

# Social Amplification of Risk

## - Learning Lessons from the US beef crisis in Korea

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"I am afraid of American beef," one 13-year-old protester told a US newspaper reporter. "I could study hard in school. I could get a good job and then I could eat beef and just die." (BBC NEWS: <http://news.bbc.co.uk/go/pr/fr/-/2/hi/asia-pacific/7436914.stm>, Published: 2008/06/05).

The risk perceived by general Korean people against US beef import and associated mad cow disease plunged the three-month old Lee Myung Bak government into a deep crisis. US beef exports to Korea, its third largest overseas market, were stopped in 2003 after the discovery of bovine spongiform encephalopathy (BSE; mad cow disease) in an American cow. The US and Korea agreed a deal to allow the beef trade to resume on the strong request of the US government in April, 2008. Quoting the Paris-based World Organization for Animal Health, which classifies the US as a country of "controlled BSE risk," both the US and Korean governments insisted that US beef is safe. However, most Koreans disagreed.

After the deal was made, it quickly became a hot topic on the Internet among young people and led to widespread fears of mad cow disease. On an internet portal named "Daum," a petition has been held to ask the President's impeachment for wrong deal jeopardizing health of Koreans, and in just one week, about 1.3 million people signed. Since then, there were massive candlelight protests in all major cities in Korea, for more than two months. From a small nightly vigils of some students on the internet, the protests swelled to hundreds of thousands, reaching a

peak of as many as one million nationwide, on the night of June 10, the anniversary of the historic June 1987 democracy movement protest.

Eating meat contaminated with BSE is possibly associated with variant Creutzfeldt-Jakob Disease (CJD) - a deadly nerve disease in humans. In Korea, there has not been a case of outbreak of BSE, so it might be natural for Koreans to have a feeling of dread against the unknown, new disease and its possible carrier. However, considering that about three thousand million US citizens, including almost two million Korean immigrants, eat US beef all the time, and there have been only few case of CJD possibly associated with BSE, the crisis in Korea was difficult to understand. Some experts believed that it was political and international issue, rather than a mere health concern. Some said the essence of the beef protests was anti-American instigated by the left wing group, and some believed it was protests against arrogant president Lee's controversial plans, such as building a large canal running the length of the country.

Although the protesters were variety of people who were school students, farmers, office workers, parents, and activist groups of many different political stripes, and the reasons they participated were all different, there existed common concern over US beef and possible mad cow disease. What made Korean people perceive higher level of risk against mad cow disease associated with the US beef? The possible explanation is that it was related to Koreans' unfamiliarity to or ignorance of mad cow disease, and the effect of dread elevated by the mass media, including the internet.

### **Risk Perception and Knowledge**

Most technical and scientific theories about risks have been based on the realistic view, which usually tried to assess the risk by systematical calculation of the seriousness and frequency of an event. However, this approach is, in principal, a viewpoint of the experts, and has not proven sufficiently to explain lay people's perception of risk. Because although it claims to stand for scientific objectivity, it is always possible that particular expertise may itself be subject (Taylor-

Gooby and Zinn, 2006), and its narrow focus neglects indirect impacts such as public attitudes and perceptions.

Due to this shortcoming of the technical approach, a psychometric approach started out from Slovic and his associates. In this approach, questionnaires were used to measure the public perception of risks and benefits from various activities or technologies. They showed that broader domain of characteristics can be condensed to a small set of higher order characteristics by means of factor analysis (Slovic, 1987). In other words, risk characteristics domain can be described by “factor 1, dread risk” and “factor 2, unknown risk,” as shown in Fig. 1. And the same two-factor structure has consistently appeared in the following psychometric studies for the group of laypersons and experts’ risk perception about diverse set of hazards.

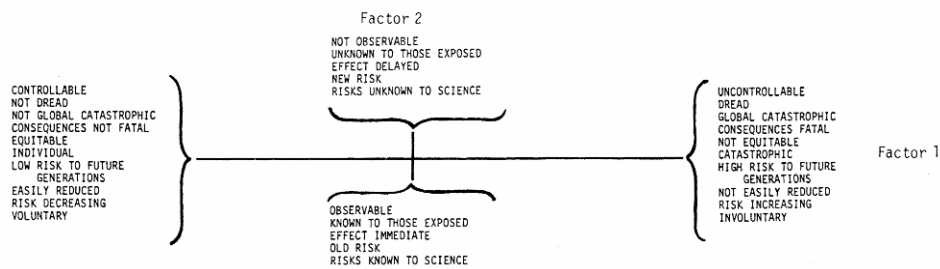


Fig.1 Factor analytic representation (Source: Slovic, 1987, p. 236)

Usually, risk perception studies have dealt with different perceptions of risk between experts and lay people and how to narrow the gap. They stressed that the scientific knowledge gap between experts and lay people was one of the most important factors in risk perception. Generally it is believed that lower level of risk perception which resulted in higher level of public acceptance is associated with higher level of scientific knowledge. That means, the more people know, the more they accept.

