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From government to governance? (Non-) Effects of deliberation on decision-making structures for nuclear waste management in Germany and Switzerland

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In many countries trying to build a deep geological repository for safely storing nuclear waste, different actors involved in the search process struggle over finding a common problem definition. The difficulty in this is that the complexity of the problem is often not acknowledged in nuclear waste governance. Rather, it often only deals with technical aspects, leaving out socially relevant questions. This results in an on-going social conflict over how to best handle nuclear waste. Some countries have tried to calm down the social conflict by integrating the public in decision-making processes to different degrees. In this article, it will be argued that with the introduction of deliberative elements into the decision-making processes on nuclear waste management, actors that were excluded from those processes before could now be included. This could lead to a move from decision-making by government to governance and thus to improved conflict resolution. Using Germany and Switzerland as cases in this cross-country comparison, already implemented deliberative elements will be analysed regarding their integration in traditional decision-making structures and their effects on those structures, respectively. It can be shown that even though both countries make very different use of deliberative elements, both only experience a very slight move away from traditional decision-making by government.

Keywords: nuclear waste management; governance; deliberation; wicked problems

1. Introduction¹

There are currently 29,620,000 m³ of nuclear waste worldwide, of which 367,549 m³ are high-level waste (HLW) originating from nuclear power plants (IAEA [cited 2011 Aug 05]). While for some this is a very small amount, to others this is „some of the most toxic, long-lived and life-endangering wastes known to human kind“ (Byrne and Hoffman 1996: 17). The events in Fukushima, when a broken down cooling tank filled with used fuel rods became the main source of danger in reactor building four (Blowers 2011), put new emphasis on the necessity to safely store the waste.

The debate on how to deal with HLW dates back to when nuclear power was first used for electricity production. By now, more than one third of the world's nuclear power countries have decided to build an underground repository for safely storing

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the waste (Högselius 2009: 254), but so far no such repository has been built. The reasons for this are manifold. In many Western countries, public opposition or even conflicts play a major role (e.g. Rucht 1994; Bergmans et al. 2008).

Different countries have reacted to those conflicts in different ways. Most have experienced advances and drawbacks over time, changing strategies or remaining in a state of non-decision making. One commonality is that many have tried to involve the public in some way in decision-making, though to different degrees and at different stages of the siting process (e.g. COWAM 2007; Andersson et al. 2008; Bergmans et al. 2008).

Both in Germany and Switzerland, the two countries used as cases in this crosscountry comparison, governments now attempt to manage the social conflict by introducing some deliberative elements into nuclear waste decision-making. Theoretically, this should be an appropriate approach, but it needs to be analysed what empirical effects those attempts did in fact have, especially as both governments set strict rules as to who is allowed to participate and who not, thus inevitably excluding some members of the interested public and other stakeholders.

The research question explored in this article is whether the introduction of deliberative elements into decision making for radioactive waste management shifted the emphasis from governmental regulation towards a more inclusive governance.

This study ties into technology assessment (TA) research (see Grunwald 2010b: 254–258). A multi-method research design was employed.² Participatory observation at potentially deliberative events was used for analysing the type of interaction (e.g. Lamnek 2005; Schöne 2006). Document analysis of key government and industry documents was used as a basis for the description of current decision-making procedures and practices (e.g. Prior 2003). Furthermore, a quantitative media analysis of newspaper coverage was carried through (years 2001–2010, *Frankfurter Allgemeine Zeitung* and *Frankfurter Rundschau* for Germany and *Neue Zürcher Zeitung* and *Tagesanzeiger* for Switzerland). It was used for analysing conflict lines in the public debate and key actors involved in the debates.³

Section 2 of this article starts with an exploration of the problems related to nuclear waste management (NWM) and then continues to theoretically discuss how the related governance problem can be characterised. From the perspective of interdisciplinary research, such as TA, such a discussion is necessary as the conceptual discussion on governance is still ongoing. In section 3, nuclear waste governance in Germany and Switzerland will be introduced. In section 4, some thoughts on the role of deliberation in nuclear waste governance will be presented.

2. The nuclear waste governance problem

Recent social science literature analysing the German conflict on nuclear waste disposal is scarce. The topic only very recently gained new attention (Grunwald and Hocke 2009). For Switzerland, some more recent literature can be found (e.g. Scholz et al. 2007; Stauffacher et al. 2008; Krütli et al. 2010a).

The international literature can roughly be split into two groups: the „risk management“ literature suggesting that the conflict is based on the fact that the public’s risk perception is different from the experts’ risk perception (e.g. Sjöberg 2000; Sjöberg and Dröttz-Sjöberg 2008; Renn 2009; see also Solomon et al. 2010), and the „governance“ literature suggesting that policy-making structures need to be analysed (e.g. Flüeler and Scholz 2004; Kemp et al. 2006; Durant 2007; Hocke and

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Renn 2009; Renn 2009). Solomon et al. (2010) conclude that there is a lack of literature integrating the „high-level politics of energy and HLW, the historical and institutional context, policymaking, and especially the facility siting processes“ (Solomon et al. 2010: 37) in the analysis. This means that the existing nuclear waste governance literature often focuses on shortcomings in public participation practices in different countries, while omitting a discussion of the theoretical governance concept used and a description of national governance structures into which such participatory practices are embedded. As decision-making in modern societies is in the centre of the analysis of any kind of research on regulatory structures, the theoretical debate on „governance“ should be evaluated for its use for the debate on public participation and deliberation in NWM. Omitting this debate involves the danger of rendering the term „governance“ meaningless as it could potentially be used in relation to any kind of public participation exercise (or „democratic innovation“) organised by the political decision-makers regardless of the actual role of this exercise in the decision-making process. Thus, a rather more detailed debate on the meaning of „radioactive waste governance“ is presented in this section. Before coming to the debate on governance, it will though be necessary to explain why deliberation is considered a potential factor in moving „from government to governance“.

