EUROPEAN COMMISSION

Community Research

ARGONA

Arenas for Risk Governance

(Contract Number: FP6-036413)

Deliverable D4

Mediators of Issues and Mediators of Process
A Theoretical Framework

Authors: Mark Elam, Göteborg University
Larry Reynolds, University of Lancaster
Linda Soneryd, Stockholm University
Göran Sundqvist, Göteborg University
Bronislaw Szerszynski, University of Lancaster

Date of issue of this report: 30/11/2007

Start date of project: 01/11/2006
Duration: 36 Months

Lead contractor for this deliverable: Göteborg University Revision: FINAL

Project co-funded by the European Commission under the Euratom Research and Training Programme on Nuclear Energy within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	X
RE	Restricted to a group specified by the partners of the ARGONA project	
CO	Confidential, only for partners of the ARGONA project	

Content

Summary
The objective of work package 3 within the ARGONA project is to give better knowledge on how different approaches to the public mediation of nuclear waste issues lead to different qualities of public engagement and involvement. This will improve the prospects for allaying some frustration in nuclear waste management programmes with regard to the conduct of stakeholder participation. Furthermore, increased awareness of the roles of *mediators* of public participation approaches, that organise and conduct processes and make claims on behalf of the public and various models of democracy, contributes with an improved understanding of deliberative events and conditions for improved quality and legitimacy.

WP 3 is carried out as three sub work packages. Sub work package 3.1 is concluded with the production of deliverable D4 (this report) at month 13. The report consists of a theoretical elaboration of the approach and concepts introduced by this WP.

Our approach means to study the conduct of conduct of nuclear waste management with a particular focus on *mediators* as a new form of expertise. Mediators make science and technology public (mediating) and this could be made from different *rationalities*. Two important and conflicting rationalities we call *mediation through demonstration* and *mediation through dialogue*. The first is about showing "hard facts", while the other is about involving citizens in activities where no final answer (truth) exists. We argue that approaches to public mediation have consequences for what kind of objects that are made public, how they are made public (through a mix of demonstration and dialogue, although one of them can be the dominating rationale in some processes) as well as how legitimate subjects for public participation or audiences for public displays are constituted in relation to expertise. Moreover, a critical approach to *transparency* is needed. We need to understand transparency as *stage management* – abilities to control what is shown on the public stage – in order to understand public participation processes and look more critically at the mediators, how public participation methods are standardised, and what effects they have in different local contexts.

In order to discuss how different technologies can be used to mobilise different versions of "the public", we compare four methods for the generation of qualitative deliberations among citizens (the citizens' jury, the consensus conference, the scenario workshop and focus group methodology). We use "GM Nation" as an illustrative case of the mediation of a hybrid process with multiple modes, stages and scales and we discuss how our theoretical framework can be applied to nuclear waste management by presenting two examples: the Swedish way and the UK way. Through these examples we highlight the distinction between demonstration and dialogue. We conclude with a brief summary of our approach and reflections on the empirical data we will use in the following year of the project.

In sub work package 3.2 we will carry out case studies of the ongoing public consultations in the municipalities of Oskarshamn and Östhammar, the two potential sites for a deep repository for spent nuclear fuel in Sweden. This sub work package is concluded with the production of deliverable D10 (Public consultation case studies: Oskarshamn and Östhammar) at month 24. Sub work package 3.3 consists of an evaluation of the role of mediators in the creation of safe and robust patterns of nuclear waste management and an evaluation of the role of citizens and what versions of the public are constructed as legitimate or illegitimate participants in nuclear waste management. This sub work package is concluded with the production of deliverable D20 (Mediators of issues and mediators of process: An evaluation of practices) at month 36.

1. Introduction

In today's technological societies, citizens are increasingly being asked to help ensure quality in decision-making by developing their own perspectives on the new technologies they confront in everyday life. This has been called a *democratic turn* in the governance of science and technology, or as the European Commission puts it: a *democratization of expertise* (EC, 2001).

To meet this demand, a well-developed understanding of the interplay between scientific experts and lay people is needed. A normative assumption is often apparent in the discussion in that credible decisions on controversial science-based issues need to have widespread public support. This is not only about achieving public consent (acceptance) but is also based on deliberative processes encompassing diverse viewpoints (Hagendijk and Kallerud, 2003: 2; cf. Hagendijk and Irwin, 2006). Or, as Brian Wynne (2001: 472) argues: "Policy discourses about risk… need to be rendered more explicit, and more open to public deliberation – as a democratic principle, and in order to save scientific culture from itself". In general, bringing science and technology closer to society means cultivating both a scientific citizenship and a socially-sensitive expertise. To create sustainable public policies implies a close interplay between science and democracy, which in turn means that citizens are mobilized alongside experts in shaping policy.

In a recent paper by Alan Irwin (2006: 300), it is argued that this seemingly perfect resonance between previous science and technology studies and current policy emphasis on dialogue gives reason to scepticism and a need to critically examine this new 'politics of talk':

> In particular, there is a pressing need to move away from the orthodox science and technology studies (STS) defence of public participation and citizen-science engagement (Irwin, 1995) towards an analytically sceptical (but not dismissive) perspective on the 'new' mode of scientific governance. This is especially relevant when the language of STS, and, especially, criticism of the 'deficit theory' (for example, Irwin and Wynne, 1996), has been partly influential in encouraging the emergent governance discourse. It can also be speculated that uncritical treatment of current science–public interactions might lead to an equally uncritical backlash when policy expectations of public consensus and support are (almost inevitably) disappointed.

As Irwin (2006: 301) notes there are "apparent tensions, shifts in emphasis and partial contradictions within the 'new' mode of scientific governance". In this report we will conceptually elaborate on potential tensions, such as that between "demonstration" and "dialogue" and the involvement of "engaged" or "disengaged" publics. Our attention will be on the role played by *mediators,* actors and actants who shape environmental politics through their abilities to translate environmental diagnoses into matters of immediate practical concern for individual and collective actors in society as well as actors who mediate methods for public participation, and organise and conduct participatory processes. This mediation, we argue, occurs through a mix of demonstrating, i.e. showing and displaying, factual matters to an audience, and involving a wider set of actors in a dialogue and potentially opening-up for a diversity of perspectives on "matters-of-facts" as well as "matters-of-concern" (cf. Latour, 2005: 19).

Mediation then, is first and foremost about making things public. We find it relevant to use a threefold distinction of "public" (Rawls, 1993 in Barnett, *forthcoming* 2008: 3): 1) the idea of "the public", as a *collective subject*, composed of citizens engaged in debate and deliberation or a more or less passive audience, which nevertheless have to be engaged to the extent that they recognise themselves as an audience (and that someone is trying to get their attention); 2) the idea that *some objects* are of public concern, that is the issues that are made public; and

that the nature and content is public, which implies a *particular medium* through which this is accomplished. This distinction is useful in order to understand how both the subjects and objects of publicness are constituted through the mediums of publicity.

The aim of WP 3 is to analyse different approaches to the public mediation of nuclear waste issues. The approaches to public mediation has consequences for what kind of objects that are made public; how they are made public (through demonstration and dialogue) as well as how legitimate subjects for public participation or audiences for public displays are constituted in relation to expertise.

In what follows an analytic approach for our studies on the mediation of nuclear waste issues is developed. Our approach means to study *the conduct of conduct* (chapter 2) of nuclear waste management with a particular focus on mediators as a *new form of expertise* (chapter 3). Ambiguities in how science can be communicated in public are clarified through the distinction between demonstration and experiment and from this the distinction between *mediation through demonstration* and *mediation through dialogue* is developed. The first is about showing "hard facts", while the other is about involving citizens in activities where no final answer (truth) exists. Moreover, it is argued that *transparency* is not a straightforward means to making things public (chapter 4). In order to discuss how different technologies can be used to mobilise different versions of "the public", we compare four distinct methods for the generation of qualitative deliberations among citizens (chapter 5). We use "GM Nation" as an illustrative case of the mediation of a hybrid process with multiple modes, stages and scales (chapter 6). Finally, we discuss how our theoretical framework can be applied to nuclear waste management by presenting two examples: the Swedish way and the UK way. Through these examples we highlight the distinction between demonstration and dialogue (chapter 7). We conclude with a brief summary of our approach and reflections on the empirical data we will use in the following year of the project (chapter 8).

2. Analysis in three dimensions: rationalities, programmes and technologies

The concept of *conduct of conduct* is borrowed from Michel Foucault and means "all endeavours to shape, guide, direct the conduct of others" (Rose, 1999: 3). This concept enables us to ask critical questions on "what authorities of various sorts wanted to happen, in relation to problems defined how, in pursuit of what objectives, through what strategies and techniques". It means to focus on "the invention, contestation, operationalization and transformation of more or less rationalized schemes, programmes, techniques and devices which seek to shape conduct so as to achieve certain ends" (Rose, 1999: 20).

This analytical perspective is an elaborated approach to the analysis of political power which does not presuppose a hegemonic role of the state. On the contrary, it recognizes that "modern systems of rule have depended upon a complex set of relations between state and non-state authorities, upon infrastructural powers, upon networks of power, upon the activities of authorities who do not form part of the formal or informal state apparatus" (Rose, 1999: 15). It draws attention to the heterogeneity of authorities, strategies, devices and desirable ends, as well as the conflicts between them.

To study the conduct of conduct, Nicolas Rose and Peter Miller (1992) propose an analysis in three dimensions, focusing on *rationalities*, *programmes* and *technologies*. According to Rose and Miller, experts have a crucial role in the governance of today's societies, because many

issues are now framed in a science-based way, and because experts also work as mediators between different groups in society.

Rationalities refer to idealised schemata for representing, analyzing, rectifying and justifying reality (Rose and Miller, 1992: 178). Rationalities, therefore, have both an epistemological and moral character. Political rationalities encompass a range of ideals and principles; within liberalism for example, a few examples of such principles are freedom, equality, citizenship, prosperity and growth. Elaborated ideas about the powers and duties of authorities and the rights of citizens, give rationalities a moral character, but also an epistemological, as they are articulated in relation to some conception of the objects governed, be it 'society', 'the economy', 'a nation' or a 'population'. In this report we argue that mediation through demonstration and mediation through dialogue reflect two different rationalities.

Programmes are focused on problem solving, while translating rationalities to something more concrete in relation to specific problems. In doing this, programmes are always connected to claims to knowledge of the problem to be addressed, such as knowledge of the economy, the nature of health, or relations between well-being and unemployment, education and birth rates, i.e. the terms and relations the problem is conceptualised through. This means that governing is dependent on theories of the social sciences, for the conceptualisation of a problem and the rendering of a sphere into entities with specified characteristics and interrelationships. Programmes circulate around problems, which they try to solve, they gather around ills they seek to cure (Rose and Miller, 1992: 181-182). But problems are only problems in relation to a set of questions. And such questions are given by programmes, as well as a set of solutions connected to the questions. Solutions include resources, money, organisations, relations, locations, professional groups etc. Programmes translate rationalities to something more concrete in relation to specific problems. A programme means the establishment of an intellectual machinery to govern problems. Competing programmes exist simultaneously. Since programmes are 'heterogeneous' and 'rivalrous', the solution for one problem tends to be a problem for another. It is a "world traversed by the 'will to govern'", which means the continuous registration of failures and efforts to improve the correlation between ambitions and outcomes (Rose and Miller, 1992: 191). In this report (see chapter 7) we suggest that SKB's R&D Programme in Swedish waste management and the UK CoRWM Committee are two programmes based on different rationalities.

Technologies make programmes real, by making connections between those who govern and those who are governed. This is not done through the straightforward implementation of an idea, but through complex assemblages of various legal, professional, and economic forces. A powerful actor, agent or institution, Rose and Miller (1992: 183) write, "is one that, in the particular circumstances obtaining at a given moment, is able to successfully enrol and mobilise persons, procedures and artefacts in the pursuit of its goals". Technologies make connections between those who govern and those who are governed, those who see a problem and those who are affected by that specific problem. Networks have to be established and in order to be a successful programme this network has to be strong. Technologies are mechanisms for enrolment and can be of different kinds: buildings, letters, list of names, results from opinion polls, techniques for documenting and calculating. Technologies always have a materialized character (Rose and Miller, 1992: 184, 187) and they offer opportunities for people to take part in programmes. They give the problems a common character and common interests are established. The four methods for generating qualitative deliberations among citizens (the citizens' jury, the consensus conference, the scenario workshop and focus

group method) presented in Chapter 5 could be examples of technologies (technologies of elicitation).

In relation to every problem a balance of mediation through dialogue and demonstration is unavoidable in every programme of government. Not everything can or should be opened up for dialogue in every case. Not everything can or should be dealt with through demonstration. Different rationalities of government may tend to suggest more demonstration than dialogue or vice versa, but there will always be a mix. The appropriate balance is something that needs to be subject to some form of collective judgement, and settled through dialogue or demonstration. Mediation by demonstration can be used to undermine what was taken for granted and therefore stimulate greater commitment to mediation via dialogue. Accidents are classic unintentional (anti) demonstrations, which introduce crises of credibility suggesting need for greater dialogue. Dialogue can also specify what needs to be effectively demonstrated in future for sufficient trust to be established.

3. Mediating as cultivating new forms of expertise

Processes of presenting and translating esoteric science-based problems could be studied as an area for the cultivation of new forms of expertise. One important group of experts – knowledge workers – acting in this arena, we refer to as *mediators*. Mediators help define the *context* of public policies with which different parties and emergent stakeholders can be encouraged to identify. In the first instance, mediators seek neither to oblige, nor to advise publics to respond in particular ways to technically defined problems, they seek only to place themselves in 'the middle of things'. Their ambition is to seed certain ideas and enable different parties to come together and interact in relation to them. Mediators seek to activate different parties in the government of their own affairs. They aim to act as catalysts, and as the ones capable of getting new policy programmes off the ground, and new social movements up and running (Osborne, 2004: 440). Resembling political entrepreneurs, mediators are tasked with helping to author new routines and practices which can bring together different parties in unified activities gradually serving to populate what is currently referred to as an 'institutional void' (Hajer, 2003).

Rather than simply wishing to educate publics about environmental dangers, the mediators can be seen as committed to involving publics and assisting them to recognize their own personal stakes in environmental problems. This process of helping publics to recognize and appreciate environmental problems as their own problems can also be approached in terms of political experimentation devoted to the construction of particular types of scientific citizens (Elam and Bertilsson, 2003). Mediators thus, do not only assist in defining the context of public policies, but they may also be crucial for how *concerned parties* or *publics*, are constituted, and what role they are assumed to play in discussions over policy.

The role of mediators, we argue has been underestimated in Ulrich Beck's notion of sub-politics as a new style of extra-parliamentary politics characterizing the governance of major environmental problems. According to Beck, recognition of problems such as transboundary air pollution and the threat of nuclear contamination coincides with a process of reflexive scientization where the sciences confront themselves, and where scientific scepticism is applied to 'the inherent foundations and external consequences of science itself' (Beck, 1992: 155). This turning of science upon itself signals for Beck the beginning of a new reflexive modernity where scientific authority is 'de-monopolized' and where we can expect alternative forms of scientific expertise to be picked up by different actors in society and played off

against one another in emerging spaces of sub-political debate and discussion. Sub-politics are for Beck, experimental politics unbound from the classic-modernist institutional order encompassing representative democracy, a strict differentiation between politics and bureaucracy and a now faded vision of science as an undivided neutral adjudicator capable of 'speaking truth to power' (Beck, 1992: ch. 8; Hajer, 2003).

While we agree with Beck in his depiction of science and technology today as involved in the cause, the diagnosis and, hopefully, the resolution of large-scale environmental problems (Beck, 1992: ch. 7, see also Yearley, 2005: 140), we disagree with him with regards the spontaneity with which new worlds of sub-politics can be expected to open up and 'erupt' around these problems. Accepting that independent of scientific information, measurement and argumentation, public awareness of the dangers posed by nuclear waste and ozone layer depletion would be minimal, how do individual members of the public come to identify with different measures and action plans seeking to ameliorate these dangers? What we believe Beck seriously understates, and what we are dedicated to study is the work of successfully *mediating* competing diagnoses of environmental problems and associated plans of action to variously targeted publics.

Given, as Beck stresses, the relatively invisible and intangible nature of contemporary ecological crises and their combined global and world historical dimensions how are they successfully presented to publics as requiring of them specific practical actions and adaptations in their everyday lives? Rather than seeing this task of public presentation and mediation as straightforward, our ambition is to study it as itself an area for the cultivation of new forms of expertise. As Thomas Osborne (2004) has recently pointed out the 'mediator' can be conceived of as a distinct type of intellectual or knowledge worker today.

The aim of understanding what mediators do when they mediate can be connected to Actor-Network Theory's (ANT's) attempt to rethink the relationship between scientific knowledge and social interests. In an early article, Callon and Law (1982) argue that while social interests may shape the production of scientific knowledge, so may original knowledge claims change people's understandings of their interests. In this connection they introduce the two key terms of *enrolment* and *translation*. One actor enrols another when the first is able to successfully present her knowledge as a means for the second to further his interests. Thereby, the second actor's interests are translated in a way that brings them into alignment with those of the first actor. Thus, what should be focused upon is how mediators enrol publics in environmental sub-politics by translating their interests in relation to environmental diagnoses and alternative ways of responding to them. While it is not our intention to attempt to come to the assistance of the mediators we study, it is our aim to further outline the importance of mediation work as such in the field of environmental governance.

Some mediators are experts not only in making translations of environmental diagnoses (i.e. science), but on methods for generating and translating lay opinions. A new centrality of the public has been accompanied by the deployment of a range of *technologies of elicitation* (Lezaun and Soneryd, 2007). These are instruments designed to generate lay views on the issues at hand, and feed those opinions into the policy process. Lay opinions on technoscientific matters are typically produced in transient and experimental settings: the small group of individuals assembled in a focus group, the public or semi-public forums in which citizens and experts address each other for a few hours, the slightly more permanent "citizen juries" where stakeholders and citizens aim to work out a common understanding of the issues under deliberation, etc. These assemblies are managed by what Rose has described

as “experts of community,” social science and psychology professionals deploying the “whole array of little devices and techniques that have been invented to make communities real” (Rose, 1999: 189–90). In chapter 5 we will go into this in more detail, by comparing the consensus conference, the citizens’ jury, the scenario workshop and focus group methodology as technologies of elicitation that deploy different approaches to mediation and bring about different kinds of publics. The next chapter will elaborate more on the logics of ‘demonstration’ and in particular in relation to ideas about its role in achieving trustworthy and credible science.

4. Making science public

4.1 Demonstration vs. experiment

The academic field of social studies of science has proposed a strong connection between truth and credibility. For a scientific proposition to be established as true it has to win credibility. No proposition is credible in itself and no proposition became a part of knowledge “until and unless it had won credibility. No credibility, no knowledge” (Shapin, 1995: 257).

To achieve credibility a proposition has to be adapted to an imagined audience. When communicating propositions the cultural proximity or distances between those who communicate are of great importance. If the proposition is presented to people who do not share the cultural context, a distance has to be bridged. An important reason for this distance to occur is that knowledge is culturally embedded and rests on tacit assumptions which are hard, or even impossible, to communicate in an explicit and formal way. This is, for instance, the case with communication between experts and lay people. “Here… the resources of familiarity for addressing problems of credibility are absent or impoverished. We look instead for formal warrants of credibility… the display of expert consensus, and the like” (Shapin, 1995: 270). Brian Wynne suggests that lay people could be seen as experts on evaluating the trustworthiness of expert knowledge. According to Wynne, this kind of knowledge, which tries to understand the social meaning of expert knowledge “in the sense of its institutional dimensions”, could always enrich, and also be an important contrast to, more specialized technical knowledge (Wynne, 1993: 328). This implies that lay people try to bridge the knowledge distance by using social intelligence. Lay people are not empty buckets that have to be filled by expert knowledge. On the contrary, they possess knowledge on the specific (local conditions etc.) that can add to the more abstract and general expert knowledge. Examples of questions important for lay people are: Why should this be done? What is the purpose? What risks are acceptable? Who is responsible? What is not known? Such questions are not beside of the scientific knowledge production and technological work. On the contrary, they are of fundamental importance and should be considered part of the content of the project (Wynne, 2003: 410).

The important difference between close and distant communication is about how trust is established. There are similarities in all kinds of trust, for instance the importance of reliable personal contacts. In cases including communication over cultural distance – where one group does not know what the other really is doing – the distinction between *front stage* and *backstage* activities becomes of crucial importance (cf. Hilgartner, 2000: 11f). When cultural differences are small, the acceptance of propositions is based on the understanding of what the proposition is about, how it is generated etc. When differences are great it is based on viewing a ‘performance’, a front-stage activity, where the audience has less of a chance to understand what is going on behind the scenes. Therefore, communication trying to bridge a

cultural distance is easier to manipulate than communication between people sharing the same culture.