In 1980s, just after the Chernobyl nuclear power plant accident, the risk perception of nuclear related facility was perceived as qualitatively different from the risks of other activities. Nuclear

risk was regarded as highly unknown and highly dreaded and people viewed the risks from nuclear power as qualitatively different from those of the other activities (Fischhoff et. al, 1978). For the knowledge about nuclear power, there were several evidences that scientific knowledge was closely related to the risk perception and public acceptance. European Commission (2005) reported that citizens who are well-informed about radioactive waste appear more likely to support nuclear energy. Also Bassett et al. (1996) maintained that greater knowledge continues to be associated with decreased perceived risk of nuclear waste repository. This was same for Cha (1997)'s result in Korea that knowledge of nuclear industry was negatively correlated with nuclear risk perception.

However, since the Chernobyl accident in 1986, there have not been any serious accidents in nuclear related industry and the knowledge of general Koreans about nuclear power was increasing. And it resulted in generally decreased risk perception against nuclear facilities. In other words, the nuclear related facilities are now less ambiguous than twenty years ago.

As a new risk source, the mad cow disease in Korea 2008 was the most unknown and the most ambiguous. In some respects, we can see mad cow disease in 2008 was comparable to nuclear power in 1980s. However considering the crisis in Korea 2008, why some relatively minor risks or risk events, as assessed by technical experts, elicited strong public concerns and result in substantial impacts upon the whole society and economy? We need to think about the theory of Kasperson, et al. (1988).

### **Social Amplification of Risk**

Unknown risk of mad cow disease stirred by a Korea-US deal to resume the US beef import has developed the general Koreans' concern about health into a serious crisis. From nightly vigils of a small group of high school and middle school students, the risk has been amplified by the media, especially small media on the internet such as news providers (e.g. ohmynews.com),

internet discussion group, internet forum and many independent private broadcasters who are only using notebook computer and webcam. Some experts in Korea have called this protest movement as “Web 2.0 protest,” which was based on the innovative information technology of Korea and the experiences of internet democracy during the 2002 Presidential election. Berkman Center for Internet & Society (2008) asserted that in the history of South Korean collective action, these protests showed the merger of Korea’s penchant for both the Internet and street demonstrations.

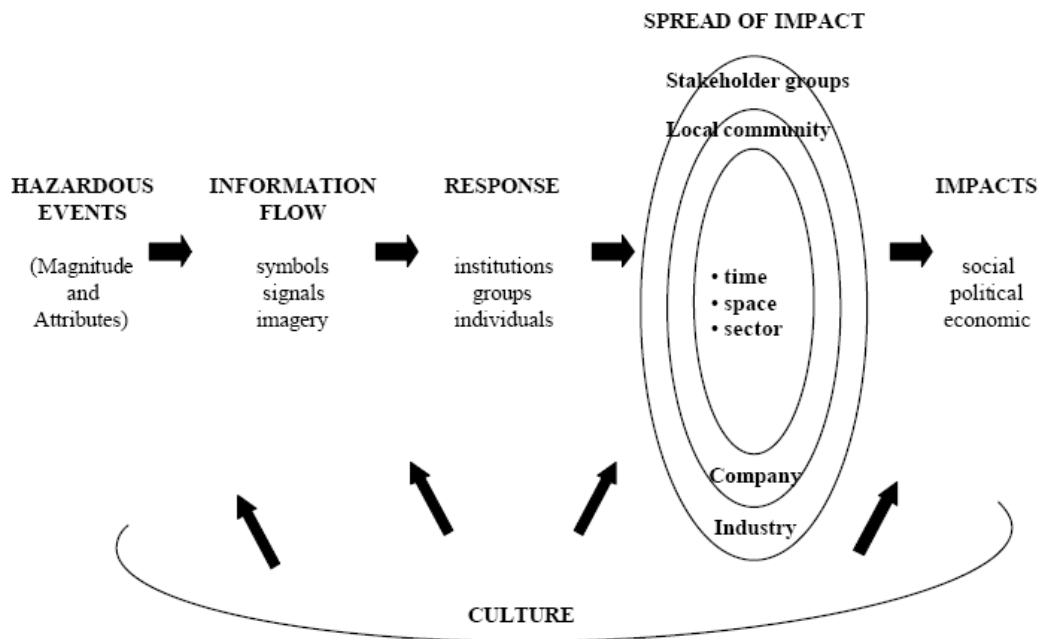
Some internet users, especially young users, often respond very quickly to current events or government policy and begin virtual petitions on online forums or their personal blogs. “These virtual petitions and slogans are quickly circulated in hundreds and thousands of online forums and blogs. After cyber protests go viral, often simultaneously stirring up people’s anger or nationalistic sentiments, it is time to stop talking online and take to the street. Cyber activists post plans and schedules about upcoming street protests on online discussion forums, and circulate such information immediately in cyberspace. ... Social networking sites, Instant Messenger (IM), and Short Message Service (SMS) are tools to recruit more demonstrators among peer groups and help organize group actions and coordinate each protester in street demonstrations.” (Berkman Center for Internet & Society at Harvard University, 2008).