2.1. Nuclear waste – a doubly complex problem

The technical aspects of the nuclear waste problem are relatively well defined, i.e. the chemical and physical properties of the waste, as well as the art of building an underground repository. Still, there is dissent among experts on how to interpret different data sets and on what can be considered a safe and secure solution. In Germany, for example, a long-lasting dissent among scientists over the geological suitability of the currently explored site (Gorleben salt dome) can be observed (cf. Tiggemann 2004; Kuppler 2010; for an example of such a controversy, see BGR 2011; Kleemann 2011). Scientific advance in this field is also going fast. In the beginning, deep sea disposal was considered a viable option for disposing of lowlevel waste (LLW). Later, the danger of this solution for maritime life was acknowledged by many states (cf. Calmet 1989). Thus, even though information on the technical aspects seems well-ordered and available, changes in the knowledge base can be observed as well as struggle over how to interpret it.

Dryzek explains this dissent in how to interpret existing information by suggesting that these different ways of describing a problem are embedded in different discourses. Discourses in his interpretation are a „shared way of apprehending the world“ (Dryzek 1996: 8) and thus include for example different ideas about acceptable safety and security levels.

The multitudes of discourses, which can be used to interpret the nuclear waste problem, are not only present among scientists but also the general public. Policy makers need to implement nuclear waste policies in a modern, reflexive society, i.e. a society that is shaped by technologies' unintended side-effects and is occupied with a constant redefinition of what is waste and what is resource, thus creating different discourses about nuclear waste (Beck 1996; Keller 2008). The nuclear waste problem can thus be labelled as being „doubly complex“, i.e. it is a complex environmental problem, which is subjected to a complex societal decision-making system (Dryzek 1996: 8). When it comes to implementation, societal aspects such as distributional

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equity and responsibility towards future generations (e.g. Shrader-Frechette 2000; Marshall 2005; Grunwald 2010a), stigmatisation (e.g. Slovic et al. 1994; Jenkins-Smith 2001; Marshall 2005) and the NIMBY-syndrome (e.g. Kraft and Clary 1991; Greenberg 2009; Jenkins-Smith et al. 2009) come into play. Thus, at this point, the technical problem of safely and securely managing the waste is just one side of the coin, the societal repercussions this causes the other.

The multitude of discourses used for contextualising the nuclear waste problem also affects policy-making. For designing policies, one problem definition needs to be agreed upon and used as a basis for choosing a problem-oriented policy design. „Wicked“ problems (Rittel and Webber 1973: 156), such as NWM, cannot be fully defined due to the following characteristics: no clear boundaries and no clear information, no agreement on responsibilities, no other cases to learn from, and stakeholders with views of their own (Wexler 2009). In NWM, it is often not communicated transparently how agreement on the problem definition used for policy-making came about, potentially leading to disagreement during the implementation phase. This lack of communication about how to define a problem is considered a main weakness in modern policy making (Rittel and Webber 1973; Hoppe 2010).

Wicked problems can be tamed through negotiation (Rith and Dubberly 2006; Wexler 2009) as those problems cannot be solved „with reference to the logic inherent in the problem“ (Skaburskis 2008: 277).

For NWM, this means that full agreement on the best option for dealing with the waste cannot be expected, and every waste management solution implemented will lead to conflictual situations. Deliberation would allow for finding common grounds and defining disagreement, thus bringing some clarity into the conflict. Such „metaconsensus“ can theoretically include the recognition of the legitimacy of disputed values, the acceptance of credibility of disputed beliefs and the agreement on the nature of disputed choices (Dryzek and Niemeyer 2006: 638, Table 1). While this would be the minimal outcome to be expected, on some topics real consensus seems possible.

In order to understand the influence deliberation can have on decision-making structures for nuclear waste disposal, two kinds of deliberation need to be analysed: deliberation in small groups and deliberation within society, which serves political opinion building within the public (cf. Chambers 2009; Bächtiger et al. 2010; Lehtonen 2010). In this article, the integration of small group deliberation in decision-making structures and the changes they induce in those structures are analysed. Deliberative „*decision-making is a process in which political actors listen to each other, reasonably justify their positions, show mutual respect, and are willing to reevaluate and eventually revise their initial preferences through a process of discourse about competing validity claims* (Steenbergen et al. 2003: 21)“.⁴ This means that all arguments should be heard, everybody should have the possibility to state and explain their argument, everybody should be allowed to challenge the others' arguments and the final decision will be based upon mutual understanding about the validity of the single arguments (e.g. Webler 1995; Chambers 2003; Renn 2008). This does not mean that final decisions will be taken within those small groups, though. Rather, it can be expected that responsible decision-makers in a representative democracy will use the small group deliberations for information but are free to take the final decision they consider to be most suitable and coherent with current law. The degree to which the conclusions drawn during such deliberative exercises are

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reflected in the final decisions taken also depends on a country's democratic tradition (for Switzerland, see e.g. Linder 2005: 246).