Harry Collins has noticed the paradox that lay persons are often expected to draw firm conclusions on subjects which could be a topic of dispute among the most competent scientists (Collins, 1988: 725). In order to understand this paradox, Collins introduces a distinction between *experiment* and *demonstration*. An experiment is arranged in order to test a hypothesis, with the capacity to surprise the experimenter, while a demonstration is about arranging a convincing public performance in which the demonstrator knows the result in advance (Collins, 1988: 727-728). Demonstrations are about showing, displaying, pointing out things and are typically designed to show 'hard facts'. Demonstration is thus a matter of showing 'the truth', and quite different from initiating a dialogue over highly uncertain matters. An experiment is meaningful because it has the capacity to surprise us. If we are dealing with an experiment in its proper sense, we might not even know what the criteria are for it to work. Demonstrations, in contrast, imply detailed rehearsal and conscious decisions on what are going to be displayed in public or not. They…

> …are designed to educate and convince once the exploration has been done and the discoveries have been made, confirmed, and universally agreed. Once we have reached this state, demonstrations have the power to convince because of the smoothness with which they can be performed. Indeed, the work of being a good demonstrator is not a matter of finding out unknown things, but of arranging a convincing performance (Collins and Pinch, 1998: 63).

According to Collins, when based on disputed experiments, demonstrations are pathological science, performed in order "to make salient the view of only one side of the core-set [the core scientists within a scientific community], and to reify it prematurely" (Collins, 1988: 743). The conclusions drawn by different groups when witnessing demonstrations, has been studied by Collins, who states that…

> …the general public, given only fleeting glances of the experiments, were able to reach firm conclusions instantly. The reason was that they were not given access to the full range of interpretations available to different groups of experts. The public was not served well, not because they necessarily drew false conclusions, but because they did not have access to evidence needed to draw conclusions with the proper degree of provisionality (Collins and Pinch, 1998: 74).

Presentations of science to the general public are often examples of demonstrations; they are meant to convey *unambiguous* messages. When experiments and demonstrations in practice are mixed up with one another in 'public spectacles', it is only the experts that can assess the significance of the experimental part of the event. One partial solution to this bias, Collins suggests, is to "increase the public understanding of science to such an extent that they can spot the difference between demonstration and the other categories of scientific display, and then to demand to hear the point of view, or to see demonstrations, of competing parties" (Collins, 1988: 743).

By experiments Collins means the search for new knowledge, a process where there are no clear answers. The results of experiments must always be interpreted, while they are never showing themselves in a clear and evident way. Experiments are what research should be about. Collins' characterization of research is also a proper description of an open discussion among people trying to solve a problem where no clear solution is visible, i.e. a dialogue situation.

To understand how expert credibility is achieved, we have to reach into the black box of expert-advice production. In this respect transparency is not enough. The opening of the doors to expert work has to be combined with an increased understanding of the strategies used by experts aiming to increase credibility. Open doors do not automatically imply that backstage activities become understood, or even visible. Therefore, we have to ask: "What do science advisors publicly present and what do they relegate to the backstage?" (Hilgartner, 2000: 12). In this respect, transparency could become a strategic tool for experts in displacing critical activities further backstage, for instance, when in a situation of uncertainty and expert disagreement trying to publicly present 'the truth' (demonstration).

4.2 Transparency as stage management

Transparency is a key word in a new scientific governance and democratization of expertise. It would be wrong, or at least naive, to consider transparency to be the same as increased understanding of expert knowledge. The important finding to understand transparency as stage management is well articulated by Hilgartner (2000: 149-150):

> Champions of transparency have sometimes romanticized openness, without adequately considering the merits of confidential processes or fully recognizing the ubiquity and inevitability of information control… The fundamental choice is not between the transparent or the opaque, but among different systems of stage management – systems that shape in complex and nuanced ways the roles of experts and audiences, their powers of speech and observation, and their abilities to control the display of science on the public stage.

If the aim of increased transparency is connected to a critical understanding of knowledge production and credibility achievement, it could be redefined as the objective of making expertise more accessible to outsiders by a better understanding of expert strategies (cf. Jasanoff, 2000: 629). In this way, the aim of increased transparency in expert work becomes the same as the achievement of knowledge credibility.

As noted earlier, when arguing for increased transparency in expert work it is of crucial importance to understand the distinction between front stage and backstage, and the different strategies used by experts to manage the boundaries between the two, for instance when presenting results from uncertain experiments in convincing demonstrations. Such strategies Stephen Hilgartner (2000: 7) calls *stage management*.

When considering communication over cultural boundaries, for instance between experts and lay people, we have to focus on the possibilities for different groups to really understand to what degree backstage activities of one group are accessible to the other. Practically, the problem can not be solved once and for all, but through an increased understanding of the stage activities of different groups it could be handled in a more competent way and lead to increased efforts to soften the sharp and protected boundaries between different groups as well as between their front stage and backstage activities.

In a study of environmental regulation in the United States, Sheila Jasanoff makes visible the backstage reasoning of experts. In an interesting way she finds that the myth of pure science is important for achieving credibility in regulatory work. This myth allows scientific experts to do what, according to the myth itself, they are not supposed to do: negotiate both science and policy issues (Jasanoff, 1990: 237). Paradoxically, if experts were not allowed to do this, they would not be able to arrive at consensus, and thereby could not create stability and establish legitimacy within the field of regulatory work. Scientific experts perform important work as negotiators between the scientific community and the policy context, by allowing the

two sides to talk to each other. Simultaneously, this creates a new synthetic body of knowledge, flexible enough to lend credibility to expert advice and regulatory work both in the scientific community and among policy makers and the general public. Contrary to front stage expectations, the primary function of scientific advising is not to offer advice on scientific details, but to give regulatory work stability and credibility within a policy context. Jasanoff's conclusion is not that the front stage and backstage of regulatory science contradicts each other, but that both are important for creating credibility and stability for regulatory work in a society where the myth of pure science is widespread. Jasanoff's study is exemplary in that it combines the understanding of front stage and backstage and thereby presents a new and more complicated picture which is deepening our understanding of expertise, i.e. increasing transparency in expert work.

4.3 Mediation through demonstration and mediation through dialogue

As already clarified, *mediation through demonstration* is about showing, displaying, and pointing out things. Andrew Barry (2001) talks about demonstrations as being both sights and sites of truth. Demonstrations are visual and typically designed to show 'hard facts'. Demonstrations can be events to be witnessed by smaller or larger publics. They have a theatrical quality about them where the division between demonstrator and audience is a constitutive feature. Demonstrations build on prior processes of experiment and rehearsal. They constitute major, minor and typically recurring events in the lives of particular technologies. In Collins (1988) classic discussion of nuclear flasks in a train crash it was ultimately the flasks themselves that were presented as speaking of their own integrity. We see the flask still intact and participate in a 'truth moment'. This witnessing required no expertise. The state of nuclear safety had been made thoroughly transparent to a wider audience: a collection of mind's eyes in pure contact with a physical state of affairs. Demonstration supports the nobility of sight over the other senses giving us an impersonal disentangled appreciate of a particular state of affairs.

When nuclear waste was 'discovered' as a major matter of public concern during the 1970s, anti-nuclear movements took it upon themselves to protest against the dangerousness of nuclear power for human health and the environment. These protests introduced a process of questioning regarding the impact of current choices on future generations. The survival of nuclear power production became linked to the ability of the nuclear industry to demonstrate long-term safety: to assemble 'safety cases' for reactors and waste repositories alike. Through legislation like the Nuclear Power Stipulation Act introduced in 1977 in Sweden (demanding the nuclear industry to demonstrate absolute safe waste disposal), nuclear technology was put on public trial. Reliable evidence of a safe solution to the waste problem had to be amassed and public prosecutors had to be found capable of rigorously interrogating the 'safety case'. The dangerousness of nuclear power production had to be translated into calculable risks which could be precisely specified and evaluated. The field of performance assessment (PA) for radioactive waste solutions took off during the 1970s calling upon the services of many scientific disciplines (Rechard, 1999). Regulators (prosecutors) and implementers (defendants) alike were in desperate need of scientific advice about how to play their role in the new trial setting tasked with collecting and evaluating what could be accepted as reliable evidence of risk and safety. At the same time although relying on scientists with similar disciplinary backgrounds it remained essential that regulators and implementers could be seen as developing new competences relatively independently of each other working as adversaries and not simply partners tasked with filling a regulatory void.

In order to be able to prosecute safety cases for nuclear waste facilities, PA must be able to produce rich amounts of evidence in relation to the three following three questions: (1) What could occur in the future? (2) How likely are these occurrences? (3) What are the consequences of different occurrences? Without detailed and exhaustive answers to each of these questions the trial of technology cannot take place. Thus, regulators and implementers alike were obliged to transform themselves into what Callon (1998) calls 'calculative agencies' dedicated to the task of quantitative risk assessment. The prosecution of the safety case for different waste facilities becomes, therefore, primarily the task of expert witnesses and adjudicators. In order for the whole trial situation to form the credible basis for reaching decisions, some degree of transparency must be maintained. What is demonstrated by the implementer to the regulator as proof of sufficient safety, must in turn, be possible to communicate and demonstrate for a larger public audience if the credibility of decision-making is to be assured.

Mediation by demonstration can continue until expert witnesses and adjudicators get it visibly wrong and distrust leaks to a broader public, resulting in decreasing credibility in expert authority. A classic example of this from the field of food safety was when expert authorities guaranteed that BSE could not spread to humans. When this proved to be wrong a crisis of expert authority arose. The breakdown of mediation through demonstration comes with the growing suspicion that front-stage separation of prosecutors and defendants of technology on trial is being combined with back-stage collaboration. A perpetual problem with mediation through demonstration is that defendants and prosecutors of technology will always be 'pre-connected' through their common dedication to producing the expert knowledge capable of constituting and sustaining the trial situation. While the verdict in any 'safety case' will need to be presented as speaking for itself, it will ultimately remain a negotiated outcome. The public appraisal of such 'prior connection' and the ultimately negotiated bases of what is staged as self-evident safety or non-safety, is likely to vary over time and to be particularly influenced by unfortunate accidents and mishaps.

Mediation through dialogue on the other hand, is about to a greater or lesser degree acknowledging the reality of negotiated safety underlying the trial situation staged by mediation through demonstration. It is no longer about experts convincing the public to witness what experts already claim to know and have already decided upon. On the contrary, it is about the practice of 'extended peer review' where expert frames and reasoning for and against a particular technology are weakly or strongly contested by alternative forms of expert and lay knowledge which have previously been ruled 'out of court'. This means that standards of truth, reliability and safety are potentially opened up for broader negotiation.

Dialogue is not necessarily superior to demonstration. In relation to every problem a balance/mix of mediation through dialogue and demonstration is unavoidable in every programme of government. Not everything can or should be opened up for dialogue and negotiation in every case. Not everything can or should be dealt with through demonstration. Different rationalities of government may tend to suggest more demonstration than dialogue or vice versa, but there will always be a mix. The appropriate balance is again something that needs to be subject to some form of collective judgement (settled through dialogue or demonstration?)

In the following chapter we will present and analyze four methods aiming to generate qualitative dialogue between experts, citizens, stakeholders and policymakers. That the methods are initiated and designed with the main objective to stimulate dialogue does not

mean that they are not sometimes used also within programmes based on a rationality of demonstration. When this happens we may speak of 'token' participation or an instrumental use of public participation methods (i.e. demonstration 'disguised' as dialogue). Our aim is not to evaluate to what extent these methods fulfil their goals in practice, bur rather to emphasise mediation and the role of mediators in the development, spread and use of public participation methods.

5. Mediating public participation methods

This chapter will focus on the mediation of processes organised to generate qualitative deliberations among citizens. We argue that mediation and the role of mediators have so far been neglected in studies of participatory processes. It is almost 30 years ago since Sherry Arnstein's (1969) famous article "A ladder of citizen participation" was published. Today there are still evaluations of public participation methods which uses the same type of terminology, and who are using the ladder metaphor indirectly by speaking about higher and lower levels of participation (see for instance Rowe and Frewer, 2000). These types of studies of public participation still have their relevance. What we would like to argue is that there is also a need for studies, which consider the emergence of a new type of expertise around public participation methods. Five years after Arnstein wrote the article, the first citizens' jury was held in the United States. A few years after, in 1977, the first consensus conference was organised, although at that stage, the involvement of citizens was a less important characteristic than later on. Since then, citizens' juries and consensus conferences, together with other methods for citizen participation, have become established, standardised, imported and deployed in several countries and in relation to various kinds of issues.

The range of established methods for public deliberation, and the associated professionals and facilitators of dialogue that have emerged to their assistance, directs attention to the productive features of public participation. Government-led mechanisms for inviting the public, to deliberate upon often-controversial matters, are not merely tools for manipulation and legitimization. They also work productively in various ways in "assembling the subjects of citizen participation" (cf. Miller and Rose, 1997). Different genres of public participation methods will highlight different features of participation and deliberation and draw upon different conceptions of the public.

Social scientists now act as 'intermediaries' between governments and publics and it has been suggested, that, "greater attention should be given to these public intermediaries and spokespeople within public understanding of science research and practice" (Irwin, 2001: 15). One way of directing the attention to such intermediaries and their role is to look at distinct methods for generating qualitative deliberations: where and in relation to what problem were they once developed, how easy do they travel, what kind of expertise are connected to them, what function do they have and what conceptions of the public do they deploy? The following sections will analyse four methods: two methods that elicit input from citizens in the form of judgments and decisions (citizens' juries and consensus conferences), one that is developed especially for generating discussions and decisions about the future (scenario workshops), and finally one that elicit input from citizens in the form of opinions (focus groups). The chosen methods are obviously only a small section of existing 'participation methods'. We will use these four methods as illustrations of different approaches to mediation and how legitimate publics are mobilised through selection criteria and devices for facilitating discussions. The distinct ideas about legitimate publics and approaches to mediation that we in the following highlight in relation to each specific method varies in practice: they may be emphasised as

more or less important, and they may be mixed when the methods are designed and put in use in relation to specific problems. The first method we will present is the citizens' jury.

5.1 The citizens' jury

The citizens' jury was initiated and developed by political scientists at the Jefferson Center, Minneapolis, Minnesota. The Center was founded in 1974 and the same year the first citizens' jury was conducted on a national health care plan. The invention of the citizens' jury was part of the Center's proclaimed aim of doing research and development of new democratic processes, rather than reflecting on existing institutions.[1] Since then, the citizens' jury has been used as a method for involving citizens in discussions on a range of topics such as budget priorities, environmental issues and local school district facility needs. The method has been used in Germany, Denmark, Spain, Australia, and elsewhere, but most frequently it has been used in the UK (Dryzek and Tucker, 2007).

The Jefferson Center has the copyright on the trademark 'Citizens Jury', with legal standing in the United States, which means that permission is needed from the Center before a citizens' jury is conducted in the US. The Center presents itself as a non-profit, non-partisan organization and states that its aim is to "create and maintain a high quality method for engaging a microcosm of the public in the discussion of on public policy issues" and that "Its commitment is to empower the public in a fair and neutral setting".[2] The citizens' jury is similar to 'the planning cell' (*Planungszelle*), which was invented in Germany in the early 1970s. Both methods were introduced to the UK in the middle of the 1990s by the Institute for Public Policy Research in London.

The citizens' jury has become an established method for citizen participation. An example of its use can be seen in Prime Minister Gordon Brown's announcement in September 2007, to set the ground for a "new type of politics" in the UK, that would involve "citizens' juries, a nationwide citizens' summit and standing commission to tackle long term issues".[3] Citizens' juries, together with other elements in Brown's 'new type of politics', are assumed to assist in creating "a Government that reflects the whole of the national interests", and "a politics built on consensus, not division".[4] Whether the announced plan to increasingly use citizens' juries would actually improve public policy was however hotly debated in news media.[5]

The widespread use of citizens' juries make it relevant to investigate in more detail what particular version of 'the public' the citizens' jury assembles. The following sections will discuss the citizens' jury as a specific genre among other methods for public deliberations in policy making, assumptions about the 'subjects of citizen participation', and the specific arrangements needed in order to engage them. This analysis is mainly based upon the *Citizens Jury Handbook* (2004) offered by the Jefferson Center. First, the main elements of the method and the organisation of a citizens' jury are described and after this the analogy to the court jury, qualifications and characteristics of the juror, and jury deliberations are discussed in more detail.

5.1.1 Basic structure and organisation of the citizens' jury

The citizens' jury consist of 12-25 citizens, who are selected through a quota system, with the aim to reflect social varieties of a given population. The jurors are paid to attend hearings that run for four or five days. Initially the jury is faced with a 'charge' that should guide the deliberations. On the first day, the selected jurors are acquainted with each other and with the procedures, and are given background information on the topic for deliberations. On the following two or three days, information on the topic is presented to the jury by expert

witnesses from several points of view. A neutral moderator assists in facilitating the discussions, except for the final deliberations when the jurors alone reach their verdict in a closed room. Usually the decision on the verdict is reached through voting. When the jury has reached their verdict, they write a report, which is presented in public on the final day. When the jury's report is presented news media journalists are often presented and the audience have the possibility to ask questions about how the verdict was reached.

To produce an answer to the charge is the prior task for the jury and the main, or at least the most tangible result, of the entire process. How the charge is formulated will thus play a crucial role in shaping jury deliberations. The charge may be formulated as a question or a set of related questions. It may be formulated as a yes or no question, although it is emphasised that the arguments should be in focus when the jury present their verdict. According to the handbook the charge should be formulated in a way that makes the verdict useful for policy recommendations.

The final stages of the citizens' jury process include jury deliberations in order to reach a verdict (which happens either by vote or consensus, but usually by vote), documentation of the conclusions, presentation of the verdict in public, and the construction of a report. According to the handbook, the conclusions that were reached in jury deliberations should be written (or at least the wordings should be accepted) by the jurors.[6] Finally, the verdict is announced in public and the media is preferably present.

The idea with the citizens' jury is that deliberations among carefully selected citizens, exposed to information from a well-balanced group of expert witnesses for a few days, will lead to better decisions. According to Ned Crosby (1996: 161) who is the founder of the concept and of the Jefferson Center, the key point is the analogy of a jury, and the idea that 12 people who are "well informed" will make a better decision than hundreds or thousands of people who are "not well informed". The next section will discuss the jury analogy in more detail and what a "well-informed" citizenry means in this particular context.

5.1.2 The social arrangements for qualifying jurors and jury deliberations

The controlled space of the citizens' jury could be compared to that of the court: it is based on an adversary system in which advocates present opposing versions of the "same" events or the "same" issues, to be evaluated by a group of citizens, who by being composed as a jury is capable of a specific "vantage point" in sorting claims on factual matters. There are epistemic distinctions drawn in the court between "the adversary parties who enunciate arguments and counter-arguments, the judges and juries who decide the facts and allocate responsibilities, and the relatively disengaged commentators who report upon and analyse the action" (Lynch and McNally, 1999: 183-184). It is worth to explore these epistemic distinctions further, in order to examine what version of "the public" that the citizens' jury deploy.

According to Michael Lynch and Ruth McNally (1999: 184) the trial court "systematically highlights, elucidates, and frames the jury's 'common sense' vantage point". We argue that in the context of the citizens' jury, this vantage point is mediated through the selection of participants, various devices for fostering a certain kind of dialogue between jurors, and the epistemic distinction between neutral moderators (and jurors) and expert witnesses who are advocates for specific standpoints in relation to the charge.

The *selection process* is crucial for the kind of idealised citizenry the citizens' jury produces. In brief, the jury is put together by a group of randomly selected people, through a quota

system, which typically includes five demographic variables (age, gender, education, race and geographic location). A sixth variable is usually added, this may be another demographic variable, or it may be the attitudes of the jurors, related to the topic discussed. The ability to create a "representative microcosm" of a given community is emphasised as a unique feature of the citizens' jury.[7] In order to achieve this, the handbook offers guidance in how to select variables, conduct the survey and subsequent procedures such as tracking potential jurors and protecting the selection process against bias. Great faith in the selection procedures is expressed, in terms of the interchangeability of jurors and the ability to find "a perfect substitute" if a selected juror declines his or her seat.[8]

In the citizens' jury, *various devices* are used in order to shape and foster a certain kind of dialogue. The citizens' jury tries to foster collective deliberations rather than mere individual reflections, for instance by trying to get the jurors all thinking that "while they are individuals, they are also members of the same community".[9] The moderator plays an important role in instructing the jurors about their behaviour. The responsibilities of the moderator are to participate in the design of the agenda and the charge and to facilitate the dialogue. Facilitating includes "to help jurors to clarify and refine their statements without putting words in their mouths", to ensure that all participants feel respected, to keep track of time, to explain rules of procedures, to facilitate interaction between jurors and witnesses, to ensure no inappropriate lobbying is going on, to question experts if jurors are reluctant/unable to do so, to facilitate the interaction between the jurors themselves, which could mean to "restrain vocal jurors" and "bring out the ideas of the quiet jurors".[10]

The common sense vantage point of the jury can only be reached if there are some actors that can rest on a position of *value neutrality or epistemic purity*. This position is assumed for the moderator and other project staff, and the jurors themselves. The project staff of a citizens' jury is to ensure the integrity of the process. In order to do this, the project staff "must work exceptionally hard to keep their own personal opinions and views out of the process".[11] The moderator should have "a reputation for non-partisanship" and "an ability to be empathetic".[12]

Within the citizens' jury structure, an advisory committee is composed of either "wise and thoughtful' individuals" or "stakeholders or advocates".[13] The task for the advisory committee is to advice the project staff on the charge, agenda and witness list. Expert witnesses are chosen in order to get a balance between *advocates for specific standpoints* in relation to the charge.

