# Public Deliberation for Technological Risk Policy Making in a Real-World Context

## 기술위험 정책결정을 위한 공론화 과정의 실제

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## 목　　차

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## 국 문 요 약

다양한 이해관계와 가치가 첨예하게 대립하는 기술위험관련 정책결정에 시민 및 이해관계자들의 참여를 독려하는 의사결정방법이 주목 받고 있다. 기술위험관리 방식으로서 일찍이 서구사회에서 학술적, 정책적으로 논의되어 온 공론화는 여러 분야의 과학기술정책 영역에서 실험되고 있다. 본고는 공론화의 이론적 근간인 숙의민주주의에서 정의하고 기대하는 공론화 과정과 실제로 다양한 이해와 가치가 얽혀있는 당사자들이 참여하여 기술위험정책에 관한 의사결정을 내리기까지의 과정에는 큰 차이가 있음을 주장한다. 이를 위해 실제로 영국에서 방사성폐기물 관리방안을 찾기 위해 수행된 대규모 공론화 프로그램(CoRWM 프로그램)의 주요 관계자를 인터뷰하고 각종 공식, 비공식 문헌을 분석하였다. 결과는 기술위험에 관한 공론화 과정의 실제는 이론에서 전제된 공동의 선을 위한 합리적 논쟁과정이라기 보다, 여러 이해관계자들 간의 다양하고 복잡한 물적, 사회적, 정치적 상호작용 및 관계맺기로 드러났다.

핵심어 : 기술위험, 정책결정, 공론화, 관계맺기, 방사성폐기물관리

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# ABSTRACT

This paper examines the gap between the theoretical premises of, and the ways that public deliberative approaches to decision-making function in application to a specific instance of technological risk policy. An interrogation of a UK nationwide public deliberation case—the CoRWM program (Committee on Radioactive Waste Management)—a real-world instance of public deliberation illuminates some significant contrasts in the ways that public deliberation takes place to those characterized in theory. A public-engaged deliberation on radioactive waste management in reality does not emerge as rational reasoning for the common good. Instead, it was rather a complex mix of various forms of material, social and political interactions, and relationships.

Key Words : Technological Risk, Policy-Making, Pubic Deliberation, Interactions and Relations, Radioactive Waste Management

# I. Introduction

Both academics and practitioners in the arena of science and technology policy have explored diverse dimensions of technological risk assessment and management over the last three decades. However, there still remains a vast range of dissension, owing to the 'contentious and uncertain' characteristics of risk issues (Chilvers, 2007). This challenge has led risk debate from a more traditional style based on quantitative assessment to that of a participatory dialogue among diverse members of society. A report published by the United States National Academy of Sciences in 1996 called for the combining of these approaches in an 'analytic-deliberative' mode of appraisal (Stern and Fineberg, 1996). This approach to the governance of technological risk urged the policy-making process to include the public in a strategy comprised of both assessment and dialogue. The goal was to develop mutual trust between the public and those dealing in risk management, and to enhance risk management practices with direct public input (Renn, 1998).

Accordingly, many frameworks of technological risk governance have encouraged public deliberative engagement. As a result, over the last three decades, various forms of the practice of public deliberative engagement have been exercised in the governance of technological risk, such as citizens' juries, deliberative polls, consensus conferences, public forums, and so on (Chilvers, 2007; Levidow, 2007). This has been the case in the policy area of radioactive waste management (RWM). In many countries, it has been recognized that RWM requires decision-making that reflects stakeholders' values and opinions by means of 'public participation, consultation, and stakeholder dialogue' (Kemp et al., 2006). In comparison to these efforts to develop the practices and concepts of public deliberative engagement, much less attention has been given to examination of the real world policy context (Chilvers, 2007).

This paper draws attention to the ways in which public deliberation takes place in a real world policy context, shedding light on the disparity between theoretical premises and the real policy setting of public deliberation on risk issues. In so doing, the paper interrogates a typical risk policy-making setting—RWM—whose characteristics are may be summarized as conflict and uncertainty. It is a case study on the public deliberation

program run by the Committee on Radioactive Waste Management (CoRWM) in the UK (2003–06)[1], in which public-engaged policy-making was promoted and practiced by many policy institutions, including government organizations. While there were many causes of such change, the bovine spongiform encephalopathy (BSE) crisis of 1996 may be regarded as the event that most shook up the UK policy-making environment in the late 1990s, provoking debate around the existing science and technology regulation system, and a new mode of policy-making process.