In dialogues on NWM, differing interests as well as a long history of conflict stand in the way of „pure reasoning“. Thus, it is unlikely that „pure“ deliberative decision-making will be found in the cases examined here. Rather, it can be expected that a „deliberative drift“ (McClaverty and Halpin 2008) might be observed in some situations meaning that the small group deliberations do not always have pure deliberative character, but also that the decisions by those responsible are not solely based on the results of the deliberative exercises.

Those situations, which are of interest here, will in the following be called „deliberative events“. The term refers to events, which are organised by the responsible authorities either as stand-alone activities or as part of a larger process with the aim of advancing decision-making on a final repository. Those „deliberative events“ involved at least parts of the public and could theoretically have had deliberative features as identified above.⁵

2.2. NWM as a governance issue

In the introduction to section 2, it was established that for a meaningful empirical analysis of the effects of deliberation on a „move from government to governance“, the integration of deliberative elements into a country's respective decision-making structure needs to be described and analysed. In order to do this, the term „nuclear waste governance“ needs to be defined first.

Mostly, the term „governance“ is used when talking about the governing of social and economic problems (Mayntz 2004). It is considered to contribute to social integration by leading to a more efficient supply of institutional services in a functionally differentiated society, thus lowering conflict levels (Lange and Schimank 2004; Haus 2010). Typical examples are health, science and technology governance. Technology governance is about the integration of new technologies into society (e.g. Aichholzer et al. 2010). It focuses on complex interaction and integration processes related to the use of new technologies, in which different sectors are involved. This implies that the meaning of the term „nuclear waste governance“ needs to go beyond governing the technical aspects of the waste and integrate the associated social conflict, i.e. the complex process of integrating the interests of a wide variety of actors.

Many authors have already tried to bring some order into the on-going discussion on the meaning of „governance“ (e.g. Pierre 2000; Pierre and Peters 2000; Benz 2004b; Benz et al. 2007b; Haus 2010). One general distinction made is between governance as phenomenon and governance as analytical perspective (e.g. Pierre and Peters 2000; Benz et al. 2007b). Further uses are governance as a normative concept and governance as a practical concept (e.g. Benz et al. 2007a).

Governance as a normative concept is a concept for reforming public management, in which an „activating“ state uses different modes of coordination for achieving self-regulation of society and is related to the „new public management“ approach (Jann and Wegrich 2004; Haus 2010: 48).

Governance as a practical concept is based on the normative concept but pays more attention to how this is put into practice (see e.g. Benz et al. 2007a).

The existing governance literature on NWM mainly seems to tie into the normative and practical views on governance. It is very likely that

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governments were influenced by this discourse on public participation as good governance practice and started implementing participatory events as a result.⁶ While this helps to explain the surge in participatory activities, it does not help in analysing the impact the introduction of deliberation has on the political decisionmaking process and thus potentially on the social conflict. Here, focus will thus be laid on governance perspectives, which allow for an analysis of negotiation processes and arrangements, as well as processes of integration between actors and positions.

Traditional NWM is clearly bureaucratically⁷ organised in most countries. A move to nuclear waste governance as defined above would imply a shift towards a governance network. According to Torfing (2006), conflict occurs in all governance networks. He claims that those conflicts even have the potential to produce public value, which is expressed through an integration of different interests and positions into problem definitions, on which policies can be based. He further highlights that governments do still play a role, as they provide for the frame within which the governance network is established. It is called the „shadow of hierarchy“ (Torfing 2006: 111). In the field of NWM, it is very likely that the „shadow of hierarchy“ will remain very strong and network governance mainly occurs through the integration of new actors by introducing deliberative elements. This approach to governance focuses on the form of the arrangement but not the aim or content.

The analytical perspective focuses on this and states that governance is about steering and coordination (Benz 2004a).⁸

The concentration on the steering aspect puts into focus the efficiency of any governance arrangement in finding a solution to a problem. This approach has two blind spots: first, whether this leads to a good solution (whatever this might be) is not in focus. Second, power interests are not reflected in the governance perspective (Mayntz 2004: 75). If the search for the most efficient solution was the only criterion, this would eliminate all political debate and thus lead to de-politicisation of formerly political processes (Haus 2010).

Haus offers an alternative view on governance, in which he claims that this can be evaded if we stop asking for the outcome, which governance arrangements achieve, but instead start looking at governance as a „practice, which is subject to a circular interdependence of expectations and achievements“, (Haus 2010: 160; own translation). Here, achievements do play a role, but society is constantly challenging those outcomes by not only evaluating the efficiency with which they were achieved but also their contents. He argues that to analyse this, it is not possible to rely on only one of the above-mentioned perspectives, but that every governance-problem has four analytical perspectives. Each of these perspectives offers a different knowledge gain about the problem and they need to be considered together in order to fully understand a governance-problem while avoiding the danger of depoliticisation. Those perspectives are cooperative–result-oriented; consensual–cultural; hegemonial–strategic and authority–technological.⁹

As the purpose of this article is not a full analysis of the governance problem, but rather giving an impression of the role that deliberation could play in governing the conflict on NWM, not all of these perspectives are of major importance here. Rather, focus will be laid on the cooperative–result-oriented and the authority–technological ones. According to Haus, each of these perspectives includes a certain problem view, a normative aspect and an analytical perspective, among others. The cooperative–result-oriented perspective is based on the steering perspective on governance. It focuses on modes of interaction between the state and other actors and is interested

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in the functioning of society. Its normative perspective is the efficiency of steering processes. The authority–technological perspective focuses on possibilities for democratic decision-making under conditions of plurality. In this, it looks at the division line between state, market and society. Its normative perspective is on possibilities for participation in forming and defining governance networks (Haus 2010: 161–163). Using those two perspectives, changes in NWM can be analysed, which include changes in power distribution, in decision-making networks and in modes used in the interaction between state and society.