The value neutrality of jurors is also assumed, since they are not supposed to presume from the outset that one or the other party is right. They are however also expected to make judgements over the witnesses' presentations and decide what aspects can be judged reasonable, plausible and credible. The epistemic purity of jurors is highlighted by the fact that jurors are expected to construct the case through the initial charge, together with the arguments and counter-arguments presented by the witnesses. It is seen as desirable, or obligatory even, that the organisers of the citizens' jury are able to keep control over the framing of the entire event, by not letting the final verdict be based on information that has not been expressed within the scope of the citizens' jury procedures: "a Citizens' Jury should not be allowed to reach conclusions on an issue if they have not heard testimony pertaining to the issue".[14]

In *Studies in Ethnomethodology* (1967) Harold Garfinkel describes the features of the jurors' activities as a special method of social inquiry. The rules of decision making that should to

shape jury deliberations make up an "official line", which jurors in practice can only deal with, with great ambiguity. The jurors' sorting of claims produces a "corpus of knowledge" that partly is formed chronologically and partly formed through empirical relationships (Garfinkel 1967: 107):

> This "corpus" is treated by the jurors at any given time as "the case". By "the case" is meant the logical mode of "actual" and is contrasted by jurors with the logical modes of "supposed", "possible", "fanciful", "hypothetical", and the like. The decisions to treat, say, claims of speed, directions of travel, and so on as parts of "the case" are, in the jurors' eyes, critical decisions. The decisions as to what "actually happened" provide jurors the grounds that they use in inferring the social support that they feel they are entitled to receive for the verdict they choose. The "corpus" permits them to infer the legitimacy of their expectation that they will be socially supported for their choice of verdict.

Thus, if the jury analogy is used consistently, the jurors' role in the citizens' jury is not to contribute with substantial input to 'the corpus of knowledge' but to sort it and make judgements about its trustworthiness. The idea of participants that are capable to deliberate from a specific vantage point because they are not advocates for a particular viewpoint, resembles John Rawls idea about rational deliberations under "a veil of ignorance". Deliberation will be rational, he argues, if it takes place in a setting in which participants are "deprived of information" that would make them advocates for particular interests and values, but in which they "have enough knowledge to rank the alternatives" (Rawls, 1999: 123). In the citizens' jury the knowledge which is sufficient for ranking alternatives is provided to the jurors by the witnesses, and the "local credibility" that jurors ascribe to "argument, demonstration and persuasive appeal" (Lynch and McNally, 1999: 183) presented at the hearings will depend on how science is presented in particular cases (ibid: 187). The citizens' jury is thus relying on both dialogue (because it opens up for negotiations of what counts as evidence and trustworthy science) and demonstration.

The next method we will discuss is the consensus conference. Similar to the citizen's jury, the jury analogy can be used in order to discuss certain elements of the method. What we would like to add in the following discussion is that methods for public participation may draw on combinations of elements of various decision-making structures and the consensus conference is a good example for illustrating this.

5.2 The consensus conference

The first *consensus conference* was conducted in 1977, and it was organised by the US National Institutes of Health (NIH) on the topic breast cancer screening.[15] It was a controversial topic and there was disagreement whether the values of screening countered the risks involved in being exposed to the radiation. In order to discuss this issue, a panel was put together that included researchers, health care providers, methodologists and a public representative. Deliberations took place both in closed rooms and in public. After this the NIH conducted several consensus conferences, also termed consensus development conferences. Their function has been compared with the peer review system (Kalberer, 1985). The consensus conference brought together scientists, practitioners, and consumers to deliberate on controversial issues.

The consensus panel considered a specific set of the pre-posed questions in an open forum, where all sides of the issue were explored. The panel report was termed a "consensus statement" and this was widely disseminated to all interested parties. The idea behind this type of consensus conference was that it could foster "the production of sound recommendations that are likely to receive wide acceptance" (Kalberer 1985:64). The input

from the consumer panellists and participants was important because it could entail issues that "would have been missing had the deliberations been confined to scientists and physicians" (Kalberer, 1985: 69).

Participation and deliberation was an important feature of the NIH consensus conference, but the involvement of lay people was limited (or non-existent). It was not until a Danish version of the consensus conference was developed that the involvement of citizens/lay people became the primary feature of the method. It is the Danish-style consensus conference that is now frequently referred to and used worldwide. Consensus conferences in the area of medical controversies following the "US-style" had been conducted in Denmark since 1983. Consensus conferences on technology issues developed parallel to the medical ones, and in a different regime (Horst and Horst, 1996). The background to the import of the method to the technology policy area was the current critical debate about contemporary technology developments in Denmark and demands from leftwing parties and social movements for more public involvement in technology discussions.[16]

In 1985 a parliamentary decision was made by a leftwing majority (against the position held by the conservative Government, who was in minority) to establish the Technology Board/Teknologinaevnen. The big role model for the Danish Technology Board was the Office of Technology Assessment (OTA), set up by the US congress in 1972. In the 1980's many European countries followed the example of OTA, which led to the establishment of new institutions and methods for technology assessments all over Europe (Joss, 1998: 15). In the middle of the 1970's OTA had made clear that "technology assessment without participation was hardly viable". Participation was also a key issue when institutions for technology assessment were set up in Europe (ibid: 18). Almost simultaneously as this decision was adopted in the parliament, the Danish Research Council for social sciences came up with an initiative termed 'Technology and Society'. The initiative was organised as a single-man secretariat, and the man employed was Bo Carstens, an economist, who had previously worked in the ministry of finance. Within the Technology and Society initiative, Carstens was working closely in cooperation with a subcommittee, encompassing social scientists as well as people with previous experience from medical consensus conferences. From the people with these experiences the idea came up that consensus conferences might also be used for broader policy issues. In March 1986 the Technology and Society initiative resulted in a conference on the topic of hybrid network technology and this was the first time the consensus conference methodology was used for wider issues of technology and society. Later on the same year, when the Technology Board was set up, Bo Carstens became its general secretary.[17]

The idea behind the 1986 consensus conference on hybrid network technology was that it should stimulate an informative discussion on the use and need for the technology and that it should involve people other than technical experts. The people that were involved were 'elite' discussants of sorts, in the sense that one of them was an author, another one editor in chief for a newspaper etc. They were not, however, experts on the subject for discussion, and that was the reason they were invited as participants with the task to critically interrogate a panel of technical experts.[18]

The conference on hybrid network technology was according to Bo Carstens a success, in terms of how it informed the wider debate:[19]

> When I said success I meant that it made an impact on the debate, the mass media, and the way they discussed legislation in the parliament. You couldn't say that we arrived at conclusions A, B, and C, and

> then the parliament made laws according to our proposals. That is not how it works. But it led to greater awareness of the problems, and inspiration for the discussions. It was very important in the Teknologinaevnen [the Technology Board] to make sure that society and important parts of society, regarded us as fair and balanced, at the same time as they saw us as somebody who came up with results and made interesting things. Because a lot of people, including the government, preferred to just close us down. So we had to prove that it was a good idea to work like this.

In 1987 the Technology Board arranged a consensus conference on the topic of biotechnology and this time randomly selected lay people were involved. This is the conference most often referred to as the 'first Danish-styled consensus conference' because it entailed a lay-panel (more on this below). When the Danish Board of Technology (DBT) was founded in 1995, it replaced the Technology Board, and since then it has continued to work with the method. The conference on biotechnology was, according to Carstens, even more successful than the 1986-conference on hybrid networks: it mattered that the Technology Board was established, even if it did not yet have a permanent standing, that it was associated with a committee in the parliament and that there were politicians interested in technology issues. Although, the Technology Board initially faced a delicate situation of being seen as an "anti-technology leftwing construction" and had to balance between being supportive to social movement organisations and debate and "acting in a way that was accepted as a fair and balanced way of doing things". [20]

The DBT is tasked with the promotion of the ongoing discussion about technology, to evaluate technology and to advise the Danish parliament (the Folketing) and other governmental bodies on technology and society matters. DBT has similar aims as its predecessor, the Technology Board/Teknologinaevnen, but has legal standing in that the Danish parliament established it as an independent body. DBT receives an annual subsidy of around 10 million DKK (approx. 1,3 million Euro) and it submits an annual report to the parliament and the government.[21]

The DBT has thus become an established body within the Danish political system. The element that was imported to the Danish-style consensus conference, from the US-style medical consensus conferences was the idea of having two panels – one panel with experts and one panel who critically question the experts. Apart from adopting this feature, there is little connection between the type of consensus conferences that were held by the NIH, and the ones that were held by the DBT (and as noted earlier these two types were running parallel and in different regimes, in Denmark during the 1990's). It was not a matter of translating the same concept into a Danish context, but rather a source of inspiration and the import of an idea into a new concept. Today the Danish-style consensus conference has been widely copied, and more than 20 countries worldwide have used the method for discussions on science and technology policy.[22]

5.2.1 Basic structure and organisation of the consensus conference

According to the DBT the consensus conference "is a method which involves citizens and gives them the central role in assessing a technological problem or problem area".[23] The main feature of the consensus conference is the citizen panel, which consists of 14-16 citizens, selected from an initial random sample to achieve balance in social characteristics (age, gender, employment and geographical location). In the selection process consideration is also given to attitudinal questions. Citizens selected to the panel should be "open-minded in relation to the conference topic" and "interested in debating the issue".[24]

The planning of a consensus conference takes several years, and involved in this phase is both a team from the DBT, consisting of a project manager, project assistant and project secretary. This team collaborates with a planning group, which consists of people who are appointed in relation to the topic for the conference. The members of the planning group are "professionally distinguished" and should reflect a balanced representation of interests, expert opinions and knowledge. The planning group decides upon introductory material, conference programme, experts to the expert conference panel etc.[25]

When the planning stage is over and the citizen panel selected, the consensus conference begins, starting with an introductory phase. This means that introductory material is handed over to citizens selected for the panel. This material should be "nuanced, balanced and versatile knowledge".[26] With the help of this introductory material, and two preparatory weekend sessions the citizens' panel becomes familiar with the topic, and based on this knowledge the panel formulates relevant themes and questions.

The next phase is the four-day conference. On the first day the experts answer the questions that were posed in advance by the lay panel. On the second day, the lay panel asks the experts to elaborate on their answers and statements. This part of the conference is public and the audience is allowed to pose questions. The lay panel meets at noon on this second day and starts to discuss among themselves. This means that the deliberative process among the lay panellists has started, which aims for consensus and which should finally be written down in a report, including policy recommendations. This phase continues during the third day and does not end until the lay panel has reached consensus over the document. On the fourth and final day, the lay panel presents their conclusions to the conference participants, including the expert witnesses, who can all pose questions. The conference ends with a debate involving everyone present: the lay panel, experts, politicians, the audience and the press.

In comparison to the citizens' jury, the consensus conference is a genre of public participation methods that assigns a more active role to the lay panel in framing the deliberations. While it is the project staff together with experts who formulate the charge in the citizens' jury, in the consensus conference it is the lay panellists themselves who formulate the questions to be posed to experts. As stated above, it is a method, that similarly to the citizen's jury, builds upon the idea of the juridical process in which evidence is put forward by advocates (expert witnesses), to be judged and evaluated by a panel of carefully selected citizens. In addition, other ideas or analogies to existing decision-making structures are highlighted in the consensus conference and that is the idea of "the peer review system" and the public "town meeting" (Jørgensen, 1995: 18).

The idea of an extended peer review was the main structure that the US-style consensus conference, was based upon. The idea was that different types of expertise could inform discussions on controversial topics. With the involvement of practitioners, important aspects could be included that would have been overlooked if deliberations had taken place only among scientists and physicians. When this model is altered so as to include a lay panel, as in the Danish-style consensus conference, ideas about the substantial contribution of lay people are built into the model. This means that citizens are involved in a different sense than as an idealised citizenry with a 'common sense' vantage point. The US-style consensus conference generated deliberations in which experts were under scrutiny of other experts (consumers, practitioners etc.), and the Danish-style consensus conference highlights that "lay people" represents yet another important form of expertise (how the Danish Board of Technology understands lay expertise will be explained in the next section).

The third type of decision-making structure that the Danish-style consensus conference draws upon is that of the public meeting, and ideas about the participation of free and equal citizens (ibid). This means yet another set of ideas: deliberations is not confined to judging the credibility of expert witnesses in the closed room of a jury, or an extended peer review system but opened up to wider debates of societal problems, with the aim to find legitimate solutions to them. Public deliberations are supposed to generate consensus about the common good, and this is an aspect that neither the jury analogy nor the analogy to the peer review system captures.

This combination of ideas and elements taken from different types/models of decision-making structures, in the consensus conference, makes a particular social arrangement for how citizens are mobilised and involved in discussions on new technology.

5.2.2 Social arrangements for the formation of consensus

Deliberations among citizens in the consensus conference should aim towards consensus. It is stated in the general description of the method offered by the DBT that deliberations do not end until the lay panel has reached consensus. It has been suggested that the meaning of "consensus" in the Danish-style consensus conference is not the same as the absence of disagreement, rather it is a particular political and ideological formation based on ideas about how to reach decisions that reflects the common good (Irwin and Horst, 2007). The Danish version of consensus also exhibits a particular view of the citizens or the "lay people", as relevant experts, contributing substantially to an extended peer review system, and as members of a wider society and capable of being involved in discussions aiming to reach consensus on the common good.

It is assumed that the "emotional and experience-based views of 'ordinary people' is important in the decision making process and in order to cover aspects that experts, politicians and interested parties may have overlooked. Another purpose, which the DBT explicitly associates with the consensus conference, is its ability to expand and enrich the scope of traditional debate.[27]

As noted above, the element that the Danish-style consensus conference adopted from the US-style conference was the idea with two panels, one with experts and one panel that would critically interrogate the experts. The difference was that the interrogating panel was not composed by other professionals as in the US-style conference, but by lay people. Ida-Elisabeth Andersen, who has worked at the DBT since 1988 explicates the philosophy behind the involvement of lay people: [28]

> They are citizens – they should be compared with politicians in the respect that they are supposed to find the common good together – on the other hand, when the process is over, they are often more qualified to make a decision than most politicians. We do not imagine that they are an average of the population with an innocent view of the world, but we imagine that they together embrace differences and manifoldness and a spectrum. As philosophers say, there are 20 arguments in a conflict, and that is what they are assumed to cover. That is our idea, not that they are representative as such, but that they are representing variety.

The selection process should ensure that a variety is represented. The citizen's panel should consist of citizens, which vary in terms of age, gender, employment and geographical location. Moreover they should be "open-minded" in relation to the topic and "interested in debating" the issue. It is stated however that most important is that they represent a broad

experience base in relation to the topic.[29] The dual ambition to keep the citizen panel neutral (which means that those citizens' who are not "open-minded", are excluded in the recruitment process) while at the same time engaging citizens who represent a broad experience base reflects the combination of different decision-making ideas in the consensus conference. Even though the balancing between these goals will most likely differ in concrete examples, the epistemic distinction between a lay panel and expert witnesses, and thus the "jury analogy" is crucial for the structure of the consensus conference. It should be pointed out though, that both the citizens' jury and consensus conference, "stage a more complex politics of expertise than do most juridical settings" (Blok, 2007: 164f), and allow for a multiplicity of perspectives, "rather than a simple duality of 'for' or 'against'" (ibid).

What has underpinned the work of the DBT from the beginning is the idea of "independent" information and knowledge of new technology, and this was also the reason the Board of Technology was set up:[30]

> The Board of Technology was established at the end of the 1980's because the parliament (folketinget) wished to have more independent evaluations, and information on new technology. Therefore independence has always been an important value in our work, also in the work we now do in relation to the parliament.

Each year a procedure that involves a range of actors (NGOs etc.) results in a list of possible topics that are later on ranked according to certain criteria. These criteria are whether the suggested topic concerns technology; if it conceives a problem; if it is of current relevance; whether it is interesting, i.e. if there is a clear target group; and whether it is a task for the DBT or if some other actors are dealing with the question. Today the DBT choose five topics to focus on for the next year (due to budget restrictions, before they had a budget that could include ten topics). A shrinking budget means that the DBT does not work as much with consensus conferences as they used to.[31]

The DBT over the recent years has suffered yearly cuts in their budget. However, as noted above, its role and relation to the Danish parliament is institutionalised in legislation. This status in relation to the parliament is one of the main features of the Danish-style consensus conference. This does not mean that politicians always listen to the recommendation that is the result from a consensus conference, but it is the idea of policy recommendations that lies behind the overarching goal to reach consensus:[32]

> It is all about finding the point at which participants can agree, how far one can reach…When we emphasise consensus, it is because of the political effects it may have. If the panel comes out with two or three standpoints, the politicians can choose what ever they want. Of course they do that anyway, but this is the reason why the panel should reach consensus.

What make the Danish-style consensus conference a distinct genre of participation methods is not only its emphasis on consensus, but a particular version of consensus thinking that is embedded in the social and political culture. For this reason a feature that is unique for the Danish-style consensus conference special is its institutionalisation in Danish society and its (DBT's) legal standing in relation to the parliament. This can be related to ideas of "folkelig" (eg. 'popular' in a positive sense of being embedded within a wider collective) and nation building (Irwin and Horst, 2007).

Irwin and Horst (2007: 11) relates the involvement of lay people in the work of the DBT to a set of political and cultural ideas. One of these ideas is scepticism towards a one-dimensional biased of experts and elite knowledge and "the sense of the 'common man' as the locus for

viable solutions in the community". Lay people are thus seen as the only actors who can adopt the perspective of the whole community. Further, this also reflects a strong political belief in the common good and commitment to building a shared national culture.

The "lay person" is according to the DBT, not seen as disinterested or innocent of issues, but as possessing embodied knowledge about the practical world. Yet, the distinction between experts and lay people structures the entire event, and there is an ambition to screen out "hidden experts" among citizen panel applications (Bruun Jensen, 2005: 226, in Blok, 2007: 179). According to Anders Blok (2007: 173), the structuring of consensus conferences can be compared with Latour's "Modern Constitution", the separation of science from politics, knowledge from power and facts from values. The epistemic distinction between advocates, neutral project staff and moderators, as well as a group of citizens deliberating from the vantage point of being citizens capable of sorting factual claims that we discussed in connection to the citizens' jury is thus highly relevant also for the structuring of the consensus conference. What can be added is the underlying assumption that Alan Irwin and Maja Horst (2007) have pointed out, of the layperson as being able to tap in to a wider sense of community, and that this is an element of citizen participation that is highlighted in the Danish-style of consensus conference.

5.3 Scenario workshops

The DBT has been crucial for the development and spread of consensus conferences. The DBT has also developed the method *scenario workshops*. Similar to the two previous methods it is a method that elicits judgments and decisions; what makes it a distinct genre of public participation methods is that it is developed especially to foster discussions about the future.

In the beginning of the 1990's the Technology Board (eg. the predecessor to the DBT) was encouraged to work more coherently and with continuity. The result was that three themes were identified and became the themes for more coherent and long-term projects: ecological housing, future work and traffic. It was in relation to these themes that the scenario workshop method was developed. The inspiration came from *future workshops*, a method developed and used by Robert Jungk in Austria during the 1950's and onwards. Robert Jungk and Norbert Müllert (1984), the authors of a handbook in how to conduct future workshops (or zukunftswerkstätten) describe democracy as building on citizens' images and visions of the future, since long-term planning affects the conditions of life for all. The phrase "the future belongs to all" (Jungk and Müllert, 1984: 13) captures the motives behind future workshops and the view that it is problematic if there are no fora available for democratic discussions about what kind of futures citizens' want.

Robert Jungk's ideas were influenced by the peace movement and anti-nuclear activism. He was interested in setting citizens' initiatives in motion, and at the outset of his work with future workshops he did not want to formulate rules for best practice, but wanted to keep the bottom-up perspective as far as possible (Jungk's preface to the Danish translation of *Future Workshops,* 1984). The philosophical roots behind future workshops/scenario workshops are thus quite different from the ideas that nourished the development of new methods for solving conflicts around medical sciences (eg. the US-style consensus conferences).

