Is the post-Fukushima reform really making Japan safer?

From shared responsibility to collective accountability

Dr. Yasuo Takao
Curtin University
Social Sciences and International Relations
GPO Box U1987
Perth, WA 6845
Australia

Email y.takao@curtin.edu.au

Ten years after the Fukushima disaster, the nuclear safety regulation system in Japan has gradually moved from the exclusionary process of policy making, based on hierarchically organized policy, to a decentralized and open process of policy making whose competence is divided beyond the pre-given political actors. Yet policy making and implementation need to bring together multiple stakeholders to work in concert to achieve a desired outcome of nuclear safety. This article seeks to explain why the trend towards more inclusive forms of policy making in all likelihood may still lead to negative consequences for democratic accountability of nuclear safety. The author argues that the coordination issue becomes critical to a plurality of conflicting interests and beliefs of autonomous stakeholders. Although the decision making plurality favours democratic interest representation, empirical evidence suggests that a poorly coordinated response by the national government to nuclear policy implementation fails to get stakeholders to work together for Japan's nuclear safety. From a broader perspective, the lack of coordination among different stakeholders is one of the weaknesses of expanding accountability mechanisms to include more stakeholders, and results in challenges to policy coherence.

Introduction

Regulatory failures learned from the 2011 Fukushima Daiichi accident led to a reconsideration of the existing nuclear safety regulations and organizations. Japan and several other countries have initiated a consideration of severe accident management, operator safety culture, and regulation, which are considered to have contributed to the Fukushima Daiichi accident (OECD, 2016). In June 2012, as the International Atomic Energy Agency (IAEA) criticized Japan for failing to separate nuclear regulation from promotion function for the most basic safety requirements (IAEA, 2012), the Japanese government established the Nuclear Regulation Authority (NRA) as an independent commission agency. NRA Chairperson and

Commissioners were appointed by the Prime Minister after the approval of the National Diet. The Atomic Energy Basic Act was accordingly amended in June 2012 with a new legislative objective of ensuring nuclear safety. The NRA was given the authority to issue licenses and approvals for the nuclear facilities and activities and revoke permits or suspend the operation of facilities.

The unprecedented effects of Fukushima nuclear accident were too large to handle at the local level closest to the accident. The *kantei* (Prime Minister's Office) thus stepped in and sought to make improvements in the crisis situation. The Democratic Party of Japan (DPJ) in government at that time then came under widespread criticism over its slow and indecisive handling of the Fukushima nuclear meltdown. Prime Minister Kan Naoto initially led the DPJ to set out its party platform to capture the anti-nuclear vote by abandoning plans to build new nuclear reactors. But a policy drift by the *kantei* eroded public confidence in the DPJ (Kingston, 2013). The national election of December 2012 subsequently returned power to the old guard Liberal Democratic Party (LDP). Prime Minister Abe Shinzo's policy speech in February 2013 declared that nuclear power plant operations would resume (Abe, 2013). The new regulatory requirements for power reactors, which tightened measures to prevent or deal with severe accidents and act of terrorism, came into force in July 2013. The NRA accordingly started reviews of applications submitted by electric utilities. In April 2015, the Japanese government announced an optimal energy mix for 2030 that consists of 20–22 per cent from nuclear power (METI 2015).

Immediately after the Fukushima disaster, public opinion turned against nuclear energy. According to opinion polls conducted by *Asahi Shimbun*, *Mainichi Shimbun*, and *Yomiuri Shimbun* in 2011, immediately after the Fukushima incident, 41–44 per cent of the respondents

were in favor of 'reduction' or 'abolition'.[1] Four months after the incident, the percentage dramatically soared to around 70 per cent and stabilized thereafter.[2] In short, the majority opinion clearly shifted from 'just about right' (status quo) to 'reduction'. This divided the majority of the pro-nuclear policy elite from the majority of eligible voters. Nuclear safety increasingly came under the social scrutiny of many eyes through the proliferation of stakeholder participation. As described below, key decisions in nuclear safety policy came to involve approval from multiple groups and institutions with varying resources and jurisdictions. At the heart of nuclear safety governance in post-Fukushima Japan lies the increasing multi-stakeholder engagement, which involves courts, host communities, local governments, public opinion, regulators, among others, extending further beyond the conventional relationships between politicians, bureaucrats and utilities.

The focus of inquiries in this article is on the capacity or preconditions that need to be present in order for a plurality of actors to effectively make and implement nuclear safety regulations. Hence, from the viewpoint of nuclear safety governance, the center of attention is not if individual agents have acted in a responsible way, but rather on how they have interacted, in order to hold a nuclear safety arrangement collectively accountable. Borrowing from the public administration literature on accountability, this paper aims to empirically assess the

---

[1] Major media organizations conducted opinion polls: *Asahi Shimbun*, 16–17 April and 11-12 June; *Mainichi Shimbun*, 16–17 April and 14–15 May, *Yomiuri Shimbun*, 1–3 April and 14–15 May, and Japanese Broadcasting Corporation (NHK), 24–26 June.

[2] Major media organizations conducted opinion polls: *Asahi Shimbun*, 9–10 July and 15–16 October; *Mainichi Shimbun*, 2–3 July and 20–21 August, and Japanese Broadcasting Corporation (NHK), 12–14 August and 28–30 October.

accountability of interactive arrangements for nuclear safety regulations, and to identify deficits in the existing accountability mechanism of post-Fukushima Japan. To this end, the article addresses the critical question of whether the new regulatory capacity will not only bring the proliferation of actors together to participate in decision making, but will also really provide all the stakeholders involved with ways to cooperate on nuclear safety solutions. The claim is that decision making pluralism favors democratic representation but may limit accountability.

This paper is structured into two parts. The first part will examine how the newly emerging policy network of nuclear safety is taking shape, with the expectation that there will be empirical evidence of a more participatory democracy through the interactive patterns of stakeholders. By using the cases of Japan's nuclear reactor restarts, this section will examine the new regulatory system at three levels of interest representation: what is represented (substantive representation); who is included (power relations); and how it is represented (democratic processes). The objective is to identify if there is any change in the post-Fukushima policy networks linking state and society to redress political misrepresentation and, if any, how the institutional frame-setting has been transformed to handle the risks of technological society.

However, public participation does not automatically make expert knowledge accountable for ensuring nuclear safety. The second part will examine the difficulties of overarching coordinated action among multiple stakeholders in providing a nuclear safety assurance, while drawing on the intertwined concepts of responsibility and accountability in the field of policy network analysis (Mulgan, 2000; Mason, 2008; Peters, 2014). Responsibility, which precedes accountability, is to exercise a power or obligation that is conditionally delegated to agents who are assumed to be capable of taking charge of their actions and consequences (Burke,

1986: 10-15; Pennock, 1960: 4). A clear delimitation of responsibility is required to ensure that all actors involved have clearly defined duties and performance standards. This can be seen as a prerequisite for the development of accountability. Accountability refers to a social relationship whereby those who are to give an account and those to whom the account is given. The right of the accountability holder requires the responsible agent to inform and justify its action and consequences. This article argues that responsibility can be shared among multiple decision makers, but accountability needs to be collectively answerable for nuclear safety assurance.