3. Governing nuclear waste in Germany and Switzerland

Germany and Switzerland have not only some important similarities but also differences from which it can be hoped to learn about the potential impacts of deliberation on nuclear waste decision-making structures. They are both central European countries with a long history of using nuclear power, both have been subjected to similar societal changes with an institutionalisation of environmental movements and both have failed in installing a nuclear waste repository using a hierarchical approach (Hocke and Kuppler 2011). The most important difference is that the German government has followed a muddling-through approach up until now (Hocke and Renn 2009), while the Swiss government has decided on starting the search anew, this time comparing different potential repository sites (SFOE 2008b).

The search for a repository has started already a few decades ago in both countries. Regarding the question on governance and deliberation, only the time approximately since the year 2000 is of major interest. It was around this time that the debate on public participation in decision-making has started to gain influence on NWM.

3.1. Germany

In order to describe the German governance structures for nuclear waste, three aspects need to be looked at: first, the official decision-making processes following legal rule, as they are still the „shadow of hierarchy“ under which any approaches to governance by networks take place. Second, the informal, expert-centred and lobbyoriented decision-making structures, and third, the deliberative processes organised by the responsible political actors.

In Germany, there is no law on selecting a final repository site. The site that is currently being investigated for the disposal of HLW, the Gorleben salt dome, has been designated as potential repository site in the late 1970s (Tiggemann 2004; Appel 2006; Bluth and Schütte 2010). The precise selection criteria have never been made public (Tiggemann 2004: 416–422).¹⁰ Some general criteria are known, though (Bluth and Schütte 2010). This selection process has been subject to a major public debate suggesting that it was not based on scientific criteria, but rather political ones, such as the proximity of the Gorleben site to the former GDR. The installation of a parliamentary enquiry board with the task of investigating into this process shows the importance of the history of the Gorleben site for the German case. Furthermore, it shows the importance of party affiliations in this ongoing conflict. The conservative and liberal parties' official opinion is that the enquiry board showed that the Gorleben site was chosen on scientific grounds. The social democrats and Greens' opinion is that it proved that political criteria were the main

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driver for choosing Gorleben. In the current conflict, political criteria as a basis for site selection are considered an argument to stop investigations at the Gorleben site.

Once a site has been chosen, the approval process is clearly regulated. Nuclear Law demands for a plan approval procedure to be carried through, which is the same as for other large-scale industrial installations (Atomgesetz x 9b).¹¹ The approving agency is the environmental department of the State, in which the repository is located (BfS [last update 2011 Oct 26]). As part of the approval procedure, it has to make the plan accessible to the public, which is allowed to comment on it. All comments, which were submitted up until a specific deadline, have to be publicly discussed at a meeting (Atomgesetz x9b (5)). No approval procedure has been started for the Gorleben site yet as safety assessments have not been finalised yet (cf. GRS 2012).

The Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU) has supervisory control over the whole process and also the plan approval procedure (Appel 2006; BfS [last update 2011 Oct 26]). Even though the structure seems clear, there remains controversy over the fact that the Federal Agency for Radiation Protection (BfS) is responsible both for supervision and operation of a future repository.

In autumn 2010, it decided that the on-going explorations will continue to be subject to Mining Law, which in contrast to current Nuclear Law does not necessarily demand for a plan approval procedure (BBergG x 52 (2a)). This again sparked major protest especially among those critical of the Gorleben site. The government was accused of using outdated laws and being afraid of public participation.

Even if nuclear law had been applied and as a result a plan approval procedure had been carried through, this would still not include any substantive participation or deliberation. A plan approval procedure can be characterised as a classic mode of interaction in a hierarchic „decide-announce-defend“ decision-making style (cf. Kemp 1992: 157; Kuhn and Ballard 1998: 535). This means that the approving agencies have full decision-making power. The public is not informed about stages of the creation of the plan or allowed to participate in discussing possible alternatives at early stages but only allowed to comment on the final plan.

The power companies, which own all of Germany's nuclear power plants, traditionally have strong ties to the federal government. For example, nuclear power production is in private hands, but the task of dealing with and disposing of the nuclear waste is in public hands (AtG x9a (3)).

Furthermore, while the conceptualisation, application and approval procedures as well as the operation and monitoring of the final repository site are all in public hand, its planning and construction are carried through by a third-party contractor, which is mainly owned by Germany's four largest power companies (Deutscher Bundestag 2008; GNS [cited 2011 Sep 22]). The strong role of the public hand in the process, which includes the responsibility for identifying and building a repository, again is a controversially discussed issue as critics accuse the power companies of not taking full responsibility for the waste they produced.