With inspiration from the Austrian future workshops, the DBT developed the method and added the element of predefined scenarios, which citizens' would reflect upon and criticise (more on scenarios below). Ida-Elisabeth Andersen at DBT, who developed the method, had

been studying Jungk's work and used it in the early 1980's in her previous profession as a teacher at universities as well as at a youth school:[33]

> He was terribly exciting and received great attention here in Denmark during the 1980s…I brought the ideas with me to DBT. When we got the theme on future ecological housing, we all agreed that future workshops were very exciting. We wanted the philosophy to be based on Jungk's ideas: that *if* something were to happen, if changes were to come about, then citizens must be involved, they have to want it themselves. Therefore it was this kind of method we needed. At the same time, at the DBT, we have to focus on technology, and it is not a given that technology becomes a main feature when you look at housing. So that is why the scenarios were added, to make sure we would stimulate discussions that would focus on technology…among the principles we wanted to adopt was the principle of 'equal standing', that all participated on equal terms.

The first scenario workshop, on ecological housing, was conducted in 1993. The year after, in 1994 the European Commission, which had increasingly started to show an interest in public participation methods, invited the DBT and other organisations specialised in different kinds of methods to the Commission. On the basis of this meeting the Commission was to choose a few methods that would be adopted in pilot projects. The DBT presented consensus conferences and scenario workshops. The scenario workshop was one of the methods chosen, and pilot projects were conducted in four countries (the UK, Germany, France and the Netherlands). The aim with the pilot projects was to test the method's robustness, and whether it could be translated into other contexts and people than Denmark and the Danes. Andersen was involved in the pilot projects and for instance trained people who were to conduct the workshops.

Due to EU funded projects supporting and assisting on the use of the method, the scenario workshop subsequently reached the status of being an established and frequently practiced method. It has been used in several countries all over Europe and under the term "European Awareness Scenario Workshop, it is the only method developed at the DBT that has become a registered trademark.[34] Although the status of being a trademark may have little (or no) significance in practice, it marks a shift from the earlier ideas around future workshops expressed and practiced from an activist perspective and towards a standardised method upheld by the European Commission as a tool that supports sustainable development and innovation.[35] According to Andersen, a trademark or not is unimportant as DBT has no interest in protecting the method, since its philosophy has always been to leave its own methods open, to be practiced and developed by others.[36]

5.3.1 Basic structure and organisation of scenario workshops

The scenario workshop gathers 25-30 people "with different roles in the local community": politicians, civil servants, technical experts, investors, businessmen, citizens and local associations.[37] It is structured around three phases: a critical analysis phase, a visionary phase and an implementation phase. The workshop lasts for two or three days and it alternates between plenum sessions and group work. The overarching goal is that participants should work together in formulating an action plan and the three phases structure this work.

In the critical analysis phase the task is to criticise predefined scenarios of the future technological development in the area. The scenarios do not represent predictions, but are to be seen as visions about possible scenarios. Which of the scenarios are most desirable or probable is not relevant, but they are supposed to generate new visions and action proposals.

In the visionary phase the participants use knowledge gained from the first phase in order to develop visions for future development. This is done in smaller groups gathered around

specific themes. Elements from the scenarios as well as new elements can be used in the work of putting together visions about the future.

In the third phase the task is to transform the visions to reality. The theme groups suggest how their visions can be implemented, taking a number of barriers (political, economic, cultural etc.) into consideration. These suggestions are discussed in plenum in order to develop action plans.

According to the DBT, the scenario workshop method should be used on broad topics and focus on the assessment of and choice between different types of technology.[38] A scenario workshop can be held as a stand-alone event, but DBT recommends that several scenario workshops are conducted. These can either take the form of independent workshops about the same topic, featuring different scenarios, or the form of several workshops in which the scenarios are gradually developed based on the work of the participants and where the same participants take part in several workshops.[39] About the suitability and the expected results of scenario workshops the DBT writes:[40]

> The scope of the topic must not be too narrow and should focus on the assessment of and choice between different types of technology. It is also important that the topic affords participants the possibility for action, i.e. that they can bring their influence to bear and that all the decisions have not already been taken. It must be a topic of social relevance and where there is a lack of consensus about the need for local action. The exchange of technical insight and user experience must lead to the creation of new knowledge.

Compared to the previously discussed methods – the citizens' jury and the consensus conference – the selection process is different. Since the objective is to gather people representing a variety of expertise, rather than a 'idealized citizenry' it is not based on random selection, but on a snowball technique and networking. When the first scenario workshop was conducted, the selection process went through different stages. First there was a need to find municipalities that did not only want to participate, but which also had the attitude that this was important and that concrete viable plans would come out of it. When the DBT had four municipalities that had expressed this will it received names of other local actors from the contact persons (local politicians) in these municipalities.

Before the participants are gathered in the scenario workshops there is a lot of preparatory work involved in formulating the scenarios. As stated earlier, the scenarios are predefined and offered to the participants as stimuli for generating discussions on the future development of the topic that the scenario workshop is organised around. The scenarios for the first workshop was developed first by staff at the DBT and it followed two dimensions: 1) high versus low use of technology and 2) individual/market versus collective/state solutions and actors. The DBT had gathered a "background group", consisting of experts from different fields and disciplines, who commented upon and criticised draft versions of the scenarios:[41]

> We received comments that ensured that the scenarios were not one-sided/biased… It is important that the scenarios are plausible and that they reflect different values, and that they are realistic. It should be possible to imagine that this is how it could be like…

While selection criteria of participants (in the expert panels as well as citizen panels) is put forward as one of the most important features of the preparations before conducting citizens' juries and consensus conference, the construction of the stimulus material – the scenarios – is emphasised as the most important feature of the scenario workshop. In the following we will discuss this more in detail as well as other differences and similarities between the methods.

5.3.2 Generating discussions about the future

Compared to the citizens' jury and the consensus conference, it is a different version of the citizen that is mobilised in the scenario workshop. It is not an idealised citizenry with a common sense vantage point, but citizens are involved as a group of actors among other groups. Further, it is a citizen who is supposed to contribute with knowledge, and not only to sort the knowledge claims of experts:[42]

> The experiences and vision of all the actors contribute to the proposals and plans of actions resulting from the workshop. All groups contribute with their knowledge and experiences from local activities, for instance as local residents, business people and so on. They can all be regarded and defined as experts, because local experience and knowledge is a crucial factor in this locally oriented method.

Similar to the previous methods it is organised so as to elicit decisions from a group of citizens, but in this case these are joint decisions between different kinds of expertise (local residents, technical expertise etc.) instead of decisions taken by citizens on the credibility of and experts. While the citizens engaged in the consensus conference and the citizens' jury are expected to make judgements on the credibility of expert witnesses, the participants in the scenario workshop are not expected to judge neither the credibility nor the desirability or probability of the presented scenarios.

The recruitment of participants, as described earlier, is based on the idea that all participants represent different types of expertise and all are expected to be involved in critical discussions over the pre-defined scenarios, the development if them, as well as in the making of an action plan for how to make imagined futures real. This is a very different structure from the citizens' jury and the consensus conference, which build on a division of expert witnesses and a citizen panel/jury. Another crucial difference is the use of scenarios as a device for stimulating deliberations, compared to the devices used in the other methods: "the charge", "introductory material" and "expert/advocate presentations".

What we would like to emphasise in our discussion of scenario workshops as a method for generating qualitative deliberations, is the role of scenarios as a particular sort of stimulus material presented to the participants and that the method involves "anticipatory knowledge practices" (Anderson, 2007).

Ben Anderson (2007: 158) distinguishes between different types of anticipatory knowledge practices relying on different skills and techniques, with different logics and rationalities and which "produce different epistemic objects through which future possibilities and potentialities are disclosed, objectified, communicated and rendered mobile (such as scenarios, trends, forecasts, predictions, signals, plans and roadmaps)". Anderson discusses the connection between anticipatory knowledge practices and "affect", which may be connected to both threats and opportunities.

Anticipatory knowledge practices may accumulate hopes or fears and by this create "affective facts" which become explicit objects to be governed. Examples of this can be seen in "optimism index" and "optimism ratio" for levels of optimism for nanotechnology, included in the 2006 Eurobarometer survey (ibid: 161).

Scenarios can according to Anderson be seen as epistemic objects and attempts to establish reasonableness of hopes that are accumulated in certain technologies. Since scenarios are not predictive devices their main function is "stimulating and disciplining imagination" (Kahn,

1962: 145 in Anderson, 2007: 162). Scenarios are thus devices that are ordering one's perceptions about alternative future environments and they "enable the actualization of possibilities that can then be subject to action" (Anderson, 2007: 163).

That the scenarios presented within the context of the scenario workshop are different from for example predictive devices can be seen in how they are presented. For example, in a scenario workshop on climate change conducted by the DBT in 2004, the scenarios were built around imaginary interviews held 100 years from now. The purpose of these scenarios was "to clarify the advantages and disadvantages of various future strategies and to inspire a local debate about a future where the oceans are a half meter higher" (DBT, 2004: 2).

In the presentation of the scenarios used for the workshop on climate change it is stated, that: "The consequences of the different strategies in the scenarios should not be regarded as scientific truths, but rather as qualified guesses to developments which include a great many uncertainties" (ibid). The hopes and fears that are made reasonable when they are embedded in anticipatory epistemic objects such as scenarios are framing the deliberations that take place at the scenario workshop.

The scenario workshop has also been described, as opposed to citizens' juries and consensus conferences and similar methods, as a tool for "positive technology assessment". The scenario workshop do not start from controversial and complex technology or science, but from a description of "malfunctions in society" and function so as to generate "positive discussions about technology" and how technology development could be used as a remedy to some problems.[43]

The next section will discuss our last method for generating qualitative discussions among citizens: focus group methodology.

5.4 Focus group methodology

Focus group methodology is different from the three previous tools, in that it is not primarily a method for eliciting judgements and decisions, but one for doing research on the public and to elicit opinions. The methodology has its origins in the type of group interviews conducted at Columbia University in the 1930's in which participants were encouraged to speak more freely themselves (Morgan, 1998: 38). With the book *The Focused Interview* (Merton, Kendall and Fiske), which was published in 1956, these kinds of group interviews got their name 'focus groups'.

From the beginning of the 1950's until the 1980's the method was almost exclusively used in the context of market investigations. In marketing, there were actors who saw the usefulness of focus groups, and created areas for their application. For instance, if the selling of a product was decreasing, focus groups could be arranged in order to find an explanation. Market researchers spent 30 years of improving the method, and there was no sign of actors in spheres outside of marketing that were interested in using the method. (Morgan, 1998: 39). It was not until the middle of the 1980's that focus groups were used in a wider sense and in other settings than marketing.

Focus groups are now used within many disciplines of social science as well as in marketing. In particular it has been used in research on 'sensitive' issues such as the sexual behaviour in research on the spread of HIV (Morgan, 1996) and it has been described as ideal for risk related issues (Wynne et al., 1993: 26).

Even though focus group methodology is not primarily a tool for enhancing citizen participation, but a research technique, it has been stated that: "An important theme that reappears in many of these uses of focus groups is their ability to 'give a voice' to marginalized groups" (Morgan, 1996: 133). The focus group is designed, and the moderator trained, to create a situation in which everybody feels comfortable to speak as if they were having a 'natural' conversation. This distinction and balance between artificiality and naturalness has been described as one the focus group's main characteristics (Lezaun, 2007) and this makes the role of the moderator perhaps even more important than in our previous examples of the citizens' jury, the consensus conference, and the scenario workshop.

5.4.1 The basic design and organisation of focus group research

In short, the focus group means that a group of people (6 to 10 people) are gathered in a room for about two hours and are given the task to discuss among themselves a given topic. As focus group methodology has become wide spread there are several handbooks written on the topic and guidelines for how to design and conduct focus groups may differ. David L. Morgan (1998b: 10-13) describes focus group research as conducted through four basic steps: planning, recruiting, moderating and analysing and reporting.

Planning involves first and foremost, defining the purpose of the project and relating subsequent decisions during the whole process so that one reaches the project's goals. This involves the task of relating smaller decisions (timelines, resources, staff, recruiting etc.) to the "big-picture" issues.

Morgan describes recruiting as the most important aspect of the planning process. This involves defining the target population, defining segments within the target population, finding out an appropriate composition of each group, developing recruitment screening and invitation scripts, take initial contact with potential participants and to determine on procedures that will ensure that the recruited attend.

Moderating may differ from project to project, and part of the planning is to decide the role of the moderator and whether there is a need for multiple moderators. The moderator is usually involved in designing the focus group process, and this also involves developing questions for the discussion guide and other materials that will be used during focus group sessions. Thus the moderator's role thus usually expands beyond the two hours spent in leading group discussions.

Analysis and reporting, finally, involve the task of sorting, interpreting and summarising data while listening to the tape-recorded focus group discussions, and/or reading transcripts of these.

5.4.2 Social arrangements for generating opinions

The selection criteria in the citizens' jury were related to representativeness of a given population as well as the creation of an idealised citizenry or a microcosm, which ensured the epistemic distinction between advocates on the one hand and citizens able to sort claims from a "common sense vantage" point on the other. The consensus conference selected participants in the citizens' panel in order to ensure diversity, because this would ensure that all relevant arguments would be present. The design of focus groups, including selection criteria of participants in the groups, must always be related to the aim of the project and the research questions posed. Even though selection criteria may differ there are some "rules of thumb".

According to David L. Morgan (1997: 34) focus group projects most often: use homogeneous strangers as participants, rely on relatively structured interviews with high moderator involvement, have 6-10 participants per group, and have a total of three to five groups per project.

The usefulness of several focus groups, instead of one, is indicative for a significant difference between the role of the citizens that the citizens' jury and the consensus conference mobilise, and the group of individuals that are recruited to focus groups. If the aim is to create a citizenry with a 'common sense' vantage point or a certain ability to "tap into a wider sense of community" there is no need to convene other citizen's juries or panels to see what conclusions they come up with – that would render the selection procedures and designs that these methods are based upon completely useless.

Similarly, in a trial there would be little point in convening five juries to see what verdicts they all came up with. If a legal jury finds someone guilty, they *are* convicted, by definition. The jury system does not try to find out about the jurors, but about the accused, i.e. 'find' in a special legal sense, of 'finding' them guilty or innocent. The decisions that the citizen's jury and the consensus conference generate have the same "real" effect as the jury in a trial only if the policy recommendations they present are followed. This does not mean that the credibility that the jurors/citizens ascribed to the arguments and demonstrations made at the hearings is a definite statement of expert witnesses credibility, it is a "local credibility" that is ascribed to the presentation of "evidence" at the time for the hearings. Rather than convening several citizens' juries or panels at the same time, the logic to these methods makes it more relevant to convene a jury/panel after some time, if new or previously neglected "evidence" has come up.

In contrast to these "real" events (or rather, events with real effects) of judging the credibility of experts, the focus group is framed as an experiment – as bounded, safe simulations of publics to see what thoughts and opinions they would express on various topics in a "discussion that resembles a lively conversation among friends or neighbours" (Morgan, 1988: 22, in Lezaun, 2007). By making the analogy to the natural conversation focus groups methodology is based on the assumption that what participants express in the focus group is also what they would express outside the experiment, and what a real (imagined) public would express. This crucial difference from the other methods we so far have discussed can also be seen in the motivation of selection criteria when composing focus groups.

According to focus group handbooks, thinking about selection criteria, is important since the composition of the selected participants will affect the quality of deliberations. In the selection process "minimizing sample bias" is more important than achieving generalizability: "the shift away from an emphasis on generalizability also means a shift from random sampling toward theoretically motivated sampling" (Morgan, 1997: 35). A method for controlling the group composition so that it matches chosen categories of participants is known as segmentation, and aims to create homogeneity within the focus group. This homogeneity is assumed to facilitate "more free-flowing conversations among participants" and "analyses that examine differences in perspective between groups" (ibid: 35). The goal is however to reach homogeneity in background and not in attitudes. The background variables that are common are sex, race, age, and social class. The handbook reflects on why these variables are important in terms of how comfortable participants will feel in expressing their thoughts and experiences and for instance that people from the same age group might communicate better with each other: "it is not the actual differences among participants but

whether they perceive each other to be different that determines their willingness to discuss a topic together" (ibid: 36).

Similarly, the moderator's role is not to ensure for instance the epistemic distinction between advocates and a neutral disinterested position, but to ensure that participants speak freely about their views. The focus group might use a structured (and high moderator involvement) or less structured (and low moderator involvement) approach, the motives for the latter reads: "If the goal is to learn something new from the participants, then it is best to let them speak for themselves" and a less structured approach is to prefer (ibid: 40).

Low-moderator-involvement is usually of more interest for social science researchers. The advices given to low-moderator involvement groups are mainly about letting the group moderate themselves, by instructing the group initially on how to handle problems, for example, the moderator may initially say: "If the group runs out of things to say, just remember that what we're interested in is [research topic] and we want to hear as many things about this as possible" (ibid: 53) and emphasise that it is their experiences and stories that are important etc.

The focus group is mainly a method for doing research on the public, and deliberations aim to generate opinions, individual experiences and thoughts on a given topic. In the following the role of mediators, different versions of the public, and different approaches to demonstration and dialogue in relation to our four methods will be discussed.

5.5 Comparison and discussion

Since all four methods discussed have been used a long time and therefore could be expected to be distinctive enough so that it is possible to speak of each in generic terms, the application of the models can differ to significant degrees, leading to different constructions of the public and the topics opened up for discussion. Our approach of focusing mediation highlights the fluidity of these "genres" of public participation methods. The methods are often presented and evaluated as if each had its own niche for application, in practice however, the design, organisation, outcomes, etc. differs. A problem when, for example, the consensus conference is transported to other countries and political cultures is that the context in which the Danish-style consensus conference once was developed is overlooked. When used in other contexts there will be different versions of the lay people adopted and different types of interactions between experts and citizens may come about than what was initially intended. There is for instance a comparative study of consensus conferences conducted in different countries, in which it is argued that sometimes the rationale of demonstration have been more prominent than dialogue, as a result of another design and political culture than the Danish (see Dryzek and Tucker, 2007).

The methods change, as they travel from one organisation to another, some elements may be lost on the way and some remain, are altered and new ones are added. Mediators (organisations like the Danish Board of Technology, political or social scientists, consultants or other actors) specialised in public participation methods have a crucial role in initiating models and guidelines for how to target and engage relevant publics. Equally they have an important role in designing and conducting the methods, i.e. applying them in relation to particular projects and issues.

Our four methods have all initially developed in relation to a specific problem: a national health care plan (citizens' juries), scientific controversies around the risk of breast cancer

screening (consensus conferences), ecological housing (scenario workshops) or methodological problems of how to generate knowledge useful for research or marketing (focus groups). Through different routes, and first and foremost through people that have found an interest in the methods and have applied them in a new setting and in relation to new problems, they have spread and sometimes developed into something quite different from their 'original model'. There are efforts to protect the models from misuse, for instance by the registration of trademarks (citizens jury and scenario workshops). It is difficult to tell whether such efforts have any effects, but it is an indicator that some mediators of public participation methods at least have the ambition to standardise and perhaps by that enhance the status of 'their' method.

Expertise is connected to the methods in different ways. In consensus conferences and citizens' juries, experts play an important role as witnesses and are selected on the basis of their standpoint in relation to the topic for discussion. As noted in an earlier chapter of this report, presentations of science to the general public are often examples of demonstrations and are meant to convey unambiguous messages. On the contrary, in consensus conferences and citizens' juries, expertise connotes interests and particular standpoints and the task is to choose expert witnesses so that all viewpoints on a given topic is represented. The solution to the bias that Collins (1988:743) suggested, that the audience should be exposed to "demonstrations, of competing parties" is thus something that these methods are designed to do.

Another kind of expertise is the project staff – the experts on the processes – as mediators of the process, these experts play a crucial role in constructing neutrality, by assembling all elements together (demographically, and in terms of opinions, knowledges, etc) and in trying to avoid biases. Mediating is also the main task of moderators and facilitators of dialogue, the may be active in fostering a certain kind of dialogue and shaping the behaviour of participants, or they may "teach" participants to moderate themselves.

Mediators may be social scientists, who design a research project, and put together focus groups, to be transcribed and analysed by the social scientists themselves. In other cases, for example in consensus conferences, when the reporting is done by participants in the citizens' panel, the role of the mediator may be to give initial instructions for how this may be done, or as in the case of citizens' juries, the mediators' role is to ensure that the participants agree with what is included in the report.

The four methods that we have discussed have different functions. While three of them (citizens' juries, consensus conferences, and scenario workshops) are designed so as to generate decisions, they do so in different ways. Publics may be assigned the role of 'sorting claims' or 'contributing with claims'. The main task for the citizens in the citizens' jury and the consensus conference is to sort the claims made by the expert witnesses. They have the function of generating judgements on the credibility of experts. These are "real events", meaning that the judgements they make are the local credibility that is ascribed to the expert witnesses' presentations at the time of the hearings. Whether the judgements and policy recommendations made by the citizen panel or jury will be followed of course depend on whether these methods are plugged into a decision-making process, but they are designed in a way that assumes that they are (or might be).