The traditional form of political accountability links citizens straightforwardly to the right to demand accountability or hold decision-makers accountable in the electoral forum (demand-side). In the context of this article, it may constitute a serious impediment to compromise seeking, which is necessary in societies divided over issues, such as nuclear energy, and which requires the creation of other platforms for negotiations among conflicting interests. Indeed, the decentralized and open process of policymaking in post-Fukushima is expected to produce an accountability mechanism through a process of negotiations among stakeholders rather than the imposition of obligation by the principal on the agent. However, as seen in this article, the negotiations involve several actors, making it difficult to identify who is accountable, to whom, and for what. The chain of command and responsibility leads to a more diversified and pluralistic set of accountability relationships. As for professional accountability (supply-side), independent experts need to be insulated from political pressures; yet neutral regulators are used by public authorities to add expertise and impartial courts are considered a resort by citizen groups to provide legitimacy to the policy process. Public authorities may pass the buck to experts, in order to shield themselves from the harsh light of political accountability. Multiple civil society organizations seek to exact social accountability (demand-side) often

through the political use of litigation. These organizations may represent the interest of a specific group or limited constituencies. Yet, as described in this article, autonomous local authorities often develop a partnership with civil society organizations in order to prove the authenticity of their representational claims.

To open up the black box of accountability relationships, the explanatory focus is actor-specific and on the interplay of stakeholders: utility companies, the Cabinet, national agencies, judicial institutions, local authorities, local communities, and public opinion. The information used in this study is based on documentation. The initial stage of data collection involves a desktop review of the existing literature on Japan's nuclear safety regulations and policy network analysis. The next stage is to collect a series of interrelated documents that are available in the policy making process: press conferences by key actors, news reports and other articles, minutes of the National Diet, government and media surveys, court documents, and official reports of international organizations, government agencies, and business associations. The data collection is guided by the causal drivers of policy change, i.e., multiple stakeholders' beliefs and motives for nuclear safety regulations, which are found embedded within those institutional structures.

The examination of accountability relationships is conducted over the issues of nuclear safety in the cases of post-Fukushima nuclear restarts. According to the IAEA (2006), nuclear safety entails 'the protection of people and the environment against radiation risks, and the safety of facilities and activities that give rise to radiation risks'. The challenge of nuclear safety stems from the social and technical aspects of nuclear safety and their interrelationships. This needs to be managed by a better understanding of nuclear technology and its multifaceted impact on people and the environment while considering a combination of preventive measures to avoid accidents and mitigation measures to minimize the consequences of damage. From the

viewpoint of governance, technologically induced risks lead to calls for the subjection of scientific expertise to social scrutiny in the context of post-Fukushima reform. The two most fundamental questions in democratic practice are: who are included in representative platforms and how to reconcile the views of different stakeholders to ensure nuclear safety.

Review of literature

In post-WWII Japan, the pro-nuclear energy coalition of big business, national bureaucracy, and the LDP, known as the 'ruling triad' (Broadbent 1998), were reluctant to consider environmental and health risks with potential failure in nuclear energy policy. Most scholars in the field of politics and policy studies initially focused on the industrial contribution of nuclear energy to ensure energy and increase production (e.g., Nakajima & Anzai 1979; Samuels, 1987; Hein, 1990; Low, Nakayama & Yoshioka,1999; Yoshioka 1999). In the transformation of Japan's nuclear energy policy, an ongoing process of coordination between the state jurisdiction and private companies (Samuels, 1987) and a bureaucratic turf war over jurisdiction and budgeting (e.g., Yoshioka 2006) were highlighted over energy development. Others emphasized the importance of a nuclear power economy where the LDP allowed utilities to charge consumers and subsidized loans for nuclear energy development (e.g., Cohen, McCubbins & Rosenblush 1995; Ramseyer 2012). In the early 1990s, as a result of the growing opposition in Japan to nuclear energy, some public policy researchers began to argue the issue of nuclear safety, but only in the context of social movements (Dauvergne, 1993; Lesbirel, 1998).

In post-Fukushima Japan, some experts argue that the continuing national power of vested interests will still pose a serious challenge to the independence of the newly established regulator (Lipsy, Kushida, & Incerti, 2016; Kingston, 2014; Vivoda & Graetz, 2015). Others

emphasize that the new regulatory system can block a pro-nuclear status quo at the local level while assessing the impact of multiple players involved to influence reactor restarts (Aldrich & Fraser, 2017; Shimizu, 2018). However, in the literature of nuclear policy and regulation in Japan, the issue of nuclear safety governance is still barely addressed, conceptually and empirically (Vivoda & Graetz 2015).

The dominant coalition in the policy area of Japan's nuclear energy share a set of normative and causal beliefs that nuclear energy is the viable option for a resource poor nation to ensure energy and increase production (Samuels, 1987; Low, 2005: 66-67). This deep-rooted core belief is assumed to be the causal driver for policy making and implementation or the primary barrier to a major policy change. Equally important, another critical source of impediments to policy change is lack of coordination, which is required to bring together stakeholders to work in concert to achieve a desired outcome (Baker and Stoker, 2012; Baker, 2016). A shift from the single coalition-dominated policy area to a more competitive policy area can occur as seen in post-Fukushima Japan. This is primarily due to a significant growth in participation by new actors in the policy area (Baumgartner and Jones, 1993). Yet opposition is often neither organized well nor resourceful enough to pose a direct threat to the dominant coalition. Under such circumstances, less-resourceful opposition leaders tend to seek leverage over more neutral and amicable actors, such as courts and regulatory agencies, by politically using the legitimacy of science-based or expert information to gain influence in the policy area (Baumgartner and Jones 1993; Pralle, 2006). An increase in participation by new actors could cause fragmentation and even internal rivalry within the dominant coalition, as a plurality of participants is seen to have potential for not benefiting all the actors in intra-coalition relations. The increasingly competitive policy area creates a venue where the actions of any individual actors could not fully solve the emergence of difficult problems and thus requires policy coordination (Scharpf

1994; Peters 2015; Candel and Biesbroek 2016).

As the emerging issue network of nuclear safety in Japan involves several actors, it becomes difficult to clearly identify who has responsibility for decision making. This is known as the 'paradox of shared responsibility' (Bovens, 1998: 45-52). In Japan, local communities have increasingly played a greater role in prescribing nuclear safety solutions. The conceptualization of shared responsibility among public and private actors will allow us to assess the fitness of purpose on how this co-production of nuclear safety consensually ensures policy outcomes. In the cases of Japanese nuclear energy, despite a plurality of increasingly autonomous stakeholders, local governments, which are often working in partnership with civil society groups, still have to operate within the institutional setting of a top-down national undertaking of nuclear policy. The focus of assessment is on how shared responsibility will guarantee the desired policy outcome in a structured inequality concentrated in the hands of national leaders and experts.[3]

The negative effects of shared responsibility will subsequently affect accountability responses in either a hierarchical structure or an inclusive and pluralistic structure. In a hierarchical exchange of accountability, the accountor evaluates the accountee's contribution to the consequences and the accountee reflects on the performance and consequences. If the two parties disagree, the accountee may be required to explain or justify the intentions, actions, and consequences. This accountability relationship appears to enhance democratic legitimacy, yet this is not self-evident. Accountability overload or increased accountability may lead to negative effects on the desired policy outcomes (Hood, 2007; March & Olsen, 1995).