RWM (Low Level Waste, Intermediate Level Waste and High Level Waste) was left to the industry more as technical matter than political one from its early days to the mid 1970s in the UK (Blowers et al., 1991). After only one drilling test for high level waste disposal site was carried out in Caithness in 1978, and the remaining applications for planning were all rejected due to severe public opposition. From then to the late 1990s, the history of UK RWM may be summarized as a long battle between the public and governing institutions. Therefore, UK RWM policy was subject to a moratorium until 2002 when discussion began on the establishment of the CoRWM. The government had to admit the strong opposition to its policy based on the "closed, expert-dominated process" (Mackerron and Berkhout, 2009) and accept societal demand for public engagement in RWM policy-making. On July 29 2002, the government Department for Environment, Food and Rural Affairs (DEFRA) announced to Parliament a plan to set up an independent body—the CoRWM—to make recommendations for RWM (DEFRA, 2002; CoRWM, 2006). The CoRWM started in November 2003 and submitted its 15 recommendations to the government on 31 July 2006.

The methods employed for analyzing this case are the analysis of 11 intensive semi-structured interviews (6 Committee members, a secretariat member, an evaluation team member, a local government councilor, a CoRWM program manager, and an independent research consultant) and the examination of published and unpublished documents (official reports, transcripts and minutes of meetings, emails, presentations and comments on websites, newspaper articles, and various evaluations). Documentary analysis shed the light on an overall picture for the case, while identifying certain types

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1) The CoRWM was commissioned in 2003, publishing its final report in July 2006. After submitting this report to the, government, another committee composed of new members was commissioned with a revised mandate in 2006.

of tensions and struggles among participants of the programmes. Some of these issues that emerged from documentary analysis were developed into four themes – Division of labour, Integration and relationship, Principles underlying design and implementation of the events and the whole programme, and Discrepancy –, which were the basis for developing the interview questions. Intensive semi-structured interviews are useful to supplement the shortcomings of the documentary analysis, such as by collecting participants' opinions and experiences on the events directly from their respective various points of view.

〈Table 1〉 Interviewee list

| D. Ball | A committee member |
|---|---|
| F. Barker | A committee member |
| K. Baverstock | A committee member |
| A. Blowers | A committee member |
| D. Collier | A CoRWM official evaluator |
| D. Lowry | A research consultant |
| Anonymity | A participant in CoRWM Nuclear Site Stakeholder Round Table / local government councillor |
| G. MacKerron | The chair of committee |
| Anonymity | A secretary of committee from DEFRA |
| S. Usher | A CoRWM programme manager |
| P. Wilkinson | A committee member |

# II. Public Deliberation as a Rational Reasoning in Deliberative Democracy Theory

Public deliberation—a deliberative form of political decision-making—shares essential principles with deliberative democracy theory (Pellizzoni, 2001; Wilsdon and Willis, 2004; Hendriks, 2004; Chilvers, 2008; Lövbrand et al., 2011). In Western society in particular, the notion of deliberative democracy has been prominent in discussion around governance over the last three decades. This trend is associated with societal pressure for improved quality in participation with diverse social voices in policy-making. Seeing those who

might be affected by a given policy as entitled to make substantive input into it, this form of democracy aims for a 'higher quality' involvement of the general public and stakeholders in the policy-making process.