The scenario workshop is similar to the previously mentioned methods, since it is organised so as to elicit decisions. A difference is that in scenario workshops joint decisions are taken

by different kinds of expertise (local residents, technical expertise etc.) and not by citizens alone on the credibility of experts. Generating deliberations about the future also raises the question about whether discussions are about 'matters of facts' or 'matters of concern'. The scenarios that are used as stimulus material for making participants to think about the future directs participants to think in a certain way, and accumulates fears or hopes connected to the topics discussed. The scenario workshop is also designed to be plugged in to a decision making process, and the action plans formulated by the workshop participants accumulates the action possibilities among these participants. The focus group is in contrast to the other methods, framed as an experiment – as bounded, safe simulations of publics to see what thoughts and opinions a real (imagined) public would express on the topics discussed.

Method	*Where and in relation to what problem was the method once developed?*	*How and where has the method developed and spread?*	*What kind of expertise is connected to the methods (project staff/mediators)*	*What function does it have?*	*What conception of the public is assumed and mobilised?*
Citizens jury (CJ)	Jefferson Center organised the first CJ 1974 on a National Health care plan	Trademark of the Jefferson Center in the US; Practiced in several European countries, most in the UK	Expert witnesses (selected on the basis of the topic) Project staff/experts on process (formulating charge, moderating, writing report)	Generates decisions with real effect (local credibility of experts); policy recommendation	'mini-public' with a common sense vantage point
Consensus Conference (CC)	First US-style CC, conducted at NIH 1977 on breast cancer screening.	From medicine to technological issues 1986 First Danish-style CC at DBT, 1987, since then spread and practiced in over 20 countries all over the world	Expert witnesses (selected on the basis of the topic) Project staff/Experts on process (formulating background material, moderating)	Generates decisions with real effect (local credibility of experts); nation building; policy recommendation	'mini-public', with a common sense vantage point; ability to tap into a wider sense of community Active role (formulating questions, writing consensus statement)
Scenario Workshop (SW)	Inspired by future workshops which had been in use since the 1950's; First SW organised by DBT 1993 on ecological housing.	Trademark of the European Commission; practiced in several European countries, on 'sustainable cities'	Project staff/experts: formulating scenarios Multidisciplinary approach important	Generates decisions and accumulates action possibilities; action plan	Egalitarian working group consisting of a variety of experts (local, technical etc.)
Focus groups (FG)	Interview method in the 1950's	Marketing; finding out about consumers; From the 1980s and onwards established methodology in social sciences. Suitable for sensitive topics and ideal for 'risk issues'.	Project staff/experts on process: designing, selecting participants, moderating, analysing results	Experimental; tries to find out about what a 'real' public would think	Individuals selected with the aim to compose groups that feel comfortable together

As discussed in the previous sections of this report different approaches to mediation lead to different versions of the public. For example the idealised citizenry with a 'common sense' vantage point is relevant in both the citizens' jury and the consensus conference. These two methods are structured around expert and counter-experts that seek to justify their commitments in front of a "lay jury". This is similar to the kind of expertise that Wynne (1993: 328) has ascribed to citizens – that lay people could be seen as experts on evaluating the trustworthiness of expert knowledge and that they can contribute with a social meaning of expert knowledge "in the sense of its institutional dimensions". This also resembles the idea that the consensus conference is based on, and in some sense also the citizens' jury (because

of the aim and devices used to try to get the jurors to think they belong to the same community), is the idea of lay people as tapped into a wider community or nation.

From our analytical perspective it would be difficult, or impossible, to say that any of the methods are better for any particular types of questions. Of interest is rather to analyse the micro-politics of actual uses of these and other methods and how this links to wider socio-political structures, as Anders Blok (2007: 165) writes in an analysis of a consensus conference: "Such politics might be said to unfold in different stages, corresponding to an outside–inside–outside pattern, with wider sociopolitical influences being 'mediated' into the conference and then brought back out again via, for instance, media reporting ...knowledge about this macro context is necessary for understanding the micropolitics of expertise during the conference."

Such macro-politics may be accounted for in analysing for example how the charge in a citizens' jury, or the introductory material in a consensus conference, may be constrained by a particular programme and hence rationality. The following chapter uses the *GM Nation*, as a case that can illustrate the linkages between the macro-politics around GM crops and a public participation process that had a hybrid structure, mixing various modes of mediation and constructing different kinds of publics.

6. GM Nation – an example of a hybrid process with multiple modes, stages and scales

The *GM Nation* series of events in the UK in 2003 represent one of the largest participatory processes around disputed technologies in Europe. It had nearly 700 meetings and if measured by the amount of completed GM Nation questionnaires involved 36,557 participants. This was conducted in a moment of political crisis following several years of intense public controversy and mobilisation on the GMO issue and preceded the government's intention to make a decision on whether to allow commercial cultivation of the crops in the UK. *GM Nation* also reveals another category or genre for our study – one that involves a hybrid or baroque structure, mixing various modes and scales of public engagement and deliberation. These mixed modes can be said to invoke or enrol different modes of publicness. GM Nation also can illustrate the importance of historic context or conjuncture, revealing how deliberative fora and processes can play different roles and take on different forms depending on their context.

6.1 Origins of GM Nation and the relationship with the Farmscale Evaluations: demonstration and dialogue in the UK GMO case

Preparation for GM Nation began in late 2002, with the main processes running in 2003. The initiative for the debate came from the UK's Agriculture and Environment Biotechnology Commission (AEBC), a multistakeholder body. The AEBC itself was established due to a legitimacy crisis of the government's initial solely technocratic regime centred on the scientific advisory body ACRE to which the new body now ran in parallel. The new commission recommended a public debate in its 2001 report *Crops On Trial.* The strategic aim of this report was to block any attempt to use the results of a series of Farm Scale Evaluations (FSE's) as the trigger and sole route of legitimisation for a forthcoming government decision on the commercial cultivation of GM crops. The FSE's were an extensive series of large natural scientific demonstrations/experiments that played a central role in mediating the political controversy.

Thus 'the public' and its deliberations were brought in by the AEBC as a counterweight to technocratic modes based on a natural scientific experiment/demonstration. GM Nation can be seen as a shift to dialogue in a situation where the model of demonstration via the FSE's could no longer gain legitimacy. Yet the relationship between the two would remain problematic. Despite the ascendancy of the principle of dialogue, the FSE's continued to be the most powerful source of 'truth' for the government, thus maintaining the hegemony of technocratic modes. The initial assumption of the organisers of *GM Nation* was that this public forum would include deliberation on the FSE's and therefore also constitute some sort of 'extended peer review' situating the science in its broader social context and holding it to account (see Funtowicz and Ravetz's on 'post normal science' (1992))

However, the actual unfolding of events meant that *GM Nation* had to be concluded and present its final report to government before the publication of the FSE results. Thus the two were kept separate, as social and natural scientific 'information feeds' exclusively for the government to base its decisions on. Thus despite the publics of GM Nation bringing many hybrids of social and natural scientific knowledges to the discussions, the effect of this institutional separation was to subjectivise the public participation into 'public opinion' and 'values'. Thus like Latour's description of a 'modern constitution' with a separate 'house of nature' and a 'house of society' (2004), the UK GMO crisis was managed by an institutional bifurcation between two committees ACRE and the AEBC, the former drawing its authority from the natural scientific experiment/demonstration of the FSE's, the latter from the social experiment/demonstration of GM Nation. This separated 'facts' from 'values', with the public confined to expressing the latter while the former kept the epistemological prestige and 'constitutional' power in the government's decision making process.

The UK government had accepted the AEBC's advice calling for the debate in May 2002, announcing that there should be a 'national dialogue' on GM. The government asked the AEBC to recommend the form a debate should take. After much trading of documents and positions the eventual shape of GM Nation arose. The government then announced that a 'GM Dialogue' itself would be separated into three different strands – 1) a science review centred on experts (although this would attempt to be 'publicly driven', allowing public debate to set questions and also use a web interface and some public meetings/workshops, 2) an economic study conducted by the cabinet office, and 3) the public debate itself – GM Nation. Thus this 3 way separation and division of labour also implicitly laid borders around GM Nation. As we shall see in an examination of the management and mediation of information flows between the three strands, despite the intentions that the three should interact and inform each other, in practice they were kept separate, thus reinforcing the bifurcation between 'facts' and values' noted above.

A Public Debate *Steering Board* (PDSB) was formally launched in Sept 2002. The PDSB would be the most visible mediators and translators of the process – for example the PDSB would also eventually draw up the debates Final Report in 2003. AEBC Chair, Malcolm Grant was invited by the Secretary of State to also chair the steering board and appoint a membership that could gain public confidence and symbolise independence from the government. For example it included both a leading figure from the Five Year Freeze anti-GM coalition as well as from the industry body the 'Agricultural Biotechnology Council' (ABC), made up of six agrochemical multinational companies. Eight of its members were also commissioners from the AEBC, while two were co-opted from government departments.

At its first meeting the PDSB appointed a contractor to actually run the debate. Due to budgetary constraints and established subcontracting arrangements the government's agency called the Central Office of Information (CoI) was appointed, although this raised criticisms that public trust in the independence of the debate might be compromised. During this time there was also a dispute between the PDSB and the government over timescales and funding – with the government in Feb 2003 eventually agreeing to extend the timescales and double the funding to £500,000. Other important mediators of the process would be Corr Willbourn, a psychotherapy based consultancy and practitioners of group process who would design and run the foundation discussion workshops and the Narrow But Deep component.

6.2 Structure of GM Nation and engaged and abstract publics

GM Nation involved a hybrid or baroque structure, mixing various modes and scales of public engagement and deliberation – thus invoking or enrolling different modes of publicness. It involved a mixture of focus group style discussions amongst participants selected for broad demographic representativeness and attitudinal 'neutrality' and a larger scale series of public fora open to all interested members of the public. Thus there were: a) Nine foundation workshops along the lines of focus groups, b) The open public meetings organised into 3 'tiers' including i) 6 major 'national' meetings organised, mediated and structured by PDSB, ii) around 40 tier 2 meetings organised mainly by local government, and iii) an estimated 629 'tier 3' local meetings/ events organised by community and civil society groups. Tiers 2 and 3 were a more heterogeneous affair of varied format and quality. GM Nation also had c) Ten 'Narrow but deep' closed and mediated focus groups style events of pre- selected participants – to act as 'control' for the open meetings.

At the heart of controversies around *GM Nation* lies a tension between the modes of publicness elicited by the focus group style events (Foundation Workshops and 'Narrow but Deep') on the one hand and the open public meetings on the other. While the former elicits purified and abstract publics, the latter summons engaged or issue publics (Converse, 1964; Marres, 2005). A worry had been expressed by the organisers as well as by commentators from the media, government and industry that the open public fora would be or had been in some sense 'captured' by the already engaged sections of the public that constituted the existing widespread opposition to GMO's in society at large. Thus the focus group style component would act as a 'control' by carefully selecting participants and screening them for 'neutrality', as well as by paying attention to careful mediation and facilitation of these events. This reveals a 'construction of neutrality' or a 'purification' process generating an 'abstract public'. A 'pure public' is thus constructed according to its distance from the issue. There is a danger here that this 'pure public' can be used by powerful groups such as industry and government to articulate a supposed 'silent majority' to act as a counterweight to the manifest and self-articulated social opposition to the technology. It also disregards the epistemic and democratic value of the engaged publics, constituted by their relationship to the issue, and rooted in widespread socio-material networks around food, health, farming, wildlife and environment. However, the question could also be turned the other way up. Just as the 'purified publics' elicited by the closed focus style groups can be seen as a control on the 'engaged publics' of the open meetings, legitimating the exercise for some, so the opposite can also be true. Given the widespread atmosphere of mistrust in government, experts and industry that has contributed to the GMO crisis and other techno-political contestations, this mistrust can also spread to the experts of mediation and their technologies of elicitation such as the focus group. The very fact that a focus group is selected by what will inevitably be seen as 'government appointed' experts adds to this mistrust and raises questions as to its legitimacy, especially amongst those sections of the public engaged in the

issue and alienated from the government. This will become even more problematic if the focus groups or other deliberative fora such as citizens juries arrive at conclusions that may be construed as broadly supportive of controversial government programmes. Thus having open fora where any member of the public can turn up and 'have their say' can also be seen to act as a 'control' on the selected closed meetings. This in turn relates to the issue of scale, where a large amount of the public meetings such as in GM Nation can add to its legitimacy in contrast to the legitimation problems sometimes encountered by small selected samples in closed deliberations. Thus the two modes of publicness elicited by the GM Nation process can help to supplement each other. However, this also lays emphasis on the question of the mediation and translation quality between these fora (Horlick-Jones et al., 2007) a question we will examine in more detail in the next sections.

6.3 Detailed examination of the mediation of GM Nation

The Foundation Discussion Workshops (FDW): Nine of these were conducted; eight amongst the 'general public' and a ninth was from amongst participants actively involved in opposing or supporting the new technology. Those selected for the 'general public' workshops were screened to exclude anyone who indicated a previous interest or engagement in the GM issue in order to construct neutrality. Each of these workshops lasted for three hours, had two facilitators and comprised of 18 – 20 participants. Thus these workshops were significantly larger than the standard focus group format. Attendees for the eight 'general public' workshops were selected to represent four broad lifestage and two broad socio-economic groupings (these latter were categorised according to the standard social science/ marketing A-E social class categorisation). See table below:

TABLE 1: The Sample

Teenagers 15 –18 years	Girls, 15 – 16, ABC1 Manchester	Boys, 17 – 18, C1C2DE Ludlow
Young Singles 20 – 27 years	ABC1 London	C1C2DE Reading
Young families and couples 28 – 40 years	C1C2DE Belfast/Co. Down	ABC1 Edinburgh
Older families and empty nesters 41 – 75 years	ABC1, 41 – 54 Bromsgrove	C1C2DE, 55 – 75 Ruthin
Actively Involved	Norwich	

Table from Corr Willbourn, 2003a.

The workshops were carried out by the contacted private consultancy Corr Willbourn, (David Corr and Hugh Willbourn, who have backgrounds in psychotherapy) and were designed and conducted according to a set of methods they describe as 'phenomenological and process-oriented qualitative research' derived from Heideggerian phenomenology and the Process Work of Arnold Mindell (Corr Willbourn, 2003a). They claim this approach allows participants to 'engage with the topic(s) of discussion with the minimum of prior framing by the researchers' (ibid). They also emphasise their use of 'Clean language' (from field of applied cognitive linguistics) to form the bedrock of the question generation process in order

‘to avoid, as far as is possible, inherent framing and bias’(ibid). The workshop structure is supposed to be fluid, with participants given sense of ‘ownership of process’ and its structure, with their concerns and interests followed to guide subsequent questions, exercises and interventions. Furthermore, Corr Willbourn claim that ‘workshops are conducted using processes and tasks in a naturalistic way, such that participants can engage without having to adopt ways of being that are alien to them’ (Corr Willbourn, 2003a). Finally, the organisers claim to have facilitated the workshops guided by the client-centered counselling and psychotherapy model of Rogerian practice to give ‘unconditional positive regard to all modes of expression and all content’.

Thus when recruited, the general public sample were not informed of the specific research agenda or topic of GM foods, only that it concerned ’food and farming’ and the workshops began with what the organisers describe as a ’simple and open question’. This was ‘What has caught your attention recently?’. Corr and Willbourn report that the participants ‘simply responded in a free-association like manner’ with answers ranging from chocolate, the industrial action in the Fire Service, the Middle East conflicts, Iraq, UK house prices etc. This was taken to demonstrate the lack of ‘contamination’ by the researcher’s agenda and the pre-existing significance/insignificance of the GM conflict in the participants’ everyday concerns. The next move was to introduce the concept of GM and note the participant’s ‘spontaneous awareness and understandings’. Participants were given ‘post-it-notes’ and were asked to write on these whatever came to them in response to the phrase ‘Genetic Modification’. These were also written onto a flipchart and verbally repeated by a facilitator. Corr Willbourn state: ‘Participants were given no other frame and were encouraged simply to jot down whatever came to them’. The organisers then undertook a significant act of mediation/translation by grouping these spontaneous post-it-note responses according to an emergent set of categories. They claim ‘Despite the absence of participant categorisation, we can group many of their evocations on the basis of similarity of meaning’ (ibid: 27). They sum up these categories of response in the following table:

Table 2 – Spontaneous responses to GM

Ubiquitous		Very common		Less common		Single mention
Category	Number of mentions	Category	No. of mentions	Category	No. of mentions	Category
Food	65	Unsure/ ignorant	35	Future	19	News
Unnatural	51	Chemicals	30	Economical	17	Related
Science	46	Unwanted/ bad	29	Scary	16	Connected
Crops/ farming	39	Health	27	Mutation	16	Good
Fake	39	Questions (typically 'what is it?'	25	Greed	12	Government-backed
				Activism	12	Humans
				Third World	11	Expensive
				Disgusting	8	Evolved
				Improved/ enhanced		Packaging
				Medicine	6	
				Dolly	5	

From Corr Willbourn, 2003a.

These categorisations would be a key step in the process of formulating the set of questions for the GM Nation project. Following this elicitation of primary associations and questions through the post-it-note exercise the facilitators then asked the participants in small groups to collect up their key questions about GM. Again, this played a significant role in elicting the framing of the GM Nation debate and its key questions.

For Corr and Willbourn this 'post-it-note' exercise and the subsequent probing and prompted elaboration of it reveals a spontaneous and underlying public rationality, relating the issue of GMO's to the categories of everyday experience:

> Open-ended probing of the responses toward the post-it note responses indicated that while the vast majority had little or no technical understanding of GM, they did possess a robust contextual understanding founded in their lived experience. Thus GM is something which, as the previous exercise showed, is likely to impact food, farming, health, the future, and economics and so on. It has been said that the general public cannot genuinely address the issues around GM without a proper technical understanding as a basis. This research shows very clearly that this is not true. The general public possess many adequate ways to engage in the debate – provided that it is framed in terms of their lived world. While all readily admitted their lack of technical and scientific knowledge, and many wanted more information, their own concerns (whether political, social, environmental, health-related, economic or otherwise), were deemed to provide a robust basis for participation in the debate (Corr Willbourn, 2003a: 29, 30).

Throughout their report Corr and Willbourn emphasise how these 'primary associations and questions' revealed by workshop participants are 'founded in their lived world or their existential engagement with the world' (ibid: 40) and equip them to participate in the GM debate despite not having a previous engagement or technical familiarity with it. In this, Corr and Willbourn claim a kinship with other work on the legitimacy of lay knowledge such as the PABE report (public attitudes to Biotechnology in Europe) (Marris et al., 2001) associated with the approach of Brian Wynne.

The workshops also attempted to uncover underlying attitudes towards the GM issue. Drawing on their experience of psychotherapy, Corr and Willbourn argue that such attitudes can not be elicited by a simple and direct question and normal conversational responses: 'Attitudes are typically subtle and highly inflected, and few individuals are gifted with the articulateness to do true justice to their attitudes in normal conversation' (Corr Willbourn, 2003a: 41). Thus 'unselfconscious expression of attitudes' had to be accessed via a series of 'games', which we may understand as specialised 'technologies of elicitation' (Lezaun and Soneryd, 2007). Corr and Willbourn were able to deploy a number of such technologies from their psychotherapeutic repertoire: They refer to a 'Snakes and Ladders process' and also to a 'Story Generation process' the latter of which is described in their report. Here participants were invited to gather in small groups and write stories that captured the essence of how they felt about GM. Corr and Willbourn claim that 'underlying attitudes show themselves in the tone and qualities of the story' which are then translated and interpreted by Corr and Willbourn into policy messages and framings for their report. Again, many subtle and theoretically rich and sophisticated understandings of the potential dynamics of technology in society were revealed.

Following analysis of all the foundation workshops, Corr Willbourn grouped the results and emerging participant concerns into six framings: i) food, ii) choice, iii) information needs, iv) uncertainty and trust, v) targets and intended trajectory and vi) ethics. These are set out in more detail and with associated questions in the table below.

Table 3. Six Frames

Frame	Core Topics (aggregated)
Food	Health issues Aesthetics Product values; taste, nutrition Economics; micro and macro Political issues Production consequences; land use, agricultural employment, impacts on integrity of organic production.
Choice	Do we, the public, actually have any choice? Is there a zero option? Why are we having the debate now and not 5 years ago? Can choice be executed through clear labeling? How will this affect organic farming?
Information needs	'I don't know what I don't but probably should know – who will tell me . . . and can I trust these actors/their information? Who will ensure that information is unbiased and freely available or at the very least can I hear all sides of the argument?
Uncertainty/trust	Who is responsible now, and who will be responsible if things go wrong in the future? What are the motives of corporate actors? What is the government's real position? What is the worst case scenario?
Targets and intended trajectory	Which organisms will be genetically modified? What different implications arise from genetically modifying plants, animals, humans? What are the medical implications/possibilities?
Ethics	Why is it being done at all? Who decides and polices the boundaries? What are the motives of corporate actors? Why has this technology been allowed to progress this far without public consultation – is this to close off real debate? Are we capable and willing of addressing the deeper moral issues this technology throws up? Is GM an example of science for science sake – let's hear honestly and personally from those involved. How will this impact the world economy and the control of the developing world by the developed world?