[3] Scharpf (1994), when examining the process of a shift from unitary government to horizontal network governance, describes it as transforming 'in the shadow of hierarchy'.

Overloaded officials tend to avoid blame while drawing on formal responsibility allocated among public officials (Hood, 2002: 16). Delegation to others is a conventional risk-averse strategy to minimize blame for adverse outcomes but take credit for positive outcomes (Bellante & Link, 1981; Bozeman & Kingsley, 1998). Accountability is then undermined in the hierarchical principal-agent relationship.

The horizontal sharing of responsibility among public and private actors (or heterarchy where no one dominates the rest) emerge to consensually ensure a desired policy outcome. In this transformation, individual accountability makes each actor responsible for their performance and difficult to shift blame. The nature and scope of responsibilities shared among a plurality of stakeholders might become blurred so that coordination for linking individual accountabilities is essential to ensure the ultimate policy goals. An umbrella mode of overarching coordination is thus required to manage the plurality and complexity for policy coherence (Jessop, 2002; Torfing, Peters, Pierre, & Sørensen, 2012).

Japan's nuclear energy policy had been a national undertaking for a long period of time. As the idea of a simple, linear shift from hierarchical state-centered to horizontal civil-society-driven institutions is unlikely to reveal in practice, the post-Fukushima policy networks of nuclear safety regulations is expected to be transforming 'in the shadow of hierarchy'.

Misrepresentation and representation

In 2001 the Nuclear and Industry Safety Agency (NISA) was created as a branch of the Ministry of Economy, Trade and Industry (METI) to ensure the safety of nuclear power production. NISA's lack of independence from the METI, which pursued the promotion of nuclear power, was widely criticized (e.g., Acton & Hibbs, 2012; FNAIIC, 2012: 42-44). The

exclusionary process of nuclear energy policy clearly revealed misrepresentation to those affected by the Fukushima incident. In June 2012 the DPJ government deflected criticism over a relationship between the NISA and the utility industry, with the establishment of the NRA as an independent agency of the Ministry of the Environment. Soon after the national election of December 2012 swept the LDP back in power, Prime Minister Abe declared that nuclear power plant operations would resume. In the heated debate over the restarts of idled nuclear reactors, both the independent regulatory body and the judicial body joined as co-players with the common purpose of nuclear safety, resulting in the eligible voters becoming better informed and with a diversity of community voices heard by elected officials. In this trend of pluralization, I will discuss below how the networks of nuclear safety changed, with the expectation that the processes of nuclear restarts will reveal empirical evidence for redress of political misrepresentation.

Private utility companies

Utilities tend to rely on demand-side management rather than focusing on self-regulating social responsibilities. They are material interest groups. These groups are presumed to be preoccupied with maximizing profits and more sensitive to 'bottom-line' self-interest positions. To this extent, the reliance by the utility companies on demand-side management could be fluid. To make these organizations more consistent with the normative commitments of pro-nuclear policy, the METI manipulates the rules and budgets of governmental institutions to ensure constant corporate profits. The pro-nuclear commitments involve a huge range of both investment and operational risks. The METI then establishes the corporate earnings-guaranteed system with the aim of protecting the utility investors from such risks by transferring the risks to the public, setting a limit on liability for nuclear accidents, and reducing the cost of disposing of radioactive waste.

In the aftermath of the 2011 Fukushima disaster, the tactical motives by the utility companies to co-opt the host communities were the target of criticism. The utility companies began to acknowledge the nuclear safety agreements (*anzen kyōtei*) between the operators and local communities as a necessary instrument to neutralize local demands, although these voluntary acts were the so-called 'gentlemen's agreements' that were not legally binding in conformity with national law. By 2018, some nuclear power plant operators, such as Japan Atomic Power Co. (JAPC), who previously never considered the surrounding non-host municipalities to extend the right of prior consent on their reactors' restart, have begun to negotiate for such agreements (e.g., Hitachi City Assembly, March 6, 2018; Hitachinaka City Assembly, September 11, 2018; *Japan Times*, April 5, 2018; *Mainich Shimbun*, February 15, 2019). The intention of these utility companies to minimize friction with residents for smooth operation can be seen as a self-regulatory practice that goes beyond their legal obligations. In other words, the utility companies are under pressure to voluntarily democratize the process of framing the boundary-setting by including the affected yet previously excluded actors.

Cabinet

The Abe Cabinet, following the Fukushima incident, was particularly adept in controlling or co-oping the national bureaucracy into the leadership of a more presidential style of decision making (*kantei shudō*), which openly directed national ministries to support loyal bureaucrats who were willing to assist the minister and sought a top-down Prime Minister's leadership for future energy policy. Yet Prime Minister Abe faced the decline in support for nuclear energy in post-Fukushima Japan, as the incident entailed profound changes in public opinion. It indicated that there was a clear disconnection between the policy belief of the pro-nuclear policy elites and public preference. The LDP government thus had to reduce its political risks

and recover a loss of public trust in nuclear energy. The new regulations and institutional change, under which the government needed to address the lack of representation, created political opportunities for stakeholders to capitalize for public debates on nuclear restarts.

Localities with nuclear power plants

The focal point of post-Fukushima nuclear safety agreements is local governments' consent prior to the restart of nuclear reactors.[4] In other words, once operators agree to the requirement of their prior consent on nuclear restarts, local chief executives will be able to use the 'veto power', although lacking legal authority. Since the veto power imposes a heavy constraint on economic freedom, utility companies have initially had such nuclear safety agreements only with local governments where their nuclear plants are located. This ongoing tactic by utilities to exclude non-host communities in the voluntary agreements has been facing increased public scrutiny in the aftermath of the Fukushima disaster. As surrounding non-host municipalities could also be exposed to the risk of nuclear accident but have had no say in the procedures of nuclear restarts, they have demanded that they also be given the right of prior consent to nuclear restarts.[5] In March 2018, for the first time in Japan, surrounding non-host municipalities in Ibaraki Prefecture gained the right of prior consent from the JAPC. To this extent, the scope of who is included is expanding to democratically handle the risks of technological society. In

---

[4] Chubu Electric Company owns the Hamaoka nuclear power plant in Shizuoka prefecture. The safety agreement over this plant is the only such agreement in Japan that does not explicitly require the prior consent on nuclear restarts but prescribes company's obligations for 'prior consultation' in a weaker form of veto (Article 11-1).

[5] According to sources provided in *Mainichi Shimbun* (December 29, 2017), 60 out of 119 non-host municipalities within 30 km of the nuclear plants were seeking the right of prior consent to nuclear restarts.

essence, the power companies are still largely opposed to expanding the scope of local governments because it would require higher hurdles for receiving restart approval.