In this sense, public deliberation goes beyond simple acts of democratic participation, such as voting from given options, to involve deep discussion among participants. According to deliberative democracy theory, public deliberation should ideally consist of reasoning that employs publicly defendable arguments (Elster, 1998; Dryzek, 2000). In order to achieve this, the process should not be susceptible to bias arising from any particular political interest or power (Cohen, 1997). This notion is deeply rooted in Habermas' theory of communicative action (Fraser, 1990; Dryzek, 2000; Bloomfield et al., 2001), which is based on the possibility of meaningful approximation to such ideal communication. Thus, deliberative democracy theorists assert the potential of public reasoning for political decision-making (Bohman, 1996; Luskin and Fishkin, 2002; Levine et al., 2005), which should not be a competition between or aggregation of preferences and interests (Pellizzoni, 2001; Hendriks, 2004). Being based on common elements across differently articulated concepts, deliberation could be characterized as a form of collective decision-making activity whose central foci are democratic conditions for communicative decision-making. This prevalent understanding of deliberative democracy pays greater attention to 'normative requirements and constraints on deliberation (Bohman, 1996:16)'. In brief, its condition can be met only when participants are: firstly, competent in deploying rational argumentation in public and secondly, willing to try cooperatively to identify the common good.

Pellizzoni (2001) argues that although deliberative democracy theorists acknowledge that modern society is a pluralistic arena in which political preferences conflict, they also believe that a 'free and open dialogue' (Bohman, 1996) oriented towards the common good (Cohen, 1997; Elster, 1998) can resolve such conflict (Steele, 2001). As deliberative democracy theory focuses on the quality of deliberative communication, it requires rigorous prerequisites for participants and a tightly structured procedure if they are to engage in the desirable level of debate. As a result, the theoretically envisaged deliberation can become far removed from real-world situations. In particular, the increasing uncertainty of risk issues in science and technology policy makes it harder

to expect rational argument to reach a unanimous decision in the interests of the common good. Indeed, there may be very limited space for rational argument in the interests of the common good in a technological risk policy context: in practice, it is difficult to preserve a deliberative process such as rational reasoning from distortion, manipulation or strategic persuasion (Pellizzoni, 2001; Eriksen and Weigard, 2003).

Pellizzoni (2001) points out that two types of power are associated with communication: external power over communication (who speaks), and internal power in communication (how they speak and what they say). He analyses the relationship between power in communication and democracy by comparing strategy, technocracy, constructivism and deliberation. Pellizzoni's quadrant of 'power in communication and democracy' (Figure 1) is based on the two axes of internal and external power. As his analysis shows, deliberation sits on the quadrant which assumes only internal power in communication, i.e. reasoning.

**External Power**

+

(Strategy)  |  (Technocracy)

−  ———————— + **Internal Power**

(Constructivism)  |  (Deliberation)

−

(Source: Pellizzoni, 2001: 63)

(Fig. 1) Power in Communication and Democracy

However, it is difficult to detach external power from internal power in communication. What a speaker says and how he or she says it cannot be separated from the speaker's social, political and economic background, which functions as external power over his or her communication. As external power is manifested when the speaker him or herself affects communication, securing communication without any pre-existing external power is impossible. In terms of the present study, as the technological risk policy context

is very much associated with the different stakes of participants, it would be dangerous, or at best naïve, to believe that communication is ever free from external power. Indeed, the idea that communication could be free of its political context could, in fact, be strategically abused in order to legitimize external power (Pellizzoni, 2001). This paper therefore examines public deliberation practice in the context of RWM policy-making and explores the degree to which the process deviates from that envisaged in theory.

## III. Public Deliberation in a Real World Context of Technological Risk Policy

## 1. Knowledge

The CoRWM began its official work in November 2003 by designing a staged decision-making process composed of four main sequential phases. Across these separate phases, there were three main groups of actors, namely, the Committee, Public and Stakeholders, and Scientists and Specialists, all of whom participated in all phases with different roles and influences at each stage. Simplified job descriptions of each group are as follows: the Public and Stakeholders were directed to 'comment on and observe the CoRWM's work via mail, website, attending plenary meetings etc.'; Scientists and Specialists would continually 'engage with the scientific community/specialists for information and advice on specific technical matters and other specialist matters'; and the Committee was responsible for making the final 'recommendations to Government' (CoRWM, 2006).

Knowledge is one of the most common and legitimate qualifications for participation in public engagement, and this was no less true in the case of the CoRWM program. The rationale for the categorization of the three main groups of actors was the different types of knowledge each brought to the process. Thus, there was knowledge in decision-making of the Committee, experiential or local knowledge of the Public and Stakeholders, and scientific and technical knowledge of the Scientists and Specialists. This generally accords with the common typology shared in the literature of public and stakeholder engagement (Kemp et al., 2006; Chilvers, 2007). These various types of

knowledge were the main attributes expected of participants, a criterion which applied equally to each group on the grounds that in science-related policy-making like the CoRWM program, knowledge is the non-disputable qualification for participation.