Another example for the closed nature of the political decision-making processes is the limited number of scientists, who gain access as experts. Already at an early stage of the debate, the circle of the scientists, who were officially invited to participate in the process as experts, was closed (cf. Tiggemann 2004; Appel 2006). No official procedures have so far been established for dealing with scientific controversies over how to interpret the findings at Gorleben. This fits with analyses of the German governing style as „passively exclusive“, which means that it is

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difficult for actors that are not traditionally bound to the government to gain direct access to political decision-makers (Dryzek et al. 2003: 6–7).

A first opening up took place in 1999, when a pluralistic working group was set up with the task of proposing a search and selection process for a final repository site (AkEnd 2002). It consisted of a group of established scientists from a variety of disciplines, which differed in their views on nuclear power. This opening up was partially institutionalised in 2008, when an expert group was founded with the task of providing consultation in matters of nuclear waste disposal to the BMU (ESK). In the group's statutes, it is written that the members of the group should „represent the whole bandwidth of views, which can be justified by the current state of science and technology“ (ESK 2008: x3; own translation). In accordance with this provision, scientists, who are known to be of the opinion that building a safe repository at the Gorleben site is not possible, are members of the group. This does not end the expertcentrism of the debate, but some scientists were let in, who had been excluded as experts from official consultation events ever since the early 1980s (cf. Appel 2006).

Since the year 2000, there have been two major events at which the government has tried to involve the public in the debate on nuclear waste disposal. As part of the AkEnd process, public engagement took place in form of three open workshops, dialogues with key public figures and through online platforms (AkEnd 2002). The aim of these activities was to integrate a broad variety of stakeholders in the definition of criteria for safe disposal and in suggesting a procedure for a comparison between different potential repository sites (Hocke-Bergler et al. 2003). Thus, even though the expert-centrism of the preceding years was continued, the consultation with a variety of stakeholders opened up the debate to actors, which were marginalised before, to a certain degree. Such an approach was novel for this kind of process. The work of the AkEnd resulted in a very progressive report, which yielded much international response (see section 4.1). The recommendations given by the AkEnd have though never been implemented in Germany.

In October 2008, the BMU organised the „international symposium on the final disposal of nuclear waste“ in the attempt to restart the dialogue with the stakeholders. The aim was to bring together representatives from all stakeholder groups involved in the conflict, i.e. government, industry, social movements and environmental NGOs, in order to discuss an update of the safety requirements for a nuclear repository (Hocke 2010; BMU [last update 2012]). As a follow-up to the symposium, a second, smaller public event was organised in order to carry through this intended task, as the debate at the symposium was dominated by a pure exchange of positions and did not enter into a stage of deliberation. This second, smaller event took place in March 2009 and was open only to a limited number of participants (Hocke 2009). Some of them were nominated by different environmental NGOs, while registration for the remaining seats was open to the public. As a result of this event, an opinion statement was issued to the government (ibid.). The BMU never issued an official statement on if and how the recommendations were taken into consideration in the following update of the safety requirements.

In summary, a classic hierarchical model of governmental regulation is still prevalent in Germany, which is heavily contested. Still, some minor shifts in the regulatory structure have taken place by including experts that were systematically excluded before and by organising events, which could theoretically allow the public to enter into deliberation with the government. Those events were isolated from the official regulatory structure, though, and no procedures were established, which

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would clarify how the responsible decision-makers would take into account the results of the deliberative events.

3.2. *Switzerland*

The situation in Switzerland differs from the German situation in one central point: In 2004, the Swiss government decided that a procedure normally used in land-use planning, the „Sectoral Plan“ („Sachplan“),¹² should be adapted so that it could be used as a procedure for selecting a final repository site both for HLW and intermediate (ILW) and LLW (SFOE 2005: 17). The final aim of this selection procedure is to identify one potential site for the disposal of HLW and one for ILW/ LLW or one site suitable for the disposal of all types of waste. The search for those sites started with a generic search for and evaluation of all potentially suitable geological sites available in Switzerland. It was a series of events, which led to the decision to use a Sectoral Plan. In 2002, the „National Cooperative for the Disposal of Radioactive Waste“ (Nagra) handed in a feasibility study for the disposal of HLW in Opalinus clay in the region „Zürcher Weinland“. This proof was accepted by the Federal Council (ENSI [cited 2012 Mar 07]). In response to a National Council initiative and after substantive input from the Swiss Federal Office of Energy (SFOE), the Federal Council decided that instead of relying on the already identified sites, a site selection procedure would still have to be carried through (SFOE 2004 Sep 28). This decision was also taken under the impression of the failure to get approval for further explorations at a site, which had been chosen for a potential repository for ILW and LLW before (Wellenberg), in a cantonal referendum.¹³

With the passing of a new nuclear law in 2003 (Kernenergiegesetz SR 732.1), the SFOE took over the role of process owner from the Nagra and with it the need to define a selection procedure.

The idea for using a Sectoral Plan for this purpose was first discussed between the Federal Working Group on Nuclear Disposal (AGNEB),¹⁴ the responsible administrative institutions, as well as later on the Nagra (SFOE 2005).

The Sectoral Plan introduced a relatively high degree of transparency to the selection and investigation processes in Switzerland. It opened up the „decide-announce-defend“ approach by making it easy for the public to observe those processes and even allow for substantive participation in some and consultation during all stages.¹⁵ After consultations with the public, as well as national and international experts, the Sectoral Plan was finalised in 2008.