Articles 4 and 5 of the Disaster Countermeasures Basic Act require local governments to make disaster prevention plans in their areas. In April 2015 the NRA revised the nuclear emergency guidelines to require municipalities within the emergency planning zone (EPZ) of 30 km radius of given nuclear power plants, rather than the previous zone of 8-10 km before the Fukushima incident, to make such plans. This revision implies that nearby municipalities other than host communities could be considered as legitimate parties concerned. When Unit 3 reactor at Kyushu Electric Power Company's Genkai plant in Saga Prefecture resumed operation in March 2018, four of the eight municipalities within 30 km of the plant resisted the restart, but their concerns were not considered by the company. The nuclear risks the residents in the non-host communities feared were left unaddressed. There was a potential clash of interests between the host municipality and surrounding non-host communities, which could face the equivalent nuclear risks but had no access to decision making in nuclear restarts (Saga City Assembly, December 19, 2017; *Japan Times*, April 5, 2018; *Saga Shimbun*, November 14, 2019; Karatsu City Assembly, September 16, 2020). The national government was then cited as saying, 'it is not in a position [for the national government] to intervene in such an agreement between a private utility and municipalities' (*Asahi Shimbun*, April 3, 2018; METI, 2006). This inaction was considered by the news media as not acting in the public interest. By contrast, as mentioned previously, Ibaraki Prefecture where JAPC's Tokai No. 2 plant is located acted as an intermediary for solving the rift between the host village of Tokai and the five surrounding municipalities. The prefectural intervention led to an agreement being reached between the JAPC and the six municipalities. This case may set a benchmark for progress toward a more

democratic process of frame-setting for building a consensus among the parties concerned.[6]

Judicial institutions

How then can the general public's concern about nuclear safety have a say in the processes of deciding the restart of idled reactors? Under the rule of law, the use of litigation is common among anti-nuclear citizen groups in Japan. The judicial system provides anti-nuclear groups with an institutionalized opportunity to have a considerable impact on nuclear restarts, especially since it has the authority to issue a temporary injunction that compels a party to refrain from the restart of nuclear reactors. Perhaps the most publicized case was the ruling issued in May 2014 by the Fukui District Court where, for the first time since the Fukushima incident, an injunction against Kansai Electric Power Co. (KEPCO) restarting No. 3 and No. 4 reactors at the Ohi nuclear plant in Fukui Prefecture was ordered. The Court ruled, 'there is a tangible risk that residents living within a 250 km radius of the Ohi nuclear plant will have their personal rights directly violated by the operation of the nuclear power plant' (Fukui District Court, May 21, 2014).

In August 2017 the NRA approved KEPCO's 'construction plans' for strengthening the two Ohi reactors 3 and 4, while distancing itself from the court injunction. Both the Ohi mayor and

---

[6] However, despite the settlement of this particular case, it is not clear if the JAPC must obtain the prior consent of all six municipalities. The operator and the local authorities have different interpretations about this operational problem. For other cases in which utilities have agreed to include surrounding non-host municipalities under prefectural support, see the safety agreements for the Hamaoka nuclear power plant in Shizuoka Prefecture and the Onagawa nuclear power plant in Miyagi Prefecture.

Fukui governor then approved the KEPCO to restart these two reactors. In July 2018 the appeal court reversed the injunction order of the Fukui District Court by ruling that those reactors would not threaten the personal rights of the residents and the utility company's measures against the maximum seismic movement did not underestimate the potential risks (Nagoya High Court, July 4, 2018). As courts increasingly interpret and re-evaluate scientific/expert knowledge to fit to the specific cases, local government officials argue that the court's responsibility with science governance remains problematic since judges have limited resources to get involved in the various issues related to it (Aldrich & Fraser, 2017: 453-454). It was reported that Judge Hideaki Higuchi, who had halted the restart of the Ohi reactors, was reassigned to Nagoya Family Court, which was considered a demotion (*Asahi Shimbun*, June 27, 2016). As another case of Takahama reactors 3 and 4 at KEPCO's nuclear plant in Fukui Prefecture demonstrates, higher courts' judges are more attuned to political stability under the ruling party. In January 2015, to initiate this case, residents of Shiga Prefecture who were living within 30 km of the Takahama site filed a petition with the Otsu District Court in Shiga Prefecture for a temporary injunction of the operation. The lower court issued an injunction to halt the NRA-approved restart of the Takahama reactors, yet the Osaka High Court overturned the lower court ruling in March 2017 (Osaka High Court, March 28, 2017).

The politics of reframing in the judicial decision making process reveals a new kind of democratic deficit, while the risk-intensive large scale technologies have significantly changed the independent status of the judiciary. Judicial independence, while being a normative goal, still can produce the political end policy actors desire.

From shared responsibility to collective accountability

Policy learning that resulted from the experience and new information of the Fukushima incident led to changes in the existing nuclear safety mechanism. Yet pro-nuclear policy elites did not change their core belief that nuclear energy is a viable option for the resource poor country, while adapting to new information for addressing the safety of nuclear power plants. As described below, the stability of the restrictive network membership faced public scrutiny and active local residents began to challenge the continuity of the policy networks at inquiries. The undivided power of government over nuclear promotion/regulation was not perceived by the general public as being trustworthy. All participants were expected to share responsibility for the use of nuclear energy and to be accountable for their action to the extent that people and the environment are protected in compliance with safety standards. As the Japanese government shared responsibility within itself and relied more on other forms of coordination with local communities, each public/private actor attempted to increase its autonomy. Policy implementation began to depend less on the administrative-formal process. The new regulatory system of 2012 opened up opportunities for a variety of stakeholders to participate in ensuring nuclear safety.

What is disputed is the issue of who is entitled to hold those responsible individuals and organisations to account, and the collective accountability mechanism that needs to coordinate among stakeholders in order to achieve a desired outcome of nuclear safety. The following section will analyse this issue of involvement in multi-stakeholder processes, while drawing on the collected information regarding the demand side of accountability - social and participatory accountability, which is bottom-up driven by local communities and subnational authorities - and the supply side of accountability - political, judicial, corporate, and scientific accountability, which involve top-down processes for government performance assessments, legal and scientific checks and business activity monitoring.

Corporate responsibility

Following the 2011 Fukushima disaster, the additional use of fossil fuel caused by the nuclear shutdown were estimated to cost the utilities US$ 28 billion in 2012, US$ 32 billion in 2013, US$ 33 billion 2014 (METI, 2014$_a$: 46). The increased use of coal, gas, and oil imports to make up for lost nuclear capacity imposed extreme financial burdens on the utilities. Not surprisingly, the utilities were eager to restart their nuclear reactors in order to recover the plant investments in shorter terms. Nonetheless, it seems that the weight of popular pressure had a significant effect on utility companies' responsibility. Another self-regulatory practice emerged in their relationships with the NRA. Articles 19 and 22 of supplement provisions (or Act No. 47 of 27 June 2012) of the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors state that the new regulatory standards do not legally require the previously approved reactors to reapply for installation permits. In practice, however, to restart these reactors, it became customary for the utility companies to obtain approval of the NRA to the 'alternation' of the instalment license. They could have legally restarted the previously approved reactors without reapplying, but instead they applied for alternation and expected the NRA approval to avoid public scrutiny that they might face for restarting them with potential non-compliance to the new safety regulations (Annen, 2014; Ikeda, 2014). They acknowledged that they needed to have their self-imposed obligations by going beyond what was required by law, while not opening themselves up to public scrutiny.

However, this self-authorized responsibility was easily diluted in the mandate of bottom-line self-interest to ensure constant corporate profits. In May 2014 when the Fukui District Court ruled that the KEPCO must not return the Ohi reactors to operation for the protection of the lives, health, and livelihood of people living within a 250km radius of the Ohi plant, the utility company immediately appealed to the Nagoya High Court's Kanazawa branch, with the court

overturning the district court decision. The KEPCO strategically attempted to narrow down the scope of its responsibility that would make it nearly impossible to get restart approvals. Market action, which is one of major sources of social order, is expected to create a structure of spontaneous order through the self-coordination of autonomous corporate actions. In this case, however, the KEPCO acted intentionally by taking social costs (as market failure) into consideration yet in the shadow of corporate profit-maximization. On-going interactions between the KEPCO and non-marketized citizens were rarely realized when the constant corporate profits were at stake.