Expecting knowledge as the main attributes of participants was particularly the case with regard to the experts group. For example, the Committee was composed of various experts, such as an economist, an NGO person, a scholar on risk management, social scientist, environmental scientist, etc. Each had established experience and knowledge in his or her area which was explicitly recognized and thus constituted the reason for recruitment. This attribute of 'knowledge' entitled participants to legitimately participate in the deliberation process. When the government had to set up the CoRWM to oversee the program, it stressed the Committee's independent authority in decision-making. This independence from the government was explicitly emphasized as an important principle. Additionally, Committee members were required to declare their interests clearly to the Committee, for example, any financial or personal interests in the issues under discussion. This was a device with which to protect the decision-making process from being compromised by members' personal interests. However, the Committee members, who were the experts in the specific area necessarily, had their own pre-established networks and relationships. Therefore, their contributions were not only from their knowledge and expertise, but also their connections and networks from which they could get resources. This diversity of expertise implied that they could informally represent the communities to which they belonged. Although members of the Committee were not elected as formal representatives of their communities or organizations, they played double roles as a kind of informal representative of their community and an independent expert working for the program.

Therefore, the forefront rationale for recruitment of knowledge may have raised expectations that decisions would be unbiased and independent, not only of the government and industry but also of any interests that members had. However, emphasizing knowledge alone as the constituting element of deliberation would be misleading if it were thought that knowledge were the only constituent of decision-making. In reality, in addition to this explicit and forefront attribute of participants, there were actually many others that contributed to shape the deliberation process. These other

parts of the deliberation process were somewhat implicit but emerged as influential elements.

## 2. Informal and implicit elements

Participants not only brought the officially required and explicit qualification of knowledge to the deliberation process but also introduced many different attributes. For example, each participant had a unique identity that stemmed from social perception, affiliated institution or area of expertise. This was a useful indicator when recruiting people to the program. However, it also played a critical role in shaping the deliberation process by creating stereotypes, biased views, and affecting relationships among participants. Such personally perceived identities generated a discrepancy between the identity ascribed by others and each participant's own perceived identity, which resulted in different expectations of his or her own and others' roles. Thus, interviewees characterized themselves and others in contrasting ways. For example, the chairman of a site stakeholder group (a local government councilor) called for a new nuclear plant, claiming his legitimate representation of his site residents, but a local environmental group member argued that he should not have made such a claim in the name of representative of the site. Additionally, there were antagonistic relationships between different groups, such as pro- and anti-nuclear, industry and NGOs, and natural and social scientists. Interviewees easily adopted a pro- or anti-nuclear stance to categorize participants and simplify the respective narratives:

> "Somebody said to me at that time when the appointments [to the Committee] were made, they were all made by OCPA [Office of the Commissioner for Public Appointments] and then referred to the minister. They said that Michael Meacher would have been pleased with the Committee, because we've got four people on that Committee out of the thirteen, who were presumed to be anti-nuclear." (Interview with a Committee member)

Moreover, participants often coupled the pro-nuclear stance with industry, which was perceived as a kind of enemy of the NGO sector. One interviewee with an NGO

background exemplified this antagonistic relationship:

"I mean I was inside. There were lots of NGOs on the outside who had far less impact than I did. I always had this problem, you know, people say you are working with industry." (Interview with a Committee member)

The aforementioned chairman of a site stakeholder group, described NGO officers as 'difficult to work with', and 'single-minded', while considering industry people those who 'knew substantive matters and thus were entitled to make a decision'. The contrasting views of participants did not necessarily result from their wide areas of expertise, but were sometimes due to fundamentally different convictions. This led to opposing views on the deliberation process. In particular, different philosophies with regard to the respective definitions and roles of science and the public in the policy-making process for technological risk were critically influential to the dynamics between participants. Thus, people who were dealing with the same issue had very different views on it. This fundamental disagreement appeared to be manifested as an intractable discrepancy that can be reduced or compromised through argumentative communication. This discrepancy was one of the main reasons why two members of the Committee resigned at quite an early stage, bringing about a change in the process. They had a different point of view on the respective roles of technical experts and the public in RWM policy-making, and criticized the process for being insufficient in scientific input. The following quotations show the contrasting views among Committee members:

"That was the very seed of all our disagreements, because this group on the Committee were relativists. [...] But there were other things, like how rapidly radioactive waste will leak from a containment constructed, [...] which is based much, much more on absolute truth. Things which we can measure and predict so these two kinds of truth came into conflict [...]" (Interviewee A from the Committee)

"We broadly took the view that most of us scientists should be on tap but not on top; he [former participant who had departed the Committee] particularly

criticized this view [...]" (Interviewee B from the Committee)

Participants' personal networks played a crucial role in the deliberation program. Those inside the program reported on the process and issues under discussion to the outside world, and communicated concerns and opinions from the outside to the inside. The influence of participants' informal and personal relationships with colleagues and friends outside the program was quite remarkable in terms of transferring their message beyond formal communications such as official meetings. In this sense, although not officially invited, those who had personal associations with participants inside the program also got involved in the deliberation process, sending messages to the inside through their networks. A good example of such interaction is that of an expert, an NGO-associated consultant and academic, who enjoyed a personal network with some Committee members and succeeded in having a close look at the process and influencing it through his personal connections. He said that he had discussed CoRWM issues with two Committee members extensively while the program was in session. They had been working together on other occasions as well. His argument with regard to the government's response to the CoRWM's recommendation was the same as that expressed by one of the two Committee members, with whom he had a link:

> "I am a personal friend of two members of the Committee [...] I also met a number of the members because I participated as a representative of an NGO called [...] So I knew quite a few of the CoRWM representatives who were in that stakeholder dialogue as well. So I had friendship with some and a professional relationship with others." (Interview with a research consultant)

Participants inside the program played a bridge-building role with the outside. Therefore, people outside the deliberation learned of happenings inside and tried to intervene in various ways. For example, when the two members opposed the idea of scientific inputs and public engagement in the program, they raised this issue to the outside through their networks. Their efforts to prompt those on the outside to influence the process worked quite efficiently:

"They were able to talk to their scientific colleagues saying that CoRWM was corrupted and scientifically weak, etc. […] Corrupt, no one would believe really for a moment, but scientifically weak, yes, they believed that. So it took a long time for CoRWM then to build up kind of peer-review quality control mechanisms." (Interview with a member of the secretariat of the CoRWM)

Transferring ideas and opinions between the inside and outside took place through informal and formal networking routes which were sometimes clearly visible and at others functioned very much on a personal level.

## 3. Policy context

In addition to elements that originated inside the program, policy context outside the program such as political discourse, governmental and non-governmental institutions, and policy networks also exerted power over the deliberation process. The program thus evolved through continuing responses to such intervention by these external elements.

The birth of the CoRWM itself was directly associated with UK nuclear energy policy, as the implementation of which was heavily related with RWM. When discussion on the establishment of the CoRWM was developed, there was also debate in the government on the possibility of new nuclear build in the UK (DTI, 2003). The RWM policy deadlock was one of the major obstacles that had to be overcome before the project could be considered further. The discourse around RWM actually contributed to the new nuclear build debate and vice versa.

Michael Meacher, the Environment Minister (1997–03), was an important actor in the program, being involved in the initiation of the CoRWM. Although he was sacked in June 2003 before the CoRWM was actually operational, his legacy was inherited by his successor Elliot Morley. Thus, Meacher's influence on the process was not visible but it was substantial. Interviewees spoke extensively about Meacher as they remembered him as the minister. Indeed, as the following quotation shows the aforementioned consultant considered that Meacher rather than Morley the crucial role player of Environ-

ment Minister in the program:

> "He was important because he encouraged, despite the Lords criticizing CoRWM. So he was very important politically because he legitimized the mission [...] because the minister asked them to look at a policy-making process, not an engineering solution." (Interview with a research consultant)

One CoRWM member genuinely thought Michael Meacher was actually on his side, claiming that 'We had a very sympathetic government at the time, and the minister was Michael Meacher—he was definitely anti-nuclear.'