The Swiss Federal Office of Energy (SFOE) has supervisory control over the whole process. Further involved are several other federal institutions, the cantonal governments, as well as the municipalities situated within the regions, which were identified as having potentially suitable geological features. Those regions were identified during the first phase of the implementation of the Sectoral Plan (SFOE 2011). The Nagra is responsible for carrying through the actual search procedure for a final repository, i.e. it is responsible for carrying through the research and writing the reports necessary for taking a decision. The Nagra was founded in the 1970s by the operators of nuclear power plants and the Swiss Confederation (Nagra [cited 2012 Mar 16]) and is thus partly privately owned.

The Sectoral Plan fulfils three tasks (cf. SFOE 2008b): first, it provides for a stepwise approach with fixed points in time at which the process can fall back into earlier phases if necessary. This is when in the end of each of the three phases,¹⁶ interested

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members of the public, associations, political parties, neighbouring states, etc. can comment upon the reports and decisions taken during the respective phase. Based on the opinions gathered during this consultation period and the reports, the Federal Council has to take a decision on whether to proceed with the next phase. In the very end, the Federal Parliament decides upon the site selected and a national referendum is possible, if sufficient signatures are collected (at least 50,000) or if sufficient cantons vote in favour (at least 8).¹⁷ This procedure was introduced with the passing of the new nuclear law, which at the same time banned the possibility of an optional cantonal referendum taking away any veto right from the cantons and leaving them with a diffuse right to be involved. This was subject to a major debate in Parliament and among opponents of the site in the region „Zürcher Weinland“, for which the feasibility study for the disposal of HLW in Opalinus clay had been carried through. Those against this change judged it a weakening of democracy and distrust in the rationality of the citizens. Those in favour judged it as a step against the spreading of a NIMBY¹⁸ attitude. A further implication was that the point of time at which the public could make use of their veto right was moved from the beginning to the very end of the process. Depending on cantonal law, a cantonal referendum could already take place before explorations at a specific site were started, as was the case for the Wellenberg site. The optional national referendum can only take place at the very end of the selection process. Despite the controversial discussions, this law was finally passed without major opposition.

Second, the Sectoral Plan describes general criteria for assessing the safety and technical feasibility of a potential repository. Those are based on national technical as well as international guidelines (SFOE 2008a: 41). They were discussed during the public consultations on the Sectoral Plan (cf. SFOE 2008a).

Third, it describes who is allowed to participate in the process at what point of time and regarding which questions. The first „right to participate“ is everybody’s right to comment upon the plans and reports at the end of each phase. Second, members of the potentially affected public are involved in questions related to land use planning and socio-economic impacts of a repository site. Who is affected is decided based on the planning parameter, which is set to 5 km. Some exceptions are possible in cases in which municipalities, which are further away from the potential site, are exceptionally affected (Barth et al. 2009).

The Sectoral Plan can be considered an innovation in so far as it brings a degree of transparency into the selection process, which has not been there before. Governmental actors and the Nagra have decided to interpret the calls for transparency laid down in the Sectoral Plan in a wide manner, publishing all relevant documents and making them accessible to the public (Hocke and Kuppler 2011). They further organised a multitude of information events at which high-level representatives of both organisations explained the details of the plan and, later on, the results of phase one to an interested public. At those events, a comparatively high degree of professionalism, openness towards questions from the interested public and willingness to follow-up on open points could be observed.

The only way for the public to influence technical decisions is to pose questions at information meetings and to hand in comments at the end of each phase. While at the information meetings a certain degree of deliberation is theoretically possible, the handing in of comments remains one-way communication.

Starting from phase two, „Regional Conferences“ are set up in each of the potentially affected regions and consist of members of the potentially affected public.

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Those conferences have the task of carrying through the evaluation of the socioeconomic impacts a repository site would have.

In conclusion, Switzerland is more in a period of change from decision-making by government to governance than Germany. The incorporation of socio-economic impact studies changes the official problem definition by acknowledging that such impacts are invariably connected to the technical questions. The high degree of transparency and the organisation of many consultations further open the process to previously marginalised actors.

Still, in central technical and safety questions, the federal government only allows for consultation and not participation. Furthermore, the bundling of power at federal level with a weaker role for the cantons causes a certain degree of closure.

4. Observations on the role of deliberation

In this section, some first observations will be presented on how deliberative procedures have influenced or even changed the current decision-making structures and the social conflicts in Germany and Switzerland. This will be done by discussing the impact, which negotiations on a new selection procedure for a radioactive waste disposal site have had in both countries.¹⁹

4.1. Germany

In the governance structure for radioactive waste in Germany, the same conflicts have been on-going and blocked decision-making for a long time. Furthermore, the societal conflict seems not to have died down.

The main type of conflict inherent in the governance structure is party political conflicts, which have made long-term planning and result-oriented working difficult. The persistence of this conflict is partly due to the fact that over long periods of time, the federal government and the state government of Lower Saxony were headed by oppositional parties, which tried to use the topic for sharpening their political profile (Hocke and Kuppler 2011). Moreover, elections at federal level have sometimes been used for this purpose. For example, Norbert Röttgen, federal minister for the environment since 2009, stated that the previous government had acted irresponsibly, blocked decision-making and thereby burdened coming generations with having to deal with this problem (BMU 2010).

The main question used as a conflict line in this party political conflict is whether the selection procedure for the Gorleben site was based on scientific facts or rather on political interests, and whether the Gorleben site should further be investigated. The fact that there is no official selection procedure for a potential repository site is thus being exploited for party-political purposes.