Cabinet's political accountability and NRA's professional accountability

The 4th Strategic Energy Plan, the first plan to be released after the Fukushima disaster, which was adopted by the Abe Cabinet in April 2014, presents the overall direction of Japan's energy policy. In the Plan, nuclear reactors with a targeted total capacity are presumed to operate at full power throughout the year, while nuclear energy is designated as an important base-load power source, which will contribute to the stability of energy supply-demand structure (METI, 2104$_b$: 21). The Plan is adopted in the form of Cabinet approval, which neither requires legislative approval nor public hearings. It is regarded as a mere administration plan, which has no legal-binding force without legislative approval. It plays a symbolic role in displaying a Cabinet's determination toward nuclear energy policy and yet it does not intend to impose any legal liability on the Cabinet for restarting the idled reactors.

The Cabinet would seem to conceive of NRA's approval as a guarantee for the safety of nuclear operations. Indeed, the 4th Strategic Energy Plan states, 'In case that the NRA confirms the conformity of nuclear power plants with the new regulatory requirements, which are of the most stringent level in the world, the government will respect the NRA judgment and will proceed with the restart of the nuclear power plants' (translation mine) (METI, 2104$_b$: 43).

While leaving the issues of nuclear safety to the NRA, the Cabinet is unwilling to coordinate an accountability structure among stakeholders and is unlikely to fill its ultimate role of political responsibility for pursuing the collective goal of nuclear safety. This can be seen as a distinctive set of political strategies of blame avoidance. As nuclear safety became a nationally salient issue after the Fukushima disaster, the Cabinet members deflected blame by imposing on the NRA to make politically costly choices. This practice will continue to impose constraints on the ability of citizens to hold government officials accountable.

By contrast, the NRA adopted a different set of strategies based on professional accountability, which was to provide the regulatory agency with a high degree of autonomy. It sought to independently demonstrate the required competence and knowledge of nuclear safety and thus the accountability for regulatory functions. The independence of the NRA could potentially provide solutions for technically difficult problems, but not necessarily subject to other actors' preferences. Conceptually, nuclear safety needs both political accountability and professional accountability. Politicians are ultimately held accountable to the electors, while technical work is removed from supervision. In practice, however, given limits of predictive science knowledge, the regulator is inevitably involved in political decisions about what can and cannot be done within the social context.

The most important stance of the NRA was not to get involved in deciding on whether to restart any of the nation's idle reactors, but to remain neutral. NRA Chair Tanaka repeatedly pointed out, 'the NRA's sole duty is to determine whether the reactors meet the new safety standards and it is up to the utility, local residents and the central government to make that decision' (Tanaka, December 12, 2012 & July 16, 2014). In September 2012 when the NRA was established, this was not how Prime Minister Noda Yoshihiko conceived of the decision-

making process of nuclear restart. In a press conference, he emphasized, 'the NRA will play a primary role in deciding on whether to restart (reactors) while making safer standards' (Noda, September 12, 2012). Under Abe's leadership, Chief Cabinet Secretary Suga Yoshihide, in a risk averse way, stated 'it is legally the utility company's responsibility to decide whether to restart a NRA-certified reactor. … We won't make any political decision, but just follow the legal procedures' (Suga, July 16, 2014). In response, Tanaka disagreed, stating, 'the use of the "world's strictest" in political rhetoric will not ensure the absolute safety of nuclear restarts' (HOC, 2014; Tanaka, July 16, 2014).

Risk aversion can also be seen when the NRA referred to a key factor for nuclear safety regulations. When establishing a set of new guidelines in 2015, the NRA did not include evacuation planning as a requirement for nuclear safety evaluation. In response to inquiries regarding the exclusion of evacuation planning, the NRA stated, 'the committee establishes guidelines for nuclear emergency preparedness, but it is more effective to leave "evacuation planning" to the local government involved' (NRA 2016). The Cabinet had suggested in the 2012 Local Disaster Management Plan Manual a list of matters that needed to be considered, but showed its aversion to responsibility by not specifying the operational instruments and implementation designs (Cabinet Office 2020). While being determined to restart reactors, the Cabinet was quoted as saying, 'It is the operator that decides it by its own judgment', placing a responsibility on utilities for the implementation of safety measures (*Asahi Shimbun*, July 17, 2014). In short, there was no institutional capacity to check the effectiveness of evacuation plans in relation to the approval process for nuclear restarts.

In post-Fukushima Japan, the politics of risk avoidance began to also dominate the patters of central-local relations over nuclear safety. In the absence of policy coordination between levels

of government, the rules of political accountability exchanges remained unclear. Under the system of post-Fukushima safety enhancements, before prefectural governors could give their consent to utilities for restart, it became customary for them to meet the prime minister for confirmation of his explicit agreement to restart.[7] Such direct contact by the prime minister with prefectural governors was initially started immediately after the Fukushima disaster by DPJ's prime minister Kan Naoto to respond to public voices. The accountability pressures were expected to be imposed on the Kan's administration by local chief executives, albeit indirectly as ways to be accountable to citizens. Yet Abe's Cabinet broke away from this direction set by the previous government to be accountable to citizens to simply providing its pledge to uphold the nuclear restart to the host prefecture.

The 'independent' NRA also eventually acknowledged that risk-intensive large scale technologies are uncertain and should thus be subjected to public scrutiny. Nonetheless, the risk averse regulator evaded its political responsibility to the general public. NRA Chair Tanaka stated, 'Zero risk does not exist, but … we need to consider the socially acceptable level of risks' (Tanaka, April 3, 2013*)*. In his view, meeting the new safety standards did not automatically constitute part of the social acceptability for nuclear safety (Tanaka, March 6, 2013). Having considered who would be part of decision-making on nuclear restarts, the NRA

---

[7] For example, on November 27, 2015, Fukui Prefecture Governor Nishikawa Issei met

Prime Minister Abe at the National Prefectural Governors' Conference and on October 6,

2015, Ehime Prefecture Governor Nakamura Tokihiro did likewise at the Nuclear Emergency

Preparedness' Conference. These meetings were driven by the governors' symbolic action to

share political responsibility with the prime minister (Fukui Prefecture, 2015; *Nihon Keizai*

Shinbum, October 6, 2015).

suggested inviting the affected communities to public hearings to consult on its 'neutral' safety assessment. The 'depoliticized' NRA expediently left it to local authorities, including non-host communities, to decide who to represent. As NRA commissioners anticipated, such public hearings did not materialize due to the diverse interests of those communities (PGANP, 2014). Therefore, shared responsibility does make it more difficult to determine who is responsible for what and thus create this accountability vacuum for ensuring nuclear safety and could.