Learned societies influenced the process by making available specific expertise. However, in some cases, they also intervened directly in the deliberation. For example, the Royal Society became directly involved in advising the Quality Assurance group when criticism of scientific inputs arose, Professor Geoffrey Boulton of the Royal Society joining the group in May 2005. The House of Lords Science and Technology Committee also criticized the program for being insufficiently scientific (House of Lords, 2004). It published a report in December 2004 which gave the impression that it had pressured the government to 'correct' the program, particularly in terms of 'being scientific', and also pushed it to speed up the process. The following quotation shows that the CoRWM had to respond to such voices from outside the program:

> "The Chair mentioned three developments relating to science and quality assurance. These involved the Royal Society, the House of Lords Science and Technology Committee report and the Environment Department's proposed response, and a meeting with DEFRA's Chief Scientific Advisor." (Plenary meeting minute)

## IV. Discussion

In theory, as established before, deliberation should take the form of rational reasoning. Some scholars adopt a more flexible position. For example, Dryzek (2000)

argues that deliberation can include other forms of communication such as rhetoric and storytelling. However, rational reasoning remains the accepted characterization of the deliberation process shared by many deliberative democracy theorists (Bohman, 1996; Cohen, 1997; Elster, 1998). Moreover, with regard to decision-making on technological risk issues, scientific communication is by far the main critical qualification. Conversely, in the present case, deliberation in practice was not a mere communicative form of rational argumentation as suggested by the theory, but a complex mix of various forms of interaction and relationship. Participants interacted socially and politically with one another in various relationships, materializing knowledge, identity, conviction, networks, and policy discourse, which, as previously noted are all influential in the deliberation process. For example, participants separated from or aligned with others in order to promote power relations, engaged in strategic competition or negotiation with one another, and employed networks to influence the deliberation.

Committee members demonstrated various informal and formal dynamics within the process such as separation and alignment amongst themselves. Committee members were recruited based on 'the collective attributes the organization wished to have and individual attributes' (from an interview with the CoRWM Secretariat). These were the skills they brought to the process, which included experience and knowledge in their respective areas of expertise. However, differing—sometimes radically contrasting—convictions did not permit them to utilize rational reasoning alone as it was sometimes impossible to reach a compromise between everyone's views. Therefore, they naturally and strategically banded together with certain people who shared their convictions and the Committee was divided by these emerging 'wings'. Thus, the deliberation was often subject to a stark contrast between those whose stance was anti- or pro- nuclear, or between social and natural scientists:

"Some people who were in CoRWM were "antagonistic to science" […] They were what I would call "social relativists". They did n't believe technical input because they did n't trust it or they were politically against it." (Interview A from the Committee)

"In terms of colleagues on the Committee, naturally I was sympathetic with those who were anti-nuclear." (Interview B from the Committee)

When people had differing ideas, they had to compete or negotiate with one another. The decision could not be reached by publicly-defendable reasoning alone. Rather, political pressure often affected the outcome, implicitly and explicitly. For example, one Committee member did not agree with deep disposal and insisted that storage was a better solution. He tried to persuade the other Committee members but finally had to accept the option of deep disposal. He had an NGO background and explained that his NGO colleagues outside the program had not agreed with his joining the Committee but he strategically remained in it on the basis that he could exert greater influence:

"There were differences of view between me and a few others. [...] Well, I just spoke up [...] I was always outvoted. I mean, I could have left but my view is that if you are on the inside, you have a lot better opportunity to influence than being outside. So I stayed in. I thought there were a lot of good things about the process. You were able to argue your point and you were able to do so in public [but] I was feeling that I was getting into a position of being in the minority more and more." (Interview with a Committee member)

When it was alleged that the program was unscientific, the Committee had to respond to the criticism and the government was forced to pressurize it to show something to the outside. Accordingly, the Committee had to meet with its various stakeholders to discuss what to do to meet this demand. Thus, the Committee members sometimes had to compete as well as negotiate for compromise.