In the social conflict, the history of the Gorleben site is also a central topic, next to the question whether the site is suitable or not and if it should be further investigated. Many topics addressed in the social conflict seem closely related to these questions and have remained of interest over a long period of time.

The AkEnd could be considered a partially deliberative attempt at changing this situation. It has failed in so far as the suggestions made have never been implemented or officially commented. Studies carried out during and shortly after the AkEnd's working period suggest that it further had no or only very limited outreach to the German public (Hocke-Bergler and Gloede 2006).

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Looking at the long-term impact the AkEnd has had, the picture looks slightly different. Even though the official governance structure may not have changed, the AkEnd's work has managed to enter the debate on how an appropriate selection procedure could be organised. For example, at the international symposium in 2008, many members of social movement organisations and the interested public stated that the AkEnd's work should be used as a basis for a selection procedure by the German government (Hofmann-Dally 2010). Also in the scientific realm, it is considered to be bundling the state of the art of technical and social scientific knowledge and has been used as a reference in designing selection processes, e.g. in Switzerland (Macfarlane and Ewing 2006; Krütli et al. 2010a, b).

Thus, while no direct effects can be observed, which would be an implementation of the recommendations, it has at least contributed to strengthening pluralism in the debate by putting into words and thus „officially“ establishing an alternative to the current governance structure for selecting a potential repository site. In contrast to this current structure, which is purely hierarchic, the AkEnd suggested a structure in which the government would still take the final decision, but which would be based on transparent consultations with experts and regionally affected people. By choosing to support the AkEnd's work, the interested public and social movement groups have acknowledged the AkEnd's work as being relevant for conflict resolution. The demand for a new governance structure for selecting a repository site has of course been present before the AkEnd issued its recommendations, but the scientific credibility of the AkEnd's work provides its supporters with a stronger argument in the face of power.

4.2. *Switzerland*

In Switzerland, the governance structure for selecting a repository site has been changed with the introduction of the Sectoral Plan.

Any potential for conflicts arising due to differences between the federal and cantonal levels has been eliminated. The Sectoral Plan clearly sets federal regulations above cantonal regulations and demands from the affected cantons to adjust their regulations to the regulations set down in the Sectoral Plan (SFOE 2008b). Though this act itself seems a potential source of conflict, no evidence was found that it was subject of a major debate besides the debates in Parliament.

Even though the decision for using a Sectoral Plan for this process was made within the old governance structure, which means it was hierarchically decided upon, the details of how to implement it were widely discussed with experts and the public. It is not easy to reconstruct the exact influence those discussions had on the set-up of the new governance structure. This means that it cannot be clearly stated how much power the power holders in the „old“ governance structure were willing to give away. Still, it seems that the suitability of the Sectoral Plan has been controversially discussed during the consultations, but that this discussion was mainly about details and not about the suitability of a Sectoral Plan in general (cf. SFOE 2008a). This was probably influenced by the fact that the Sectoral Plan is an established instrument in Swiss federal land use planning, which means that especially stakeholders from the administrative institutions could rely on their experience as to what using such a plan would entail (Hocke and Kuppler 2011). The relative agreement on a Sectoral Plan as a suitable instrument is an important step in conflict resolution as the interested public has been shown to give high importance to a fair selection procedure (Krütli 2010).

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Despite this general acceptance of the Sectoral Plan, some potential for conflict about an appropriate governance structure for selecting a final repository site does of course remain. For example, some German municipalities feel potentially affected by a Swiss repository site but are located outside of the planning parameter. They tend to regard the setting of this parameter as unfair (Formulierung sorgt für Zündstoff 2010 Nov 25). The SFOE's reaction to this conflict situation was that it showed some flexibility in counting two municipalities, which share some administrative institutions, as one, thus allowing the municipality located outside the planning parameter to participate (Barth et al. 2009). This step can be interpreted as a compromise between the demands from the Swiss side, where municipalities are usually very small and thus many are located within the planning parameter, and the German side with its larger municipalities. It thus helped to reconcile different expectations about an appropriate governance structure.

Another remaining and central point of conflict is the limitation of participation to socio-economic questions. The possibility only to hand in comments and to discuss only at information events may prove insufficient to negotiate the public's different expectations about the safety level and also the fairness of the selection procedure. The selection of six candidate regions during phase one of the Sectoral Plan, for example, was subject of much discussion.²⁰ It was, for example, suggested that the Nagra was not objective in its selection but favoured a specific region, even though some stakeholders considered this region as not as suitable as other regions (Kriterien für Endlager Bözberg günstig 2011 Mar 05).

Due to the parliamentary decision and the optional referendum only taking place in the very end of the whole process, it is impossible to say yet, whether the Sectoral Plan will lead to the Swiss public accepting a suggested repository site.

The introduction of the Sectoral Plan, which was subjected to some deliberation before its implementation, has led to an opening up of the debate and also, potentially, to a higher degree of acceptance for the selection procedure, but the partial bundling of power at federal level and the low degree of deliberation on safety issues still carries some potential for conflict.