From Corr Willbourn, 2003a: 61.

These framings would then become translated via the Corr Willbourn report (2003a) and by other mediators and processes of mediation to inform the rest of the debate – including the science review and the sets of 'stimulus materials' and questionnaires that would structure the open meetings. The quality of this process of translation and the uses of the subsequent materials will be addressed below. First however, we shall conclude this section on the Foundation Discussion Workshops with some further observations and comments on this component of GM Nation.

The particular techniques used by Corr Willbourn, while broadly following the standard focus group format also deployed some novel and unique elicitation technologies that are specific to their own approach. Firstly, the larger size of these meetings with 18-20 participants meant that the intensity and quality of face to face interactions between participants would be less than a usual focus group. Furthermore, despite Corr Willbourn's claims to methods promoting 'naturalistic talk' (as if this were completely possible in standard focus groups), as the official evaluators found: '[t]he groups were very much facilitator-centred, which meant that interaction between participants was highly mediated by the instructions and prompts of the (two) facilitators.' (Horlick-Jones *et al.*, 2007: 127). The evaluators therefore found that 'the groups did not generate much in the way of quasi naturalistic talk' (ibid).

In other ways, the FDW corresponded more to focus groups than to the other genres outlined in chapter 5 of this report. Thus as we have seen, they attempted to create fora composed of relatively homogenous participants according to 'life-stage', socio-economic status and with the teenagers, gender. This therefore attempts to access underlying rationalities that may be supposed to be found in such groups, and contrasts with other formats which try to construct attitudinal balance within the group to generate deliberation between these different attitudinal standpoints. Corr Willbourn's approach also used novel techniques including games, other mediated and structures exercises and also even employed a professional cartoonist to attend the encounters and reflect on the process and issues in a graphical and amusing way, feeding these cartoons back into the discussion. Some of these cartoons would also find their way into the 'stimulus' materials used in later stages of the debate.

6.3.1 Translating the Foundation Discussions: Constructing the 'stimulus materials' and questionnaire

The six overlapping framings of the Corr Willbourn Report (2003a) – food, choice, information needs, uncertainty and trust, ethics and the targets and intended trajectory of GM technology – were combined with findings from a parallel report based on desk research to be 'distilled' into a series of tools for public engagement and participation that would be central to structuring the debate.

The questions about GM from participants in the FDW's (such as What is GM? How is it done? Why make it? How do I know it will be safe?) became central to constructing the stimulus materials. These questions were used to gather information for the materials. The debate evaluators argue that at this stage these questions were used more than the six framings, suggesting this tended to construct lay perspectives in the classic 'knowledge deficit' terms criticised in the work of Brian Wynne (Horlick-Jones et al., 2007: 130). The end product was also the result of several battles in a contested process. As the participants of the foundation workshops expressed a desire for more diverse views coming from a variety of acknowledged partisan sources, some members of the steering board won the argument to have additional more pluralistic and diverse stimulus material. A variety of stakeholders engaged in the debate were therefore enrolled to help prepare their own answers and perspectives to the questions emerging from the foundation workshops. These were then passed to a subcontracted company 'Creative Research' working with the science museum to be worked into a more standardized, and perhaps more neutral format. However, by April 2003 the decision to attribute sources was abandoned due to lack of time to contact all the sources to gain consent (Reynolds and Szerszynski, 2007: 109). Thus the stimulus materials ended up being bland statements that were unattributed to any sources, perhaps making them

less successful at stimulating and framing the debate. These materials were also put on a CD-Rom in a form identical to both the pages of the *GM Nation* website and a booklet.

To these 'stimulus material' packs was also attached a feedback questionnaire. This consisted of a series of thirteen questions that took the form of a series of statements ranging from the optimistic or favourable to the critical or pessimistic towards GM crops. A series of 'tick boxes' were then offered in response to these statements offering five choices ranging from 'agree strongly' to 'disagree strongly'. After these thirteen closed questions there followed another two more open questions where participants were allowed five dotted lines to express there views, and also some more tick boxes to present 'information about you' including gender, age, postcode and their involvement with the debate.

The *GM Nation* information pack formed by this combination of the stimulus materials and feedback form/questionnaire would be distributed in the mass open meetings of *GM Nation* public debates as well as the selected 'control' of the 'Narrow-But Deep' discussion groups. They were also distributed via the website and post. It therefore formed a mobile technology of engagement and participation, with the ability to incorporate many events and situations into '*GM Nation*'. They became a tool that attempted to standardise the diverse moments and modes of participation into a nationally coherent and somehow measurable entity. The Central office of Communications declared that wherever a batch of thirty or more feedback forms were ordered they would assume this represented a *GM Nation* meeting (GM Nation PDSB, 2003: 59).

In their study of *GM Nation* the official academic evaluation team create a new category for assessing such events, one they call its 'translation quality' (Horlick-Jones et al., 2007: 121). They define this as the mechanisms for the management, translation and utilisation of knowledge, particularly the ways conclusions drawn from one stage of *GM Nation* process become a source for informing and shaping its subsequent stages. This is especially important when considering events such as GM Nation, which utilise multiple modes, stages and scales of engagement. Thus in our task of understanding the role of mediators in public deliberation alongside consideration of different practices of elicitation we also need to consider these practices of translation. The development of the stimulus materials and questionnaire form the first significant stage in *GM Nation's* translation process – judged by the evaluators as of poor quality (ibid: 131). Other key stages in the translation process included the gathering of information from the open public meetings and the 'Narrow but Deep' groups and finally how all this information was analysed and developed into the final report by the Steering Board.

6.3.2 The Open Public Meetings: tiers 1, 2 and 3

The public debate itself was launched on 3 June 2003 with a press briefing in London, and the first of the six Tier 1 'national' meetings in Birmingham. The rest of the Tier 1 (T1) events took place in Swansea, Harrogate, Taunton, Glasgow and Belfast over the next ten days, attended in total by over 1,000 people. These 'tier 1' meetings were fairly large events usually held in venues with a capacity of 150 – 200 people. The smallest of these events was in Belfast with 100 in attendance, the largest in Harrogate with 240. Admission was by ticket only, with tickets available in advance from the CoI, although in principle any member of the public could attend. They were resourced and organised by the CoI, who also employed professional facilitators to run the events. They CoI also employed professional assessors, typically local academics, who would attempt to observe and gather qualitative evidence of the group discussions. All tier one events followed a standardised form, with seating arranged around separate tables allowing groups of about a dozen to sit together. People could choose

where they sat, often sitting with friends and associates. On each table were placed collections of the stimulus materials in the *GM Nation* toolkits and a discussion guide, plus notepads and pens. The events were each started by a screening the specially commissioned *GM Nation* video which portrayed small group discussions of the issue by members of the lay public, scientists and farmers in an attempt to portray the different kinds of argument common in the debate. Following this, the facilitator introduced the debate, describing its background. (Some tier one meetings were also addressed by PDSB members). After this introduction participants would begin their own round table discussion which would last around an hour. Each table was asked to elect a spokesperson who would report back on the discussion to a final plenary feedback session. This form of meeting seemed to have attracted the 'publics of GM' (Reynolds and Szerszynski, 2007), those mainly already interested and engaged in the debate and elicited a discussion 'characteristic of a knowledgeable and experience engagement with GM issues' (Horlick-Jones *et al.,* 2007: 84). Some problems with the 'translation process' have been identified. Firstly it was observed that the stimulus materials derived from the previous FDW stage of the process were little used by the participants, secondly that the verbal feedback session format of brief reports by one spokesperson from each table reduced the findings to brief, repetitive 'soundbites' loosing any complexity and nuance of the deliberations, and thirdly that the work discussion observers was not standardised or coordinated across meetings. Therefore Horlick-Jones *et al* conclude that "the organisers were restricted in their capacity to capture the rich detail of the discussions' (ibid: 132). Thus the questionnaire became the main tool to collect findings from this part of the debate, a factor limiting the quality of the final part of the translation process composition of the PSDB's final report.

Tiers two (T2 - regional) and three (T3 - local) of the open meeting component of *GM Nation* had a far more heterogeneous format. Around forty T2 meetings were held, mainly organised by local government, with around 30 of these assisted by the CoI with technical support and professional facilitation. Size varied between 30 people in Inverness to 200 in Cambridge. The format tended to be that of a traditional public debate, with speakers for and against sitting on a platform, followed by questions and answers and comments and debate from the floor, where the public sat in rows. A further estimated 629 T3 events were organised by a variety of local community groups, including local and parish councils, Friends of the Earth groups, agricultural colleges, churches, women's institutes, village halls, organic food outlets, farmers markets, Royal Agricultural Shows and scientific institutions such as the John Innes Centre in Norwich. These varied in format, some holding to the T1 round table format, others taking the form of 'for and against' debates. The main standardising component tying this diverse collection together was the use of the GM Nation toolkit of stimulus materials and feedback questionnaires. Again, as in the T1 meetings, this format appears to have elicited and engaged form of publicness, attracting those from the widespread networks around for example the subpolitics of food, health and wildlife that became drawn into the controversy and forming the multiple issue publics of GM (Reynolds and Szerszynski, 2007).

6.3.3 The 'Narrow But Deep' component

During the same period as the open debate in June/July 2003 a series of ten smaller closed meetings were convened, again by Corr Willbourn. These were organised to act as a 'control' after the PDSB expressed worries about the open meetings might attract predominantly engaged publics already involved in the issue. Thus participants were selected by professional recruiters and screened to exclude any with a prior engagement with the issue in an attempt to construct a microcosm of the 'general public'. These meetings were called 'reconvened group discussions' by Corr Willbourn (although they did not consist of the same participants as at

the FDW component) and also called 'Narrow But Deep' by the PDSB – suggesting a smaller sample of the population but with more extended deliberation.

Ten different groups were convened with a total of 77 participants, Each group met twice over a two week period for discussions which, like the Foundation Workshops, resembled focus groups more than any of the other genres discussed – first for one and one half-hours, then later for between two and two and a half hours. In the first meeting they were exposed to the *GM Nation* stimulus material; between the two meetings participants were encouraged to collect more information, and kept a diary to record their thoughts; finally, in the second meeting, the participants discussed what they had decided were the salient issues. At the beginning of both sessions, they completed the *GM Nation* questionnaire or 'feedback form' with its thirteen closed questions, in order to determine how their opinion changed over the two weeks.

Four broad 'lifestage' and two broad socio-economic groupings were recruited. See table below:

Young Singles aged 20 - 27	Young Families aged 28 - 40	Older Families aged 41 - 59	Empty Nesters aged 60 - 75
1. Urban, Sheffield, ABC1, students in tertiary education	3. Urban, Chislehurst, Kent, C1C2DE	6. Rural, Dungannon, County Tyrone, ABC1	9. Urban, Glasgow, ABC1
2. Urban, Glasgow, C1C2DE, non-students	4. Urban, Cardiff, C1C2DE	7. Rural, Barnstaple, Devon, C1C2DE	10. Rural, King's Lynn, Norfolk, C1C2DE
	5. Rural, Morpeth, Northumberland, ABC1	8. Urban, Chislehurst, ABC1	

From Corr Willbourn, 2003b.

Participants were supposed to deliberate on what Corr Willbourn describe as the 'six key questions/topic areas that the AEBC Steering Board had previously identified as being crucial outputs of the debate process' (2003b). These were: The issue of GM; What future would you like to see for GM?; The possible commercialisation of GM crops in the UK; What do you think might be the impact of GM on our world?; What benefits and risks do you see GM bringing?; and what are the options for proceeding with this?

The outputs from the NBD discussions thus consisted of: two sets of questionnaires, one completed before each meeting; the diaries recoding individual processes of information search and deliberation; and the transcripts from the meetings. All these were then synthesised into a report by Corr Wilbourn (2003b) (and would in turn feed into the final report on the whole of GM Nation commissioned by the PDSB).

Based upon these outputs, Corr Wilbourn report that the discussions in session 1 of the NBD revealed underlying attitudes to the GM issue that were more or less identical to those identified in the Foundation Discussion Workshop study. However, as the NBD process went

on, the majority of participants became noticeably clearer in their opinions, and in particular more concerned about possible negative consequences of GM technology. As Corr Wilbourn put it, 'the comparisons between the pre (session 1) and post (reconvened) questionnaire data show that, in general, more information and deliberation led to higher levels of concern about GM in the broad sense. For all questions the levels of Don't know/unsure fell' (2003b: 16). Overall, Corr Wilbourn report that 'the majority of the general public who took part in this research strongly support adherence to the Precautionary Principle with regards to GM technology in general and to the commercialisation of GM crops specifically. Thus they believe that at present commercial exploitation of GM crops cannot be given the "Green light". Equally, very few of these participants gave GM technology the "Red light". At present it would be fair to characterise the public's position as giving GM the "Amber light".'

However, it is crucial here to explore the way that the opinions elicited in the NBD discussions were mediated. As with any deliberative process, there are crucial junctures in the design and conducting of the NBD where the work of constructing neutrality occurs, and it is at these junctures that contestation over the validity of the outputs takes place. Here we will just concentrate on a few of these junctures: the choice of how substantive 'stimulus material' would be gathered; the selection of points at which the questionnaires would be filled in; the deliberative genre used; and the distilling of the discussion transcripts and returned questionnaires by Corr Willbourn into the NBD report.

Firstly, the design choices meant that participants were encouraged to find their own sources of information between the discussions. The participants' diaries act as a record of their information search and methods of thought; the sources of information they recorded varied from media, NGO's, scientific institutions and academia. Interestingly, participants also refer to holding their own mini-dialogue events with workmates, friends and school students. This method of allowing participants to select their own information material and consider it in their own time away from the formal deliberative forum represents a different model to other modes of deliberation, where informational material is pre-selected and controlled, and also often presented in a controlled environment. It can therefore elicit a different response. Critics could claim that this is less 'scientific' in that the informational material are less standardised, making rigorous comparison difficult. However, this raises the question of whether deliberative fora are intended to reach this level of standardisation and scientificity. Certainly the diaries are revealing of the pathways that people choose in their own, unguided search for information, in a way that the provision of standardised material would not be.

Secondly, the choice of the specific points in the process when they filled in the questionnaires is also significant. The participants filled in the standard GM Nation questionnaire twice – once *before* each meeting. Interestingly Corr Willbourn describe the second of these as the 'post-deliberative questionnaire', even though it was to be completed before the second meeting whose objective was to allow the deliberative process to develop in more depth. This suggests a notion of deliberation as not necessarily a group activity, but also an individual contemplative one undertaken by participants in the fortnight's gap between meetings.

Thirdly, as mentioned above, the discussions were broadly conducted as focus groups; although participants were asked to discuss six 'key questions', they were not forced to come to consensual answers to them. Horlick-Jones *et al* (2007: 137-9) argue that this lack of any constraint to come to a decision meant that the NBD groups were not genuinely deliberative; instead, they simply elicited opinions from their participants, and encouraged them to go off

on imaginative tangents. They also suggest that the focus-group-like character of the discussions was the main reason for their developing a rather precautionary tone, in that participants were not constrained to balance risks and benefits in any final calculus. Corr Willbourn defend the idea that, while the participants were not asked to produce a scientific assessment, in the conversations they did nevertheless 'provide an assessment grounded in their lived experience and citizenship' (Corr Willbourn, 2003b: 19).

Nevertheless, fourthly, the choice of deliberative genre means that such an assessment had to be distilled by Corr Willbourn from the flow of conversation, rather than being a decisive collective speech act. Whereas in a citizens' conference the participants would normally write their own report to pass on to the next stage in the process, with the NBD this was written by Corr Willbourn. It is interesting that two of the NBD groups asked if they could write a letter to the Prime Minister, suggesting that to some extent at least they wanted to represent *themselves*, in a political sense. But the overall logic of the focus group genre is closer to that of the scientific experiment than that of the political meeting: what the participants pass forward in the overall process is not a political mandate, but data about how the public think, to be analysed and synthesised. This places far much more emphasis on the hermeneutic skills and judgement of the mediators to interpret the proceedings.

6.4 GM Nation – a conclusion

The final act of mediation that took place in GM Nation – not counting the way that its findings were interpreted and represented by the media, government, industry, NGOs and public – was of course the writing of the final report (GM Nation PDSB 2003). The PDSB met only twice to consider the findings of the process, and was not able to draw on a wider team of social scientists for the task. This was partly to do with the lack of adequate government funding for the process, but also to do with the fact that the government wanted GM Nation to report before the results of the FSEs were announced. A professional science writer was commissioned to analyse the data and correspondence, and write the report; as Horlick-Jones *et al.* remark, 'it is a credit to the writer that the final report … is such a comprehensive and well-written document (2007: 138). Nevertheless, any act of final redaction based on such heterogeneous materials has to depend on interpretive skills and judgements which cannot be reduced to formal algorithms or statistical levels of significance.

But the overall quality of GM Nation does not rest on the final report. The baroque structure of GM Nation clearly had both advantages and disadvantages. On the one hand, it can be argued that huge controversial issues like the commercial release of GM crops into the environment warrant large and diverse events in order to ensure that all aspects and viewpoints are aired. That GM Nation was large-scale, multi-scalar and multi-modal, that it elicited different modes of publicness, and different qualities of knowledge, helped to maximise its claim to represent public opinion. The combination of open debate with more controlled debates helped to counterbalance any problems of legitimacy that either form alone may have suffered. On the other hand, the construction of such a baroque process requires the building of conduits between different locations and modes, and as pointed out by Horlick-Jones *et al.* it is on the quality of these conduits that the legitimacy of the process mainly depends. Mediation does not in itself create a legitimacy crisis; it is more that it creates a legitimacy *vulnerability*, in terms of the strengths of any claim grounded in the deliberative process, and particularly in the case of multi-modal, multi-scalar events.

One implication of this to draw from the lesson of GM nation is that such events should be better funded and resourced; that they should be given more time, and allowed to unfold at a

slower pace, rather than the pace being determined by external political exigences; more time, slower; that there should be more transparency through peer-review; and that there should be more feedback loops before the results of any given stage are passed on to the next one. However, it is clear that the concept of 'translation quality' developed by Horlick-Jones *et al.* has itself to be supplemented by evaluative ideas based on the choice of deliberative genre. It is not enough to look at how information and discourse is passed from one deliberative event to another, or towards the final public representation of the process and its outcomes. One also has to look at the way that different fora elicit different kinds of discourse, and imply different political theories about the public and their role in decisionmaking.

7. Illustration by two examples of public mediation of nuclear waste: The Swedish way (demonstrated safety) and the UK way (emphasizing public and stakeholder consultation)

Nuclear waste management may serve as an example of how there may be alternative legislative rationales, some of which may be founded more firmly upon mediation by demonstration while other may privilege mediation by dialogue. In the following, the Swedish Nuclear Fuel and Waste Management Company's (SKB's) RD&D Programme and the commitment of the Managing Radioactive Waste Safely (MRWS) process in the UK will serve as examples of two programmes of government conforming to different rationalities. The former is viewed as favouring mediation by demonstration and the latter mediation by dialogue. However, we also argue that the Swedish programme includes some, less strong, elements of dialogue, and therefore a specific mix of the two rationalities is found.

7.1 The Swedish way

In Swedish nuclear waste management, the same siting process for a deep repository for the nation's spent nuclear fuel is subject to two separate forms of legislation framing its progress (Elam and Sundqvist, 2007). The *Act on Nuclear Activities*, the legislative act which places demands and responsibilities on the nuclear industry's R&D work, poses rigorous requirements on nuclear safety and reflects a legislative rationale that gives public demonstrations a dominant role. In fact, the R&D programme is explicitly described by SKB as a Research, Development *and* Demonstration programme (RD&D). However, an alternative rationale is visible in the Swedish *Environmental Code* which incorporates the achievement of a safe radiation environment within the larger objective of promoting sustainable development. The Environmental Impact Assessment (EIA) process enforced by the Environmental Code opens up for public and stakeholder involvement while the RD&D process codified through the Act on Nuclear Activities is more strictly concerned with demonstrated safety and the performance assessment of repository designs by independent government experts (Elam and Sundqvist, 2007: 52).