As previously shown, networking was a critical aspect of the deliberation process. Individual participants were very well aware of the power of networks, and thus made the most of their existing networks and also created new ones to influence the deliberation process. On the other hand, the participants themselves were influenced by others' networks. In particular, established policy networks brought existing power structures from the outside into the process. When two Committee members' criticism

of the program contrasted with their colleagues' views, they appealed to the outside for support. A member of the program's evaluation team recalled that these efforts were sufficiently influential to bring about a change in the CoRWM process and the setting up of a peer-review mechanism. Likewise, networks outside the program formed a coalition to establish a louder voice and greater influence over the deliberation. Thus, networking allowed more people to participate in the program than the actual number of participants on the inside. Indeed, it enabled multiple, disparate individuals and communities to be connected and introduce their views into the deliberation process. Therefore, as some scholars suggest, this could indicate a new mode of representative democracy.

# V. Conclusion

Public deliberation on risk emerges as a complex mix of various forms of material, social and political interactions and relations, rather than that characterized in theory as rational reasoning ideally orchestrated for democratic communication. My empirical analysis of deliberation on risk in practice strongly supports criticism of the current concept of deliberation in established deliberative democracy theory, since the reality is too far removed from such a narrowly defined definition. Indeed, in the context of technological risk policy at a relatively macro level in particular, in terms of its scope and scale, the current notion of deliberation is not applicable to a full understanding of the deliberation process and my empirical findings indicate a radically different picture.

In this study, different types of knowledge were found to constitute one of the most important expected qualifications of participants in the deliberation process, and a primary, explicit prerequisite for participation. Accordingly, each participant played his or her role(s) according to official qualifications, such as 'environmentalist', or 'participatory process expert', utilizing his or her specialized knowledge. However, they also exhibited other attributes which were informal and not explicitly indicated by official title or role, such as identity, convictions, and personal networks. These informal attributes were

also materialized in and thus shaped the deliberation process by creating group dynamics, specific relationships, new identities, interests, biases, and so on. Thus, such informal and implicit elements significantly influenced the deliberation behind publicly-acceptable reasoning.

Some explicit attributes such as different types of knowledge were overtly flagged as representing the official contributions of participants, but many others also influenced the deliberation process although they were not admitted publicly. For example, the identities which were attached to participants' affiliations and fields of expertise brought with them specific stereotypes, biases and expectations. Thus, 'pure scientist', 'industry guy', 'government man' and 'NGO person' were the informal titles attached to participants by others, reflecting the anticipated role of each. On the other hand, convictions underlying participants' views sometimes appeared to represent an intractable disagreement and at others a reason for strategic alliance. Participants' informal relationships with colleagues and friends were also critically influential to the deliberation process. They passed on their own and others' opinions across different deliberation exercises inside the program as well as communicating them with those on the outside through informal networks. Therefore, although the messages were sufficiently influential to inform the process, sometimes the sources and the ways they were constructed and introduced into the process were not transparent. In this way, informal and implicit attributes facilitated not only the examination of various ideas, but also delivered publicly non-arguable values attached to them, such as prejudice, personal interest, and so on. In addition, the context in which deliberation took place was also important in terms of its influence on the process. This included existing political discourse, government policy, and the strategies of various institutions in the regulatory system. All these elements originated outside the program but still exerted significant influence on the deliberation process.

In theory, deliberation should be an argumentative form of public reasoning for common good, excluding political power, personal interests, and strategic manipulation internally or from outside. However, the deliberation process in the present study did not take place solely around the discussion table by means of rational dialogue in public for common good. Rather, participants drew on all their various attributes in interactions and relationships with one another in order to deliver their message. Thus,

public deliberation on risk policy-making in practice emerges as a much more complex and dynamic phenomenon than the merely communicative activity of rational reasoning. Rather, it comprises various forms of material, social and political interactions and relations.

# References

Bloomfield, D., Collins, K., Fry, C. and Munton, R. (2001), "Deliberation and Inclusion: Vehicles for Increasing Trust in UK Public Governance?", *Environment and Planning C: Government and Policy*, 19(4): 501-513.

Blowers, A., Lowry, D. and Solomon, B. (1991), *The International Politics of Nuclear Waste*. London: Macmillan.

Bohman, J. (1996), *Public Deliberation: Pluralism, Complexity, and Democracy*. Cambridge, MA: The MIT Press.