Nuclear safety agreements and social accountability

Social accountability is about citizens' engagement on the demand-side to hold public officials accountable. In this section, social accountability refers specifically to the control exercised by local governments' partnerships with civil society organizations on utility companies as well as national government officials. One might expect that the Fukushima disaster would have helped to develop more community engagement that would seek to hold public officials and utilities accountable by including people who had been previously denied the possibility of participating with others in social interaction. Yet recent surveys indicate that this is not a given. In August 2017, *Asahi Shimbun* conducted a survey on nuclear reactors with the chief executives of 155 local governments that either host or were situated within a 30 km radius of the 16 nuclear plants in Japan (*Asahi Shimbun*, August 21, 2017). The survey asked them if 'it is necessary to gain consent from nearby local governments for the restart of a nuclear plant'. Nearly 53 per cent of municipalities within a 30 km radius of nuclear power plants believed that their approval must be obtained for restarts, but only 6 per cent of local governments that host such facilities believed so. This disunity among local governments does not surprise, given the fact that host communities tend to hesitate to support non-host communities' participation as they are wary of losing nuclear power-related revenue. In other words, local host communities competed with other local communities for easy national transfer payments by

engaging in what can be called rent-seeking activities. Take, for example, the case of Kyushu Electric's Sendai reactors 1 and 2. After receiving NRA approval, pro-nuclear Kagoshima Governor Itō Yūichirō approved the restart of these reactors in November 2014. The governor asserted that consent prior to the restart must be obtained only from the prefecture and the host community (Itō, November 7, 2014; *Japan Times*, October 20, 2014). LDP-affiliated majority in both the host municipal assembly and the Kagoshima prefectural assembly successfully voted to restart the reactors against anti-nuclear sentiments of the general public in Kagoshima.

The disunity of local voices therefore needs to be understood through conflicting interests of residents between the surrounding communities and the host community. Within the host community, despite nuclear safety concerns, the incentives of location government subsidies often prompt elected officials to support nuclear restarts, even against a community's majority opinion. Once accepted, compensation might well reveal the unequal distribution of burdens and benefits. Public opposition might arise from the unequal distribution of financial benefits between host and non-host communities as well as an unfair distribution of risks and benefits between a local community (which might be directly exposed to risks [concentrated costs]) and a larger region (which might enjoy the benefits to meet its electricity demand [diffused benefits]). Nuclear safety agreements neither necessarily ensure nor enhance nuclear safety as financial incentives often persuade host municipalities/prefectures to unconditionally support nuclear restarts. In other words, overarching local conflicts are often displaced by the line of host/non-host divide. The plurality and complexity of the parties holding others to account, which reveal in the emerging mechanism of social accountability, could result in the incoherence of ensuring nuclear safety.

Participatory accountability in the nuclear safety system

Participatory accountability can be seen as the demand-side tool beyond social accountability action to provide private individuals with a direct opportunity to influence public decisions. However, the development of a participatory process requires institutionalization. Citizen participation itself may face an accountability dilemma since participants must satisfy multiple groups with different preferences in fragmented societies. Such instances are found in the politicization of nuclear power local referendums in Japan. Given the intensive risk of nuclear energy, some local opposition is inevitable. Socially mobilized residents have undertaken certain tactics available toward this end. For example, they may seek to unseat pro-nuclear candidates and/or frame the process of local referendum to allow for self-organization to ensure nuclear safety.

In 1996 a local referendum on the construction of a nuclear power plant was held, for the first time in Japan, in Maki Town, Niigata Prefecture. Anti-nuclear candidates gained the majority in the 1995 town assembly election. That June, the town assembly enacted a nuclear referendum ordinance, and the town head who was pro-construction was eventually forced to resign from office the following year as a recall campaign was used as a tool in the political struggle. His successor was the leader of a group calling for a referendum on the proposed plant, and he scheduled a vote for August 5, 1996. In the end, voter turnout was a high of 88 per cent, with more than 61 per cent of the votes cast against construction (*Niigata Nippō*, August 5,1996).

The Maki referendum was an advisory one, the results of which neither legally bound the town's head nor its assembly. However, the weight of popular opinion made rejecting it politically risky. As the new town head commented, 'our townspeople decided not to live with the nuclear power plant. Whether a new town head takes office or a new assembly is elected,

we must absolutely pay attention to the decision' (*Niigata Nippō*, August 5, 1996). Perhaps the best outcome of the Maki referendum was that it insulated the 'people's vote' from the strong pressure of traditional special interests in the community; however, it was not the resolution of how to share responsibility regarding the nuclear question but rather the revelation of problems underlying referenda themselves. Immediately after the referendum, the director general of the national Agency for Natural Resources and Energy vowed that he would continue to promote the Maki nuclear power plant in accordance with national statutory conditions (*Niigata Nippō*, August 8, 1996). The nature of the choice in referenda provides no middle ground, polarizing an issue into 'yes' or 'no'. This is why advisory referenda can be seen as offering a means of encouraging two opposing camps to consult with each other and work, if necessary, toward the responsible and safe operation of nuclear facilities.

The 2001 referendum in Miyama Town in Mie Prefecture is a particularly noteworthy case. To ensure public consultation, although no actual plans were at stake in the referendum, the pro-nuclear energy Town Society of Commerce and Industry initiated this referendum and found that 67 per cent of the residents were opposed to inviting a nuclear plant to their community (*Ise Shimbun*, November 19, 2001). In December 2001 the town assembly formally adopted a decision not to invite any utility company to set up its nuclear plant in the town. The anticipated Chubu Electric Power never proposed an actual plan to the town. By contrast, there were several other cases in which local residents failed to use the local referendum system to hold the utility companies accountable. In January 2016, the assembly of Yawatahama City in Ehime Prefecture, for example, voted against a one-third-of-eligible-voters' petition requesting the enactment of an ordinance to hold a local referendum on whether to allow the Shikoku Electric Power to restart a reactor in the neighboring town of Ikata. The pro-nuclear mayor of Yawatahama explained it to the voters by saying, 'There is no framework for enforcing it (the

result of a referendum) under the current system, even if citizens express their opposition to the matter' (*JAIF News*, January 29, 2016). He argued that a local referendum would obstruct the proper functioning of municipal management in representative democracy.

The national government has not yet institutionalized a local referendum system through national legislation to make the expression of local voices more inclusive in a direct way and avoid social fragmentation. The underdeveloped processes of local referendum only highlight the need for a fundamental reform in central-local government relationships. Political decentralization (i.e., further delegation of decision-making authority to local government) is required if the referendum process is to help local communities take their share of responsibility for nuclear safety.

Conclusion

Perhaps one of the most fundamental preconditions for capacity-building for nuclear safety is the development of an accountability mechanism that has an effective coordination process among different stakeholders to achieve desired outcomes. Obviously, the risks of nuclear energy and the shortcomings of risk management made the experience of the Fukushima disaster more visible to the public. This impact was immediate - the public lost trust in nuclear safety regulations. A majority of Japanese voters subsequently supported either the immediate shutdown of all reactors or a gradual nuclear power phase-out. Nonetheless, the old guard LDP refused to alter the policy core belief that nuclear energy is necessary for ensuring energy and increasing production, but adjusted it to the external events of changes in public opinions. It sought to recover the loss of public trust in nuclear energy while condoning a significant growth in participation by new actors in the policy area of nuclear energy. In this proliferation process of stakeholders, the Cabinet took a risk-averse strategy to shift the responsibility for political

risks to others yet took credit for nuclear safety reforms. The institutional capacity of nuclear safety was far from producing policy integration. A successful collective decision-making mechanism should avoid conflicts among stakeholders and should lead to benefits for all of the actors involved. However, it is clear that the current nuclear safety system does not perform this way.