SKB's RD&D programme is highly dependent upon particular laboratory sites – the Äspö Hard Rock Laboratory, the Canister laboratory, the new Bentonite Laboratory (all located in Oskarshamn), and the boreholes making up the two site investigations carried out in Oskarshamn and Östhammar. These give rise to test results to be witnessed, amassed, and evaluated by formally independent others, and most importantly by the two State regulators the Swedish Nuclear Power Inspectorate (SKI) and the Swedish Radiation Protection Authority (SSI). The Äspö laboratory is explicitly labelled by SKB as a 'dress rehearsal' repository in their information materials outlining SKB's 'mission in time'. As well as a research site producing research results demonstrating the validity of KBS-3 to be witnessed by State regulators, the Äspö Laboratory is also used for broader public demonstrations to a

significant array of professional and lay audiences coming from within Sweden and far beyond.

Demonstrations are visual; they are also typically designed to render the invisible visible the impalpable palpable. So SKB's safety analyses and performance assessments (recently a safety analyses of the canister has been presented – SR Can) are also demonstrations: safety is mediated through such mediums showing what will happen in the future in terms of relevant features, events and processes impacting on safety. These quantitative risk assessments are not subject to continuous dialogue and discussion as they are meant to substitute for these by evidencing what will or will not happen. Decision-making proceeds in the fashion that formally independent standards are set by regulators and then performance assessments/safety cases proceed to show whether or not these standards can be met. Setting standards, carrying out performance assessments and reviewing them all become areas for the development of new forms of expertise. Only an expert review board can 'see' if safety has been demonstrated in an elaborate performance assessment. Therefore, public trust is called for in regulators powers of vision. Powers of adjudication must be delegated to them by public and politicians alike.

Just like technologies of 'public dialogue and engagement' (consensus conferences or EIS demands) can become institutionalised and standardized, technologies of 'demonstration' can also be more or less standardized and used for risk analysis in diverse fields. Such technologies of demonstration are typically handled by what Callon calls 'calculative agencies' advancing and cultiviating trust in numbers. The performance assessment of waste repositories is an extension of the performance assessment of nuclear reactors which in turn extended competences first derived studying the reliability of nuclear weapons delivery systems (Rechard 1999).

As suggested above mediation by demonstration continues until expert prosecutors of safety cases get it visibly wrong or are seen to be too closely connected to those they are meant to be prosecuting. The Nuclear Power Stipulation Act in 1977 turned the regulation of spent fuel safety in Sweden into a 'public theatre of proof' and set the pattern in Sweden for nuclear waste management: mediation through demonstration. Through this Act, the state ostensibly *withdrew* from active involvement in nuclear waste management and heaped responsibility for the solution of the waste problem on to the Swedish reactors owners. The reactor owners were tasked with showing 'how' and 'where' absolute nuclear fuel safety could be achieved. In relation to this task the Swedish Nuclear Inspectorate was appointed as the 'public prosecutor' of the safety case. Mediation through demonstration was the new norm with state and industry formally placed at arms length from one another and on what can appear as an adversarial footing. Instead of the state authority PRAV co-ordinating site investigations and further entangling state and nuclear industry, the KBS project was to be an all industry affair with the state standing outside in order to remain objective. Both state and industry, however, were delivered into the hands of growing ranks of scientific advisors. How was a credible safety case to be made and credibly prosecuted? How could the nuclear industry claim the ability to see into the future and chart repository performance? How could the state regulators claim the ability to judge the future scenarios industry came up with? The field of risk assessment became a field where form and content of safety cases were to devised.

After the Stipulation Act was repealed, the 1984 Act of Nuclear Activities modified the public demand for 'absolute safety' (safety beyond all doubt), to one of 'sufficient safety' (safety beyond reasonable doubt) and normalized the public theatre of proof as a governmental

setting. Sweden's reactor owners remain in the dock to this day, not free to leave the courtroom until a KBS-3 repository is eventually closed (future features, events and processes permitting).

These arrangements in Sweden have implied a delegation of public voice to SKI and SSI. The public are encouraged to place themselves behind these bodies as those most qualified to represent their interests in a public contest with SKB to decide over their ability to guarantee nuclear fuel safety (expert foresight bodies?). In other words, the mediation of the waste problem through public demonstration has always implied a tactical *withdrawal* of the public from direct involvement in the waste issue in Sweden. Arguably, this withdrawal has been successful in allowing Sweden to formally prosecute the nuclear fuel safety case. However, when it has come to the siting issue for a deep repository for the nation's spent fuel, this tactical withdrawal of the public has mutated into a *premature public desertion* of the question. Asked to stand behind SKI and SSI, the vast majority of citizen stakeholders in Sweden were then thoroughly unprepared, and completely averse, to being transformed into material witnesses for the defence when SKB's national programme of test drillings was initiated in the early 1980s. Due to a wave of local public non-cooperation in the 1980s, SKB were deprived of the means to credibly demonstrate where KBS-3 could be sited. Thus, the official trial/performance assessment of KBS-3 risked being suspended due to the inacessibility of sufficient geological evidence. Hence the turn to a siting strategy based on voluntarism in 1992. However, this move also proved unsuccessful initially as the waste problem was still publicly framed and understood as the nuclear industry's problem alone to solve – it was they and no one else standing in the dock accused of lacking a solution. Given this framing, it seemed largely inconceivable that any communities lacking all previous connection with the nuclear sector could be justifiably implicated the solution of the waste problem.

After a persistent wave of local protests across Sweden during the 1980s prevented SKB from credibly demonstrating where a KBS-3 repository could be best sited, it became accepted that an alternative mode of governance was required to address the 'where' question. Instead of solely through public demonstration, a space for local consultations was opened up in the KBS-3 project after 1992 as the 'how' and 'where' questions were successfully prised apart. The 'how' question remained a matter to be demonstrated and subject more or less exclusively quantitative risk assessment, while the 'where' question became transformed into a field for local stakeholder involvement through the medium of so-called feasibility studies.

The turn to communities already hosting nuclear facilities in Sweden as the only places left to turn to perpetuate the public trial of KBS-3 after 1995 can be seen, therefore, as resembling a pre-programmed outcome of the mediation of the waste problem through demonstration. Mediation through demonstration made existing nuclear communities into the natural inheritors of 'where' question for KBS-3, and voluntarism has only reinforced this situation, rather than modified it. It is only in communities already hosting nuclear activities that the trial of KBS-3 has had a local precedent in the form of local committees focussing on reactor safety. These communities were, therefore, already accustomed to having SKI and SSI cross-examine the nuclear industry about nuclear safety locally in relation to the performance assessment of the reactors they host. While these communities are also encouraged to delegate voice to SKI and SSI, allowing them to act as 'their' (local) public prosecutors of nuclear safety, there remains no way for them to deny that the problem of reactor safety is in part *their own,* and one they intimately share with the nuclear industry. Given this situation, the same reasoning can and has been reasonably extended to the management and disposal of

spent nuclear, as there is again no denying the existence of spent fuel at reactor sites, and in interim storage in CLAB. Here then, a possibility for successfully transferring the national show trial of the KBS project to a small number of local settings and candidate sites has been both recognized and secured during the last 12 years.

The Environmental Code advancing sustainable development and imposing standardized EIA packages on SKB is redressing the balance between mediation through demonstration and mediation through dialogue in the nuclear waste field in Sweden. SKB feels obliged to take dialogue seriously as there is no escaping the Environmental Code. But what is going to fill the space that is being opened up for dialogue? The prosecution of the safety case for KBS-3 can carry on relatively unhindered now that site investigations are underway in Oskarshamn and Östhammar. These investigations can be presented as providing evidence enough for the safety case to be made and legitimately evaluated. While elsewhere than established nuclear communities the credibility of the formal separation of prosecutor (SKI) and defendant (SKB) might be more open to question as well as the solidity of the evidence used to make the safety case, this is avoided on nuclear home turf.

Because KBS-3 is built upon 20 years of mediation through demonstration and an established RD&D programme as a routine technology of government, the whole EIA process is a relatively unwanted imposition for SKB. SKB and SKI were constituted as institutional bodies in relation to the whole process of demonstrated safety making them into 'fish out water' in the context of the EIA process which is literally at odds with their institutional nature. But as the nominated co-ordinator of the EIA process SKB are trying to overcome and make the best of the standardized requirements for writing an environmental impact statement trying to integrate safety analyses with an EIA, enacting them as more or less similar undertakings.

Arguably, SKB still has a tendency to run public consultations meetings as part of the EIA process, according to the logic of mediation through demonstration when most time is devoted to information and elaborate power point presentations showing the KBS-3 repository already in hypothetical place in Östhammar and Oskarshamn. Time for questions and dialogue is kept to a minimum and even SKI and SSI sit relatively passively in the audience. The judges waiting for the performance assessement for them to judge, not to be drawn into unnecessary and unprofessional public discussion and debate. At EIA meetings SKB play the role of established defendants, presenting and defending their safety option.

The space for the mediation of nuclear waste management through public consultation in Sweden has continued, therefore, to remain a minor space in comparison with the continuing dominance of mediation of the KBS project through public demonstration. Arguably, with government approval for, and local acceptance of, site investigations in Oskarshamn and Östhammar in 2001-2002, the continued need for mediation of the 'where' question through local consultations was no longer so great. From that point onwards, local and national demonstrations by SKB, convincingly showing which site is the 'best fit' for a KBS-3 repository could gradually have taken command of the final settlement of the 'where' question.

Internationally, Sweden is thought to have a fine balance between mediation through dialogue and mediation through demonstration. In our case studies we will look into this state of affairs. Can the RISCOM model be used to put dialogue in the driving seat or is it inevitably

only a means to legitimate an overwhelming focus on demonstration through the addition of a little dialogical cream on the demonstrative potatoes?

7.2 The UK way

If the 'where' question has been the arena where a turn to mediation through public consultation has been concentrated and largely contained within the Swedish case, the UK turn to public consultation has been more far-reaching and profound. After 1997, an attempt has been made to install mediation through consultation at the heart of UK nuclear waste management so that it assumes a position equivalent to the one held by mediation through demonstration within Swedish nuclear waste management. In this context, a key document in the UK, advancing the cause of consultation was the House of Lords Select Committee Report on Radioactive Waste Management published in 1999. Here the need for stimulating country-wide public support and acceptance of radioactive waste policy is raised as something which has to be addressed, before local acceptance can be sought for particular waste facilities in particular localities (Simmons, Bickerstaff and Walls, 2006). Subsequently, the Managing Radioactive Waste Safely (MRWS) consultative process was launched by the UK Government in 2001. The object of this process is to address the 'how' question in the most general terms covering the total inventory of nuclear wastes to be found in the UK. So, here again, the 'how' question has been decoupled from the 'where' question, not in order to reform a specific on-going repository project, but rather, to facilitate a 'return to first principles', and the new build of UK radioactive waste policy upon consultative foundations.

At the centre of the MRWS process has been the Committee on Radioactive Waste Management (CoRWM) established in November 2003. This has been designed as a strong, independent advisory body tasked with publicly evaluating the complete range of 'available options' for the long-term management and disposal of the UK waste inventory. CoRWM's objective was stated in terms of starting 'with a blank sheet of paper' in the initiation of a new consultative approach, where 'each one of us living in the UK' is accepted as a stakeholder paying for the storing of wastes now, and bearing the financial costs of future decisions (Simmons, Bickerstaff and Walls, 2006). Despite this framing of their brief, the 'what' and 'why' questions were not seriously addressed by CoRWM. Some discussion of the future handling of radioactive materials 'not currently classified as waste' in the UK was entertained, but a head-on engagement with the UK's future commitments to, for example, a closed versus an open nuclear fuel cycle was not included in CoRWM's 'return to first principles'. Instead, a rather exaggerated list of options for addressing the 'how' question was made a primary starting point for public consultation, including disposal in space, in ice sheets and under the sea-bed. Therefore, in the initial stages of its work at least, CoRWM was open to criticism for treating the simultaneously political and technical decisions characterising nuclear waste management as resembling a *smörgåsbord* of more or less exotic policy options for citizen stakeholders to pick and choose between (Simmons, Bickerstaff and Walls, 2006). After the list of options for addressing the 'how' question had been considerably shortened, however, public discussion was able to focus on some of the more genuine choices that have to made in the development of facilities for the interim storage of wastes and their geological disposal.

CoRWM published its final report in July 2006. Its recommendations included a focus on geological disposal combined with robust interim storage. A voluntary siting process was also supported encompassing community benefits packages. The continuing need for public and stakeholder engagement activities was also emphasized as a means of maintaining widespread trust and confidence in the chosen management and disposal strategies. In October 2006, the

UK Government published their response largely endorsing CoRWM's main recommendations. This has been followed by a new consultative document from the government setting out their proposals for the design and delivery of a geological repository, including a siting process supporting voluntarism and a partnership approach (Defra, 2007). Responses are currently being collected to this document in preparation for the next step, and the announcement of a framework for implementing geological disposal. CoRWM itself is being reconstituted in order to provide 'independent scrutiny and advice' to the UK Government on the proposals, plans and programmes for waste management as they emerge. Skills and expertise to be represented on the new CoRWM include nuclear science, radiation protection, social science, environmental law, geology/geochemistry, finance, ethics and civil engineering. Again, organizing public and stakeholder engagement activities will be a key task.

7.3 The mixes between demonstration and dialogue

While it is clear that the UK is currently open to learning from the Swedish approach concerning repository design and voluntary siting processes (importing a ready-made and demonstrated safety case?), elements of the CoRWM experience are currently subject to imitation in Sweden. CoRWM could be described as the organization, that KASAM (Swedish National Council for Nuclear Waste) has had trouble becoming. Founded in 1985 as an independent committee under the Swedish Ministry of the Environment, this body like CoRWM is intended as an advisory body to government also tasked with stimulating public debate and discussion around waste issues. Until recently, however, KASAM has been a largely dormant organization existing very much on the sidelines of Swedish nuclear waste management (Elam and Sundqvist, 2007). This has changed as the EIA process for the siting of KBS-3 has progressed. While SKB remains the official co-ordinator of the EIA process, KASAM are rapidly developing into its unofficial guardian. Due to their historical identity with the public mediation of nuclear waste management through demonstration, SKB are finding the consultative challenge posed by an EIA process in respect of the Swedish Environmental Code hard to embrace. Inevitably, in the preparation of an Environmental Impact Statement (EIS), SKB must consult with the public regarding alternative methods for the disposal of spent fuel, including the so-called zero alternative spelling out what would result if no development took place. Furthermore, the site selection process must again be laid open to public scrutiny. As far as SKB are concerned, however, this is only asking them to go over old ground, questioning decisions the soundness of which they have already successfully demonstrated.

Recognizing SKB's difficulties in living up to the demands being made upon them by environmental legislation, a rejuvenated KASAM has made itself into a new locus for the mediation of the KBS project through public consultation. In the last two years, KASAM have organized public hearings in Stockholm on issues such as; how comprehensive an EIS should be when addressing alternative methods and sites (KASAM, 2006); deep boreholes as an alternative disposal method, and the implications of a bifurcated decision-making process for the siting of KBS-3 in respect of two different framing laws: the Act on Nuclear Activities and the Environmental Code (KASAM, 2007). Building upon this extremely belated enthusiasm for the mediation of the KBS project through public consultation, KASAM have also recently initiated a 'transparency' project expanding the space for citizen stakeholder involvement in Swedish nuclear waste management further (Andersson, 2007). So through KASAM's efforts we can witness the partial CoRWMisation of the Swedish nuclear waste scene today. The difference remains that the foundations of Swedish nuclear waste management remain unchanged, with the overriding position of mediation through

demonstration guaranteed. Interestingly, we can see KASAM today assuming the role played by the Municipality of Oskarshamn during the 1990s. After SKB's turn to voluntarism in 1992, it was Oskarshamn who emerged out of the shadows and ultimately took responsibility for the tending and the caring of the new space for mediation through consultation that had opened up. This means that it was, arguably, they rather than SKB or SKI, who contributed most to the success of a voluntary siting process. The pattern is being repeated again today. As environmental legislation has made SKB into the official co-ordinator of an EIA process, it is KASAM who are emerging out of relative anonymity to become the genuine tenders and carers for the new space for mediation through consultation that has opened up.

Both demonstrations and dialogues can produce trust and confidence. They imply different divisions of powers and responsibilities. We can imagine dialogue helping to 'talk the public into accepting a particular state of affairs', say the siting of a waste facility in the locality. But then the same public (or even a broader national public) might demand a new demonstration to further convince that they are embarked on the right course of action. Cycles of demonstrations and dialogues might resemble cycles of detachment and attachment.

Public trust in Swedish radioactive waste management no doubt stems from fact that a 'public theatre of proof' has been erected around the RD&D process. SKI is tasked with standing back every 3 years and surveying the evidence showing that SKB are making progress. Trust in the process couldn't be maintained if SKI were seen in continuous consultation with SKB as this would soon appear as collusion. Have to have periodic moments of detachment where SKB asked to 'show' what they have been doing. Provide they receive no evidence to the contrary general public can then accept that SKI in this way keeping SKB under sufficient scrutiny. Only if public theatre of proof breaks down (crisis of official oversight) that further more open public demos or dialogues would be called for. A major scandal or debacle can lead to calls for broader public mediation – new stakeholder forums or bigger more inclusive public demos.

8. Conclusions

For quite many years consultative mechanisms to engage stakeholders and citizens have been used in order to increase quality and make the democratic decision making-process more robust and credible. Different participatory approaches have been developed, with different aims and more or less attached to 'the real' democratic process (cf. Szerszynski, 2005). Social scientists have made contributions to this democratic turn and are widely recognised as being strong supporters of the democratic turn in governance, and not least in relation to science and technology, what has been called democratization of expertise. Does this mean that social scientists become responsible for the process and are those to blame if problems arise in connection to participatory approaches? Alan Irwin (2006) has given the answer that we in this situation need an analytically sceptical social science that is carrying out critical analysis of the 'new' mode of scientific governance, especially where the tools we like the best are most widely used. Concerning social science, we need less defenders and more analysis.

It is also important to be aware of the influence of culture and context where new approaches are set up. The results could be very different when participatory approaches are set up in relation to 'new' issues like nanotechnology and GMO, compared to 'old' issues like nuclear power and nuclear waste. In the latter case new approaches have to come together with existing technocratic ones. There is a strong need for critical analysis on how participatory

approaches are added to existing – less participative – approaches and what the result of this will be.

Besides the importance of existing context and culture we should also be aware of that 'new' participatory approaches could be used in a strategic way by actors involved in the decision-making process. This is valid both for those supporting and introducing the 'new' and for those who defend 'old' technocratic ones and try to adapt the new to the old. Therefore, what happens when 'new' approaches are introduced should be empirically studied from a critical and open perspective.

8.*1 Implications from our conceptual framework*
The analytical framework introduced in this report will be used for critical studies of new scientific governance in the field of nuclear waste management. We argue that an important start is to study how science and technology is made *public* (eg. claims for transparency, more dialogue etc.). New forms of expertise are needed to make things public and new forms of expertise will be the results of making science and technology public. This kind of dialectic we call *mediating*. Making science and technology public (mediating) could be made from different (conflicting) *rationalities*. Two important and conflicting rationalities we call *mediation through demonstration* and *mediation through dialogue*. The important thing, however, is to study what is made public by these rationalities, how mediation works and how they are connected to different *programmes* and *technologies*, and not least what various *combinations* of demonstration and dialogue are found in practice.

Moreover, a critical approach to *transparency* and *deliberation* is needed. We need to understand transparency as stage management and to replace the 'ladder' metaphor in order to understand public participation processes and look more critically at the mediators, how public participation methods are standardised, and what effects they have in different local contexts. One important conclusion is that a naive concept of transparency could conflict with the ambition to establish a realistic understanding of the role of expertise and communication between experts and other groups. If we do not accept that society contains different cultures -– with their own specialised forms of knowledge, specific strategies and tools to perform this knowledge – transparency, in a more profound sense, will never be reached. To outsiders, the process of developing shared and credible knowledge is never fully transparent. The social machinery of constructing expert advice could only be transparent if combined with increased understanding of the stage management strategies used by different kinds of experts. This is not to argue for closed doors, but that open doors are not enough. What has to be added is a better understanding of how front stage performances are embedded in backstage activities, and that actors, for different reasons, have interests in keeping some activities backstage.

8.2 Next step: empirical studies of mediation in nuclear waste management
The theoretical framework presented in this report form the basis for examination of a number of detailed case studies. In the next phase of WP 3, we plan to study how the public, and public engagement, are negotiated in policy development, based on earlier and ongoing 'dialogue projects' conducted by various actors in Sweden, and on current ongoing EIA processes, principally in Sweden and Finland. The focus will be on how problems are phrased and framed, how scientific knowledge is employed, and through this, how it shapes a more or less reflexive and adaptive communicative arena in which to interact with citizens and the public generally. We assume that these processes are carried out using specific arrangements of people and technical devices, and are made possible by a specific socio-technical form, one which facilitates the inclusion or exclusion of different categories and arguments. Who, then,

are the public, and the engaged citizen? What opportunities and constraints confront the public? In short, what capacity and morality is accorded to citizens?