Furthermore, the advanced information technology of Korea provided the best environments for the next generation citizen movements. It is so-called Web2.0 technology which has the characteristics of participation. Based on the ubiquitous wireless Internet in Korea, the protesters used camera phones, digital camcorders, webcam and notebook computer to instantly shoot and upload photos and videos to Internet sites during the demonstration. And it could effectively instigate a lot of people in the offices, schools and homes to participate the street demonstration.

Despite the positive side of the possibility of internet democracy, we still should be cautious about irrationalism in cyberspace. Actually during the massive protests, a lot of web media dealt

with sensational and untrustworthy rumors, and it grew up continuously. Even, it resulted in a critical negative impact on the whole Korean livestock industry. Kasperson, et al. (1988) called these negative impacts as secondary impacts and described the social amplification of risk process as shown in Fig. 1.

Fig.1 Social Amplification of Risk Framework (Kasperson, et al., 1992)



### Social Amplification of the Risk of BSE – Analogy of Nuclear Tech in 1980s

The accident at the Three Mile Island (TMI) nuclear power plant in 1979 provided a dramatic demonstration that factors besides injury, death, and property damage can impose serious cost upon the whole society. Despite the fact that not a single person died, no other accidents in US history has produced such costly societal impacts. “The accident devastated the utility that owned and operated the plant and imposed enormous costs.” (Kasperson, et al., 1988, p179).

The crisis of US beef import has very similar characteristics to the case of TMI accident. In Korea, there has been no one who died of mad cow disease; even there have not any case of

mad cow disease. Also experts believed that it was almost impossible to be affected by mad cow disease from US beef. However, the fear from mad cow disease imposed enormous costs upon the Korean livestock industry and brought the whole society into a crisis.

From this analogy, we can expect that the signal potential of an event, and thus its potential social impact, appears to be related to the characteristics of the risks. “An accident that takes many lives may produce relatively little social disturbance if it occurs as part of a familiar and well-understood system (such as a train wreck). However, a small accident in an unfamiliar system (or one perceived as poorly understood), such as a nuclear reactor or a recombinant DNA laboratory, may have immense social consequences if it is perceived as a harbinger of future and possibly catastrophic mishaps” (Slovic, 1987, p284).

Like nuclear power in 1980s, the US imported beef which has a possibility of contamination of BSE was very unfamiliar to general Koreans, and its risk was amplified through the communication process. Further, the declining trust in the President Lee induced by his many controversial plans has exacerbated the situation.

## **Conclusions**

Risk perception crisis against US beef import in Korea in 2008 gives us the following lessons considering the analogy to nuclear technology in 1980s.

First, risks from unknown and unfamiliar system have a great potential to induce immense social consequences if it is perceived as a harbinger of future and possibly catastrophic mishaps. This means that in the modern society of high-tech in which new technology such as Nano- and Bio- develops very fast, any new technology can be a signal for future disaster, and the fear about it can be easily amplified.

Second, the highly developed information technology can facilitate the risk amplification, and it can instigate the people to move. These days, the increasing number of global political protests has started in cyberspace (e.g. boycott against Carrefour in China and “A Million

Voices against FARC” in Columbia). These virtual petitions and slogans are quickly circulated in online forums (Berkman Center for Internet & Society at Harvard University, 2008). Especially, some cities which have well established internet infrastructure and densely populated internet users like Seoul, Korea, can be a good seedbed for cyber protestors.

Third, for the risk management of ambiguity induced risk problem, it is needed to initiate societal discourse to enable participative decision making. Like the risk of US beef import, if risk information is interpreted differently by different stakeholders, risk management needs to address the causes for these conflicting views (IRGC, 2006). In other words, the risk management of unknown risks which can bring up social conflicts should not only based on technological judgments, but also the discourses in which all the stakeholders participate.

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