The experience of the Fukushima nuclear disaster demonstrated the inadequacy of nuclear risk reduction based on hierarchically organized policy, which relied on decision making that was based on self-contained frame-setting by a small group of stakeholders. In response to the Fukushima lessons, there were two early signs of pluralistic dimensions in an emerging network of nuclear safety: an effort to ensure a national nuclear safety-net, which was independently verifiable to protect people and the environment and a decentralization drive towards strengthening community engagement in a process of nuclear risk reduction. A plurality of participants was a potential gain for democracy because it created a barrier for monopolizing resources and restricting access. The competition between elites (who made political decisions) and sub-elites (refers to judicial courts and regulators who delimited the scope and nature of political decisions) produced a system of checks and balances that hampered the continuance of the dominant industrial coalition. As an open interaction between elites and sub-elites increased, there was plenty of room for community engagement through the use of litigation and voluntary safety agreements. Lay people (average citizens/civil society) should be able to engage in discussions on an equal footing with policy makers and scientific experts, in order to build trust among the parties, so that they can collectively make policy decisions.

However, efforts to redress political misrepresentation does not automatically ensure nuclear safety. The democratic processes faced difficulties in operational coordination created by the plurality of stakeholders and were attended with organizational complexity in the implementation process. The larger the number of decision makers the higher the decision costs. The nature of responsibility diffusion and accountability relationships in a plurality of participants (i.e. responsibility sharing paradox, blame avoiding, risk averse, and rent-seeking) frustrated the pace of reform for ensuring nuclear safety.

What this research revealed is a governance vacuum that obscured the transparent operation of actors' responsibility within an increasingly complex system of nuclear risk reduction. A future research agenda is required to find the solution to all of those problems raised by the plurality, complexity, and hierarchies to achieve the desired outcomes. One of the most important strategies to overcome the problems of collective action considered in this paper is an empirical study of meta-governance or the 'governance of governance', which requires coordinating and steering towards governing in a plurality of increasingly autonomous stakeholders. The research challenge is to find out who are sufficient and adequately qualified for such coordination role and uncover the institutional conditions for the transformation of governance. A disinterested public actor, the policy network itself, or intermediate support organizations for civil society groups may be potentially able to fulfill new competencies by taking such role in drawing the negotiated line between politics and scientific knowledge/expertise.

The media coverage of nuclear restarts in Japan often provides an image of political polarization between 'yes' and 'no'. On the one hand, the pro-nuclear policy elites and big business believe that nuclear energy is the viable option for a resource poor nation to increase production; on the other hand, the anti-nuclear movement seeks to immediately and

permanently shut down all nuclear power plants. Despite this irreconcilable image, depending on the possibility of shifts in public opinion and party realignments in future, the state still has a great potential to do a better job of policy integration through satisfying the multiplicity of different needs, including a nuclear phase-out. This would ensure that some goals are achieved to a socially acceptable degree for at least some of those affected or to one of proper representation. In general, states can play a major role in meta-governance; they prescribe the fundamental rules and the regulatory order for accountability relationships to ensure the compatibility of stakeholders' views.

The restart of idled nuclear reactors has remained difficult, but the tide seems to be shifting. Japanese consumers in the resource poor nation have become more vulnerable to higher retail prices for gasoline, electricity and other good and services. In the wake of the Ukraine crisis, because of which the price of crude oil has reacted sharply, recent polls (e.g., February 2022 - *Asahi Shinbun*, March 2022 – *Nikkei Shimbun*, and July 2022 – *Jiji Press*) show that 38–48 per cent of the respondents in Japan are in favor of 'the restart of idled nuclear reactors whose safety has been confirmed'. This may be a window of opportunity for the national government to reduce conflicts and find ways to cooperate on solutions for Japan's energy future.

References

Abe, S. (2013, February 28). Policy speech to the 183rd Session of the Diet. Retrieved from https://japan.kantei.go.jp/96_abe/statement/201302/28siseuhousin_e.html, accessed June 21, 2019.

Acton, J. M. & Hibbs, M. (2012). Why Fukushima was preventable. Carnegie Papers, March 2012. Carnegie Endowment.

Aldrich, D. P. & Fraser, T. (2017). All politics is local: Judicial and electoral institutions' role in Japan's nuclear restarts. *Pacific Affairs*, *90* (3), 433-457.

Annen, J. (2014). Genpatsu wa naze tomatteiru noka [Why do the nuclear reactors remain idled?]. *Chuō Rō Janaru* [Chuo Law Journal], *11* (2), 23-51.

Asahi Shimbun. (2014, July 17). Seiken: saikadō kasoku e [Government: accelerating the restart].

Asahi Shimbun. (2016, June 27). Wareru handan to shihō no jinji idō [Divided ruling and judicial staff reassignments].

Asahi Shimbun. (2017, August 21). Genpatsu shūhen jichitai go-wari saikadō e dōi hitsuyō [Half of the nearby local governments require their consent for restarts].

Asahi Shimbun (English edition). (2018, April 3). Tokai nuke plant deal with local entities a model for all restarts.

Baker, K. (2016). Using cultural theory to analyze the metagovernance of the nuclear renaissance in Britain, France, and the United States. *Review of Policy Res*earch, *34* (2), 233-254.

Baker, K. & Stoker, G. (2012). Metagovernance and nuclear power in Europe. *Journal of European Public Policy*, *19* (7), 1026-1051.

Baumgartner, F. R. & Jones, B. D. (1991). Agenda dynamics and policy subsystems. *Journal of Politics*, *53* (4), 1044-1074.

Baumgartner, F. R. & Jones, B. D. (1993). *Agendas and Instability in American Politics*. Chicago: The University of Chicago Press.

Bellante, D. & Link, A. N. (1981). Are public sector workers more risk averse than private sector workers? *Industrial and Labor Relations Review*, *34* (3), 408-412.

Bovens, M. (1998). *The Quest for Responsibility*. Cambridge: Cambridge University Press.

Bozeman, B. & Kingsley, G. (1998). Risk culture in public and private organizations. *Public Administration Review*, *58* (2), 109-118.

Broadbent, J. (1998). *Environmental Politics in Japan: Networks of Power and Protest.* Cambridge: Cambridge University Press.

Burke, J. P. (1986). *Bureaucratic Responsibility.* Baltimore: John Hoskins University Press.

Cabinet Office, Government of Japan (2020). Chiiki bōsai keikaku [Local disaster management plan], Retrieved from https://www8.cao.go.jp/genshiryoku_bousai/keikaku/keikaku.html, accessed January 18,

2021.

Campbell, D. T. (1969). Reforms as experiments. *American Psychologists*, *24* (4), 409-429.

Candel, J. J. L. & Biesbroek, R. (2016). Toward a processual understanding of policy integration. *Policy Sciences*, *49* (3), 211–231.

Cohen, L., McCubbins, M. D. & Rosenblush, F. (1995). The politics of nuclear power in Japan and the United States. In P. F. Cowhey and M. D. McCubbins (Eds.), *Structure and Policy in Japan the United States*. (pp. 177-202). Cambridge: Cambridge University Press.

