development of inherently safe reactor, nuclear fuel cycle, and so on are very scientific and technological information. Do you think the farmers and fishers need such information? Absolutely no! The general public apt to accept only the information that has already been perceived in their mind. In addition, the general public is also significantly intended to accept messages that are directly related to their basic human requirements. Anti-nuclear groups are well aware of this strategy and gladly using this tactics.

A same message cannot equally be applicable both to college professors and housewives. Information on nuclear fuel cycle would be too difficult to housewives but very easy to college professors. Therefore, it is important to develop proper messages to proper target groups. And the messages should be easy to understand. Too much use of technical terminologies should be avoided. When explaining nuclear topics, better to speak of the public's language.

## **21. Lessons Learned**

There are hundreds of lessons learned during the course of public nuclear information activities. I do not make details of the lessons learned. Perhaps, some of the lessons would totally be based on my own perception. But, I believe many people would concur with my view.

One of the great lessons learned is about the trust. The nuclear industry lost their trust in many aspects of their activities; such as policy-making, administration, implementation and so on. To recover the credibility, the trust, the morality, the transparency, and so on are very important. When you lose trust, you will lose everything. Therefore, a new formula has been created which is 'Nuclear Energy equals Trust Square'.

Another important lesson learned is that nuclear issues are no more technical concerns but it has completely socio-political aspect.

## **22. Some Tips for Initiating Public Nuclear Information Programmes**

Lastly, I would like to make some very basic recommendations to those who are going to introduce nuclear power plant in their respective countries and who are going to launch public nuclear information programmes in a strengthened manner.

First, organize a small task force group who will develop public information policy and strategies suitable to the nation. Participation of public information experts, particularly socio-political experts, in the information arena would be most desirable. Recruit them! To obtain top manager's commitment is as important as obtaining public's acceptance. Without the top manager's support (manpower, budget and of course including moral support) the information programme cannot be successful. To know the real insight of anti-nuclear environmental movement is very helpful in carrying out public information programmes. International and/or regional co-operation in the public acceptance are also very important. You can demonstrate that you have faithful alleys behind you. Thank you very much for your kind attention. I sincerely hope my humble talks can give you some thought that might be useful.