5. Conclusion

Neither in Germany nor Switzerland systematic deliberation on the major problem aspects (best method, data interpretation, etc.) is taking place. Still, some impacts of the implemented „quasi-deliberative“ events can be observed. The main impact is that the (partially) deliberative formation of an alternative governance structure for selecting a repository site has led to a partial opening up of the debate to new actors and thus problem definitions in both countries. In Germany, the first main achievement of the AkEnd was to identify a procedure, which convinced a number of key actors. For example, it caused positive resonance among nuclear scientists, but also the interested public, which was very interested in being heard during the selection process. The second achievement was to put it on paper and thus give stakeholders, which were so far rather located at the „outskirts“ of the debate, an argument to use, which was produced at the „centre“. In Switzerland, one of the main achievements was the relatively high degree of transparency, which was partially a result of the consultations, which took place before implementation of the Sectoral Plan. A second major achievement is the relatively high degree of general acceptance for using a Sectoral Plan for selecting a repository site.

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In the end, in both countries, the general governance structure remains rather hierarchic. The final decision is still taken by the government authorities, but while in Germany it is a bureaucratic decision at all stages, in Switzerland the selection procedure involves a final decision to be taken by the Federal Parliament and provides for a facultative national referendum. The inclusion of deliberative procedures in the respective governance structures differs strongly. Due to the fact that the AkEnd's recommendations have so far not been implemented, it seems that in Germany deliberative procedures are still only considered „tools“ as they remain not being part of the official selection and approval processes. In Switzerland, the SFOE's strong commitment to transparency and to seriously consider any results of negotiations with the public moves deliberation from being a „tool“ to a twilight zone, which still requires more thorough analysis before it can be described to a satisfying degree. If in the end, a repository will be built, i.e. if the respective governance approach is effective, remains open.

Notes

¹ This article is based on intermediary results of the author's research for a PhD on effects of deliberation in decision-making processes on radioactive waste management. The work is still ongoing as the empirical work has not been fully concluded yet.

² A detailed description of the methodology will be published as part of the author's PhD thesis.

³ For the conceptual framing, Hocke-Bergler et al. (2003) was used as a reference. Früh (2011) offers methodological background and Merten (2007) discusses the constraints of this method.

⁴ Steenbergen et al. (2003) base their definition on a review of key authors working on deliberation such as Habermas (1991, 1995, 1996), Chambers (1995, 1999) and Gutmann and Thompson (1996).

⁵ For the German case, this would, for example, be the “Arbeitskreis Auswahlverfahren Endlagerstandort” (AkEnd) (for a further description of the AkEnd see below); for Switzerland, an example would be the consultations prior to the finalisation of the Sectoral Plan (see section 3.2).

⁶ In the final synthesis report of the European Community Waste Management project, governance is, for example, considered a basic value next to human rights, inclusion and justice (cf. COWAM 2007).

⁷ “Bureaucratic” here means that an act is carried out by administrative agencies according to set regulations, and that the final decision is taken within administrative settings.

⁸ Even though steering is central, there are still many different views on it. Some authors develop perspectives based on different theoretical backgrounds (Pierre and Peters 2000; Benz et al. 2007b) and others based on different scientific disciplines (Chhotray and Stoker 2009).

⁹ For a full description of all four perspectives, see Haus (2010: 159–164).

¹⁰ By the time of writing this article, the German federal government is in the process of negotiating on a new law on a site selection procedure for final repositories for HLW. The question of whether the Gorleben site should still be included in any new selection procedure has not been answered yet.

¹¹ The general plan approval procedure is described in the German Administrative Procedures Act (xx72–78). Specificities of the procedure for nuclear installations (e.g. the demand for an Environmental Impact Assessment) are laid down in the Atomic Energy Act (x9b).

¹² “Sectoral Plans are Plans according to the Federal Law on Land Use Planning, [which] allow for the comprehensive planning and coordination of federal activities [. . .]”, (ARE 1997: 8; own translation).

¹³ For a description of the historical processes leading up to this referendum, see Krütli et al. (2010a: 231–233).

¹⁴ AGNEB consists of representatives from different administrative agencies and research institutions (SFOE 2005).

¹⁵ Following Arnstein's Ladder of Citizen Participation, "consultation" counts as "tokenism", while "participation", as used here, counts as "citizen power" (Arnstein 1969). Arnstein argues that "consultation" counts as "tokenism" in cases in which citizens have to rely on those in power to listen to their opinion. In the Swiss consultation processes, politicians promise to take the stakeholders' arguments into account, but there is no general rule for how this should be done. Thus, those processes generally qualify as "tokenism" even though there are cases in which the stakeholders' arguments are indeed taken into account.

¹⁶ Phase 1: identification of six candidate regions; phase 2: selection of at least two sites each for L/ILW and HAW; phase 3: General Licence Application for at least one site. If necessary, site-specific geological investigations are carried through in phase 3.

¹⁷ <http://www.admin.ch/ch/d/sr/101/a141.html>

¹⁸ NIMBY stands for "not in my backyard" and "refers to the protectionist attitudes of and oppositional tactics adopted by community groups facing an unwelcome development in their neighborhood" (Dear 1992: 288).

¹⁹ The procedures for deciding on those two new selection procedures included some events, which count as deliberative as defined in section 2.1.

²⁰ Of those six regions, three are considered potentially suitable for HAW. Those are: Zürich Nordost (formerly: Züricher Weinland), Jura Ost, and Nördlich Lägern. Within those regions, two potential repository sites, i.e. specific locations, will be selected in phase 2. Thus, inhabitants of those regions will be potentially affected by a future repository.

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