The impact of legislative requirements and the use of theoretical concepts in practical examples will be examined, focusing particularly on people and technologies. Such knowledge is needed in order to understand how governance processes can be improved in order to better address public concerns, provide transparency and increase awareness. The theoretical and conceptual elaboration aims to study public consultations in the two Swedish municipalities where site investigations are currently being carried out, Oskarshamn and Östhammar. A comparison with the Finnish EIA process will also be included. This will make possible an evaluation of the role of mediators and the role of citizens, through questions such as: How are citizens engaged by mediators in interactive processes through the use of different technologies? What kind of public participation is developing? What kind of public is made visible and by what means? What kind of public voice is produced and by what means? What kind of legitimacy do these publics gain?

Part of our empirical material is retrospective and will include an analysis of previously conducted dialogue projects in Sweden. The focus is on the mediation of processes for public dialogue. The Swedish way, or the "Oskarshamn-model", as it is sometimes referred to internationally, have been presented as ideal for building trust among stakeholders through extensive public participation and transparency and "has been touted widely as an example to others" (Dawson and Darst, 2006: 611). Our empirical question are the following: Has there been a model for 'participation and transparency' that consistently has been used? What kind of model is it? Who is mediating it? Does it matter who the mediator is for the kind of 'dialogues' that have been generated at different stages of the process? In order to track the mediation of public participation processes this part of the study will focus on processes that officially have been labelled as dialogue projects.

On the 14th of March 2007, at the launching of KASAM's transparency project aiming to 'illuminate' important issues, in dialogue with other nuclear waste actors, an official presentation of the various dialogue projects that has been taking place in Sweden, was offered to a broad set of nuclear waste actors. The new project by KASAM was thus presented as a continuation of a series of dialogue projects, that had been running since the early 1990's. This 'continuous dialogue' had however been initiated and conducted by various actors, and it can be assumed that the approach to mediation and the role of mediators was not the same in all these 'dialogue projects'. Rather than a series of dialogue projects, from which KASAM's project is flowing, these can be understood as separate initiatives, taken by different actors with different objectives, as well as approaches to mediation (which affects both what issues are made public, and what kind of public it mobilizes). At the meeting in March, the project leader at KASAM pointed out that there had been different organizations "hosting" the dialogue: first it was the SKI and SSI, later on Oskarshamn municipality, after that Oskarshamn and Östhammar were jointly hosting "the dialogue" and now KASAM has taken over.

The empirical study will be shaped by this "official" presentation of dialogue projects. We are aware that there will also be other, alternative, and perhaps equally "official" presentations, but as a start, KASAM's announcement of a new dialogue project running as an extension of previous dialogue projects will do for tracking disruptions and continuity in what is labelled as dialogue by official authorities.

The empirical material for this part of the study will be as follows:

1. The Dialogue project (Dialogprojektet) 1991-1993. Documentation in forms of reports and evaluations. Interviews with initiators and mediators.
2. RISCOM I and II. Documentation in forms of reports and evaluations. Interviews with initiators and mediators.
3. Hearings (Utfrågningar om platsval) 2001. Documentation in forms of reports and evaluations. Interviews with initiators and mediators.
4. Oskarshamn municipality 1994- (partly using/inspired by the RISCOM model). Documentation in forms of reports and evaluations. Interviews with initiators and mediators.
5. Oskarshamn and Östhammar jointly 2004-. Documentation in forms of reports and evaluations. Interviews with initiators and mediators and observations of two activities within this cooperation (one seminar gathering stakeholders and open to the public, one between the municipalities and the environmental organisations).
6. KASAM's transparency project (genomlysningsprojekt) 2007 – (partly using/inspired by the RISCOM model). Documentation in forms of reports and evaluations. Interviews with initiators and mediators. Observations.

Crucial for this part of the study will be the ideas and assumptions that underpin the RISCOM model. The "mediators" referred to above will thus be the 'authors' and mediators of this model (Kjell Andersson, Karita Research, is thus a central person to interview. Most interviews will be retrospective, the only exception is when the last one, the KASAM transparency project, is discussed). Similar questions that were posed to the different public participation methods in sections 5.1-5.4, can thus be posed to the RISCOM model. The focus will be on the conduct of conduct, and how the role of mediators and approaches to mediation will differ, and how different issues and versions of publics will be central in the six 'dialogue projects' mentioned above.

A second focus of our empirical study is the ongoing public consultation process and the RD&D process in Sweden. This will mainly be done by observations of public consultation meetings, and to some extent interviews with central actors (SKB and representatives of the municipalities Oskarshamn and Östhammar). The empirical material for this part of the study will be as follows:

1. Public consultation meetings in Oskarshamn and Östhammar (organized by SKB as part of the EIA-process, meetings take place once or twice a year) observations 2005-2009. An analysis of our previous conducted observations (2005-2007) will be done with a focus on the themes we have set out in this report and observations of subsequent consultation meetings (2008-2009) will be conducted.

2. SKB's presentation of the RD&D programme and other nuclear waste actors reactions to these. This part of the study is mainly based on the analysis of documents and interviews with central actors.

References

Andersen, I.-E. and Jaeger, B. (1999) "Danish participatory models. Scenario workshops and consensus conferences: towards more democratic decision-making", *Science and Public Policy* 26(5): 331-340.

Anderson, B. (2007) "Hope for nanotechnology: Anticipatory knowledge and the governance of affect", *Area* 39(2): 156-165.

Andersson, K. (2007) *Genomlysning av beslutsprocess och beslutsunderlag på kärnavfallsområdet. Rapport från förstudie*. KASAM avtal 38/06. Täby: Karita Research.

Andersson, K. *et al.* (1999) *Transparency and Public Participation in Complex Decision Processes*. Research Report, Division of Land and Water Resources. Stockholm: Royal Institute of Technology.

Arnstein, S. R. (1969) "A Ladder of Citizen Participation", *Journal of the American Institute for Planners* 35(4): 216-224.

Barnett, C. (*forthcoming*, 2008) "Convening publics: The parasitical spaces of public action", in *The Handbook of Political Geography,* K. Cox, M. Low and J. Robinson (eds.). London: Sage.

Barry, A. (2001) *Political Machines: Governing a Technological Society*. London: The Athlone Press.

Beck, U. (1992) *Risk Society: Towards a New Modernity*. London: Sage.

Blok, A. (2007) "Experts on public trial: On democratizing expertise through a Danish consensus conference", *Public Understanding of Science* 16(2): 163-182.

Bruun Jensen, C. (2005) "Citizen Projects and Consensus Building at the Danish Board of Technology: On Experiments in Democracy", *Acta Sociologica* 48(3): 221–235.

Callon, M. (1998) Introduction in The Laws of the Markets. Oxford: Blackwell Publishers.

Callon, M. and Law, J. (1982) "On Interests and Their Transformation: Enrolment and Counter-Enrolment", *Social Studies of Science* 12: 615-625.

Citizens Jury Handbook (2004) The Jefferson Center (available at www.jefferson-center.org).

Collins, H. M. (1988) "Public Experiments and Displays of Virtuosity: The Core-Set Revisited", *Social Studies of Science* 18: 725-748.

Collins, H. and Pinch, T. (1998) *The Golem at Large: What You Should Know About Technology*. Canto edition 2002, Cambridge: Cambridge University Press.

Converse, P. E. (1964). "The nature of belief systems in mass publics", pp. 206-261 in D. E. Apter (ed.) *Ideology and Discontent*. London: Free Press of Glencoe.

Corr Willbourn (2003a) *A Report on the Foundation Discussion Workshops Conducted to Inform the GM Public Debate*. London: Corr Willbourn Research and Development.

Corr Willbourn (2003b) *Qualitative Research on a series of Reconvened Group Discussions for the 'Narrow but Deep' Strand of the GM Public Debate*. London: Corr Willbourn Research and Development.

Crosby, N. (1996) "Citizens Juries: One Solution for Difficult Environmental Questions", pp. 157-174 in *Fairness and Competence in Citizen Participation. Evaluating Models for Environmental Discourse*, Renn, O., Webler T. and Wiedemann, P. (eds). Dordrecht: Kluwer Academic Publishers.

Dawson, J. I. and Darst, R. G. (2006) "Meeting the Challenge of Permanent Nuclear Waste Disposal in an Expanding Europe: Transparency, Trust and Democracy", *Environmental Politics* 15(4): 610-627.

DBT (2004) *New Climate – new life? Introducing the scenarios*. The Danish Board of Technology (available at http://www.tekno.dk/pdf/projekter/new-climate/Scenarios-for-Naestved.pdf).

Defra (2007) *Managing Radioactive Waste Safely: A Framework for Implementing Geological Disposal*. London: Department for Environment, Food and Rural Affairs.

Dryzek, J. S. and Tucker, A. (2007) "Deliberative innovation to different effect: Consensus conferences in Denmark, France, and the United States", 27 April 2007. Forthcoming in *Public Administration Review.*

EC (Commission of the European Communities) (2001) *White Paper on Governance: Report of the Working Group 'Democratising Expertise and Establishing Scientific Reference Systems'*. 02.07.2001. Brussels.

Elam, M. and Bertilsson, M. (2003) "Consuming, Engaging and Confronting Science: The Emerging Dimensions of Scientific Citizenship", *European Journal of Social Theory* 6(2): 233-251.

Elam, M. and Sundqvist, G. (2007) *Stakeholder Involvement in Swedish Nuclear Waste Management.* SKI Research Report 2007:2. Stockholm: The Swedish Nuclear Power Inspectorate.

Funtowicz, S. and Ravetz, J. R. (1992) "Three Types of Risk Assessment and the Emergence of Post-Normal Science", in Krimsky, S. and Golding, D. (eds.) *Social Theories of Risk.* Westport, CT: Praeger.

Garfinkel, H. (1967/2004) *Studies in Ethnomethodology*. Cambridge: Polity Press.

GM Nation Public Debate Steering Board (2003) *GM Nation? The Findings of a Public Debate*. London: GM Nation Public Debate Steering Board.

Hagendijk, R. and Kallerud, E. (2003) "Changing Conceptions and Practices of Governance in Science and Technology in Europe: A Framework for Analysis", *STAGE Discussion Paper 2* (available at http://www.stage-research.net).

Hagendijk R. and Irwin A. (2006) "Public Deliberation and Governance: Engaging with Science and Technology in Contemporary Europe", *Minerva* 44(2): 167-184.

Hajer, M. (2003) "Policy without Polity? Policy Analysis and Institutional Void", *Policy Sciences* 36: 175-195.

Hilgartner, S. (2000) *Science on Stage: Expert Advice as Public Drama*. Stanford, CA: Stanford University Press.

Horlick-Jones, T., Walls, J., Rowe, G., Pidgeon, N., Poortinga, W., Murdock, G. and O'Riordan, T. (2007) *The GM Debate: Risk, Politics and Public Engagement*. London: Routledge.

Horst, M. and Horst, S. (1996) *Konference om forebyggelse af livsstilssygdomme. Muligheder for consensus, kritik og faglig formidling*. Modul 3, Kommunikationsuddannelsen. Roskilde Universitetscenter, juni 1996.

Irwin, A. (2001) "Constructing the scientific citizen: science and democracy in the biosciences", *Public Understanding of Science* 10: 1-18

Irwin, A. (2006) "The Politics of Talk: Coming to Terms with the 'New' Scientific Governance", *Social Studies of Science* 36(2): 299-320

Irwin, A. and Horst, M. (2007) "Nations at ease with radical knowledge: Science, technology and the expectation of consensus in contemporary Europe" paper presented at the workshop *Deliberation and Democratic Governance*, 3-4 May 2007, Score, Stockholm.

Jasanoff, S. (1990) *The Fifth Branch: Science Advisers as Policymakers.* Cambridge, MA: Harvard University Press.

Jasanoff, S. (2000) "Reconstructing the Past, Constructing the Present: Can Science Studies and the History of Science Live Happily Ever After?", *Social Studies of Science* 30: 621-631.

Jørgensen, T. (1995) "Consensus conferences in the health sector", pp. 17-29 in *Public participation in science: The role of consensus conferences in Europe,* Joss, S. and

Durant, J. (eds). Science Museum with the support of the European Commission Directorate General XII.

Joss, S. A. (1998) *The Role of Participation in Institutionalised Technology Assessment. A Case Study of Consensus Conferences*. Imperial College of Science, Technology and Medicine. November 1998. Thesis submitted for the degree of Doctor of Philosophy of the University of London.

Jungk, R. and Müllert, N. R. (1984) *Håndbog i fremtidsværksteder.* Køpenhavn Politisk Revy.

Kahn, H. (1962) *Thinking about the unthinkable*. London: Weidenfield and Nicolson.

Kalberer, Jr. J. T. (1985) "Peer Review and the Consensus Development Process", *Science, Technology & Human Values* 10(3): 63-72.

KASAM (2006) *Kärnavfall. Vilka alternativ för metod och plats bör redovisas? Rapport från ett KASAM-seminarium den 15 november. Rapport 1.* Stockholm: Statens råd för kärnavfallsfrågor.

KASAM (2007) *Djupa borrhål. Ett alternativ för slutförvaring av använt kärnbränsle*. Rapport 2007:6. Stockholm: KASAM – Statens råd för kärnavfallsfrågor.

Latour, B. (2004) *Politics of Nature: How to Bring the Sciences into Democracy*. Cambridge, MA: Harvard University Press.

Latour, B. (2005) "From Realpolitik to Dingpolitik or How to Make things Public". pp. 14-41 in *Making Things Public. Atmospheres of Democracy*, Latour, B. and Weibel, P. (eds.). Cambridge, Massachusetts: MIT Press.

Lezaun, J. (2007) "A Market of Opinions: The Political Epistemology of Focus Groups", pp. 130-151 in *Market Devices,* Callon, M., Millo, Y. and Munesia, F. (eds.). Oxford: Blackwell.

Lezaun, J. and Soneryd, L. (2007) "Consulting citizens: Technologies of elicitation and the mobility of publics", *Public Understanding of Science* 16: 279-297.

Lynch, M. and McNally, R. (1999) "Science, common sense and common law: Courtroom inquires and the public understanding of science", *Social Epistemology* 13(2): 183-196.

Marres, N. (2005) "Issues spark a public into being: A key but often forgotten point of the Lippmann-Dewey debate", pp. 208-217 in Latour, B. and Weibel, P. (eds.) *Making Things Public*. Cambridge MA: MIT Press.

Marris, C., Wynne, B., Simmons, P. and Weldon, S. (2001) *Public Perceptions of Agricultural Biotechnologies in Europe: Final Report of the PABE Research Project*. Lancaster: CSEC, Lancaster University.

Miller, P. and Rose, N. (1997) "Mobilizing the Consumer: Assembling the Subject of Consumption", *Theory, Culture & Society* 14(1): 1-36.

Morgan, D. (1996) "Focus groups", *Annual Review of Sociology* 22: 129-152.

Morgan, D. L. (1997) *Focus Groups as Qualitative Research*, second edition, first published 1988, Qualitative Research Methods Series 16, A Sage University Paper. Thousand Oaks, London, New Delhi: Sage.

Morgan, D. L. (1998) *The Focus Group Guidebook, Focus group Kit, Volume 1.* London: Sage Publications.

Osborne, T. (2004) "On Mediators: Intellectuals and the Ideas Trade in the Knowledge Society", *Economy and Society* 33(4): 430-47.

Perhac Jr., R. M. (1998) "Comparative Risk Assessment: Where Does the Public Fit In?", *Science, Technology & Human Values* 23: 221-241.

Rawls, J. (1993) *Political Liberalism.* New York: Columbia University Press.

Rawls, J. (1999) *A Theory of Justice.* Revised edition. Cambridge, Massachusetts: Harvard University Press.

Reynolds, L. and Szerszynski, B. (with Kousis, M. and Volakakis, Y.) (2007) *GM Food – The Role of Participation in a Techno-Scientific Controversy*, final report of WP6, Work

Package 6, of the EC project *Participatory Governance and Institutional Innovation* (PAGANINI) (available at http://www.univie.ac.at/LSG/paganini/output.htm).

Rose, N. (1999) *Powers of Freedom: Reframing Political Thought.* Cambridge University Press.

Rose, N. and Miller, P. (1992) "Political Power beyond the State: Problematics of Government", *The British Journal of Sociology* 43(2): 173-205.

Rowe, G. and Frewer, L. J. (2000) "Public Participation Methods: A Framework for Evaluation", *Science, Technology & Human Values* 25(1): 3-29.

Shapin, S. (1995) "Cordelia's Love: Credibility and the Social Studies of Science", *Perspectives on Science* 3: 255-275.

Simmons, P., Bickerstaff, K, and Walls, J. (2006) *CARL Country Report: United Kingdom* (available at (http://www.carl-research.org).

Szerszynski, B. (2005) "Beating the Unbound: Political Theatre in the Laboratory Without Walls", pp. 181-197 *in* Giannachi, G. and Stewart, N. (eds.) *Performing Nature: Explorations in Ecology and the Arts*. Oxford: Peter Lang.

Wynne, B. (1993) "Public Uptake of Science: A Case for Institutional Reflexivity", *Public Understanding of Science* 2: 321-337.

Wynne, B. (2001) "Creating Public Alienation: Expert Cultures of Risk and Ethics on GMOs", *Science as Culture* 10(4): 445-481**.**

Wynne, B., Waterton, C. and Grove-White, R. (1993) *Public Perceptions and the Nuclear Industry in West Cumbria*. Lancaster: CSEC, Lancaster University (available at http://csec.lancs.ac.uk/docs/Public%20Perceptions%20Nuclear%20Industry.pdf).

Yearley, S. (2005) *Making Sense of Science: Understanding the Social Study of Science*. London: Sage.

Notes

[1] www.jefferson-center.org (accessed 2 November 2007)
[2] Ibid.
[3] Philip Webster "Brown poaches opposition MPs to provide advice for ministers", The Times, 4 September, 2007.
[4] "Gordon Brown has promised 'a new type of politics'", 24dash.com, 3 September 2007, www.24dash.com/printNews/57/26996.htm
[5] For instance, shadow work and pensions secretary Chris Grayling "accused the government of 'always launching public consultations'" and stated that there is "a real danger that this whole exercise will be a complete farce" "Brown defends new citizen juries", BBC News, 6 September, 2007. http://news.bbc.co.uk/go/pr/fr/-/2/hi/uk_news/politics/6980747.stm
[6] *Citizens Jury Handbook* 2004: 41
[7] Ibid: 6
[8] Ibid: 32-33
[9] ibid:38
[10] Ibid: 66-67
[11] Ibid:10
[12] Ibid: 66-67
[13] Ibid: 10
[14] Ibid: 41
[15] www.hhs.gov/news/press/1996pres/961206.html (Accessed 5 November)
[16] Interview, October 2007, Bo Carstens.
[17] Ibid.
[18] Ibid.
[19] Ibid.
[20] Ibid.
[21] http://www.tekno.dk/subpage.php3?page=statisk/uk_about_us.php3&language=uk&toppic=aboutus (Accessed 5 November, 2007)
[22] http://www.loka.org/TrackingConsensus.html (Accessed 5 November 2007)
[23] http://www.tekno.dk/subpage.php3?article=468&toppic=kategori12&language=uk (Accessed 5 November 2007)
[24] ibid
[25] ibid
[26] ibid
[27] http://www.tekno.dk/subpage.php3?article=1235&toppic=kategori12&language=uk (Accessed 6 November 2007)
[28] Interview, 12 September 2007, Ida-Elisabeth Andersen.
[29] http://www.tekno.dk/subpage.php3?article=1235&toppic=kategori12&language=uk (Accessed 6 November)
[30] Interview, 12 September 2007, Ida-Elisabeth Andersen.
[31] Interview, 12 September 2007, Ida-Elisabeth Andersen.
[32] Interview, 12 September 2007, Ida-Elisabeth Andersen.
[33] Interview 31 October 2007, Ida-Elisabeth Andersen, DBT
[34] Interview 12 September 2007, Ida-Elisabeth Andersen, DBT.
[35] http://cordis.europa.eu/aoi/article.cfm?article=257 (Accessed 6 November 2007)
[36] Interview 31 October, Andersen, DBT.
[37] http://www.tekno.dk/subpage.php3?article=1235&toppic=kategori12&language=uk (Accessed 6 November 2007)
[38] http://www.tekno.dk/subpage.php3?article=1235&toppic=kategori12&language=uk (Accessed 6 November 2007)
[39] http://www.tekno.dk/subpage.php3?article=1235&toppic=kategori12&language=uk (Accessed 6 November 2007)
[40] http://www.tekno.dk/subpage.php3?article=1235&toppic=kategori12&language=uk (Accessed 6 November 2007)
[41] Interview 31 October 2007 Andersen DBT
[42] As expressed by the interviewee Ida-Elisbeth Andersen, DBT, in a published article (Andersen and Jaeger 1999:338)
[43] Interview 31 October 2007 Carstens