Chilvers, J. (2007), "Towards Analytic-deliberative Forms of Risk Governance in the UK? Reflecting on Learning in Radioactive Waste", Journal of Risk Research, 10(2): 197-222.

Chilvers, J. (2008), "Deliberating Competence: Theoretical and Practitioner Perspectives on Effective Participatory Appraisal Practice", Science and Technology & Human Values, 33(2): 155-185.

Cohen, J. (1997), "Procedure and Substance in Deliberative Democracy", In Bohman, J. and Rehg, W. (eds.) *Deliberative Democracy: Essays on Reason and Politics*, Massachusetts: The MIT Press, 407-438.

Committee on Radioactive Waste Management (2005), "14th Plenary Meeting Minute", January 2005(Doc 935).

Committee on Radioactive Waste Management (2006), *Managing Our Radioactive Waste Safely: CoRWM's Recommendations to Government*. CoRWM Doc 700. London: Committee on Radioactive Waste Management.

Department for Environment, Food and Rural Affairs et al. (2002), *Managing Radioactive Waste Safely: Summary of Responses to the Consultation September 2001–March*

*2002*. (A consultation report published jointly by the UK Department for Environment, Food and Rural Affairs, the National Assembly for Wales, the Scottish Executive and the Department of Environment Northern Ireland).

Department of Trade and Industry (2003), *Our Energy Future–Creating a Low Carbon Economy*. London: TSO (The Stationery Office).

Dryzek, J. (2000), *Deliberative Democracy and Beyond*, Oxford: Oxford University Press.

Elster, J. (1998), *Deliberative Democracy*, Cambridge: Cambridge University Press.

Eriksen, E. O. and Weigård, J. (2003) *Understanding Habermas: Communicative Action and Deliberative Democracy*, London and New York: Continuum Press.

Fraser, N. (1990) "Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy", *Social Text*, 25/26: 56-80.

Hendriks, C. (2004), "Public Deliberation and Interest Organizations: A Study of Responses to Lay Citizens Engagement in Public Policy", Unpublished PhD Thesis at the Australian National University.

House of Lords Select Committee on Science and Technology (2004), *Radioactive Waste Management*, London: HMSO.

Kemp, R.V., Bennett, D. G. and White, M.J. (2006), "Recent Trends and Developments in Dialogue on Radioactive Waste Management: Experience from the UK', *Environment International*, 32(8): 1021-1032.

Levidow, L. (2007), "European Public Participation as Risk Governance: Enhancing Democratic Accountability for Agbiotech Policy?", *East Asian Science, Technology and Society: an International Journal*, 1(1): 19-51.

Levine P., Fung, A. and Gastil, J. (2005), "Future Directions for Public Deliberation", *Journal of Public Deliberation*, 1(1): 1-13.

Lövbrand, E., Pielke, R. Jr. and Beck, S. (2011), "A Democracy Paradox in Studies of Science and Technology", *Science, Technology, & Human Values*, 36(4): 474-496.

Luskin, R. C. and Fishkin, J. S. (2002), "Deliberation and 'Better Citizens'", A research paper available from the Center for Deliberative Democracy at Stanford University. Available from (http://cdd.stanford.edu/research/papers/2002/bettercitizens.pdf).

Mackerron, G. and Berkhout, F. (2009), "Learning to Listen: Institutional Change and

Legitimation in UK Radioactive Waste Policy", *Journal of Risk Research,* 12(7-8): 989-1008.

Pellizzoni, L. (2001), "The Myth of the Best Argument: Power, Deliberation and Reason", *British Journal of Sociology,* 52(1): 59-86.

Renn, O. (1998), "The Role of Risk Communication and Public Dialogue for Improving Risk Management", *Risk Decision and Policy,* 3(1): 5-30.

Steele, J. (2001), "Participation and Deliberation in Environmental Law: Exploring a Problem-solving Approach", *Oxford Journal of Legal Studies,* 21(3): 415-442.

Stern, P. and Fineberg, H. (eds.) (1996), *Understanding Risk: Informing Decisions in a Democratic Society,* Washington D.C.: National Academy Press.

Wilsdon, J. and Willis, R. (2004), *See-through SCIENCE: Why public engagement needs to move upstream.* London: Demos.

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