Dauvergne, P. (1993). Nuclear power development in Japan: Outside forces and the politics of reciprocal consent. *Asian Survey*, *33* (6), 576–91.

Fukui District Court. (2014, May 21). Heisei 24 wa, Dai-394-go [2014, No. 394]. Retrieved from http://www.courts.go.jp/app/files/hanrei_jp/237/084237_hanrei.pdf, accessed October 7, 2019.

Fukui Prefecture (2015, November 27). Zenkoku todōfuken chiji kaigi *[National* Prefectural *Governors' Conference]. Retrieved from www.pref.fukui.jp/doc/ti_0/d271127.html, accessed 2 October 2019.*

Fukushima Nuclear Accident Independent Investigation Commission (FNAIIC). (2012, June 9). Official report. Retrieved from https://www.nirs.org/wp-content/uploads/fukushima/naiic_report.pdf, accessed June 21, 2019.

Hein, L. E. (1990). *Fueling Growth: The Energy Revolution and Economic Policy in Postwar Japan*. Cambridge MA; London: Harvard University Asia Center.

Hitachi City Assembly. (2018). Hitachi shigikai kaigiroku: Dai-ikkai Teireikai [Minutes of Hitachi city council: 6th regular session], March 6.

Hitachinaka City Assembly. (2018). Hitachinaka shigikai kaigiroku: Teireikai [Minutes of Hitachinaka city council: Regular session], No. 3, September 11.

Hood, C. (2002). The risk game and the blame game. *Government and Opposition*, *37* (1), 15-37.

Hood, C. (2007). What happens when transparency meets blame-avoidance? *Public Management Review*, *97* (2), 191-210.

House of Councillors (HOC). (2014, October 21). Minutes of the Committee on the Cabinet, [001/003] 187-3.

Ikeda, N. (2014, February 4). Genshiryoku kisei iinkai wa secchikyoka o yarinaoshiteiru [NRA re-reviews the previous approval of the installment license]. Retrieved from http://agora-web.jp/archives/1580552.html, accessed December 14, 2018.

International Atomic Energy Agency (IAEA). (2006). IAEA safety standards series no. SF-1. https://www-pub.iaea.org/MTCD/publications/PDF/Pub1273_web.pdf. accessed July 20, 2022.

International Atomic Energy Agency (IAEA). (2012). IAEA mission to review NISA's approach to the comprehensive assessment for the safety of existing power reactor facilities conducted in Japan. Report to the Government of Japan. January 2012.

Ise Shimbun. (2001, November 19). Hantaiha ga kahansū [Opposition alliance won a majority].

Itō, Y. (2014, November 7). *Press Conference*.

Japan Atomic Industry Forum (JAIF). (1973). *Infure fukyō no nakadeno genshiryoku sangyō* [Nuclear power industry in an inflationary recession]. Tokyo: Nihon Genshiryoku Sangyō Kaigi.

JAIF News. (2016, January 29). Yawatahama City Assembly votes down request for referendum on Ikata-3.

JAIF News. (2016, August 31). Kagoshima Governor asks for temporary suspension of operation of Sendai NPPs.

Japan Times. (2014, October 20). Town divided after Sendai nuclear plant restart clears another hurdle.

Japan Times. (2018, April 5). Local consent for nuclear plant restarts.

Jenkins-Smith, H. C. & Sabatier, P. A. (1994). Evaluating the advocacy coalition framework. *Journal of Public Policy*, *14* (2), 175-203.

Jessop, B. (2002). *The Future of the Capitalist State*. Cambridge: Polity Press.

Karatsu City Assembly. (2020). Genshiryoku-taisaku tokubetsu iinkai [Special Committee on Nuclear Measures], No. 8, September 16.

Kingston, J. (2013). Abe's nuclear energy policy and Japan's future. *The Asia-Pacific Journal*, *11* (34). Retrieved from https://apjjf.org/2013/11/34/Jeff-Kingston/3986/article.html, accessed 19 April 2021.

Kingston, J. (2014). Abe's nuclear renaissance energy politics in post-3.11 Japan. *Critical Asian Studies*, *46* (3), 461-484.

Lesbirel, H. (1998). *NIMBY Politics in Japan: Energy Sitting and the Management of Environmental Conflict*. Ithaca, NY: Cornell University Press, 1998.

Lipsy, P. Y., Kushida, K. E., & Incerti, T. (2016). Were Japan's nuclear plants uniquely vulnerable? In E. Blandford & S. D. Sagan (Eds.), *Learning from Fukushima: Improving Nuclear Safety and Security after Accidents* (pp. 157-182). Stanford: Stanford University Press.

Low, M. (2005). *Science and the Building of a New Japan.* New York: Palgrave Macmillan.

Low, M., Nakayama, S. & Yoshioka, H. (1999). *Science, Technology and Society*. Cambridge: Cambridge University Press, 1999.

Mainich Shimbun. (2019, February 15). Tokai dai-ni genpatsu de hachi shichō to shin anzen kyōtei [Eight municipalities' new safety agreements over the Tokai No. 2 nuclear plant].

March, J. G. & Olsen, J. P. (1995). *Democratic Governance*. New York: The Free Press.

Mason, M. (2008). The governance of transnational environmental harm: Addressing new modes of accountability/responsibility. *Global Environmental Politics*, *8* (3), 8–24.

May, L. (1996). *Sharing Responsibility.* Chicago: University of Chicago Press.

Ministry of Economy, Trade and Industry (METI). (2006, April 18). A minute of Nuclear Energy Subcommittee.

Ministry of Economy, Trade and Industry (METI). (2014a). Denryoku jikyū kenshō shōiinkai hōkokusho [Investigative report on electric power supply and demand], Electric Power Supply and Demand Subcommittee report, October 2014.

Ministry of Economy, Trade and Industry (METI). (2014b). *Enerugi kihon keikaku* [Strategic Energy Plan]. Tokyo: METI.

Ministry of Economy, Trade and Industry (METI). (2015). *Chōki enerugi jikyū mitōshi* [Long-term energy supply-demand outlook]. Tokyo: METI.

Mulgan, R. (2000). Accountability: An ever expanding concept? *Public Administration*, *78* (3), 555–573.

Nagoya High Court (Kanazawa Branch). (2018, July 4). Heisei 26 (Ne) 126. Retrieved from http://www.courts.go.jp/app/files/hanrei_jp/868/087868_hanrei.pdf, accessed December 1, 2018.

Nakajima, T. & Anzai, I. (1979). *Nihon no genshiryoku hatsuden* [Atomic Power Generation in Japan]. Tokyo: Shin Nihon Shuppansha.

Nakayama, S. (1991). *Science, Technology and Society in Postwar Japan*. London: Kegan Paul International.

Nihon Keizai Shinbum. (2015, October 6). Shushō mangaichi no jiko seifu ga taisho [Prime minister: Should an accident occur, the government deals with it].

Niigata Nippō. (1996, August 5). Maki-jūmin tōhyō genpatsu kensetsu nō" [Maki referendum: no to the construction of the nuclear plant].

Niigata Nippō. (1996, August 8). Jiritsu e min'i uneru [Waves of self-determination for community's will].

Noda, Y. (2012, September 21). *Press Conference*.

Nuclear Regulation Authority (NRA) (2016). Genshiryouku saigai taisaki shishin to shinkisei kijun [Nuclear emergency guidelines and new regulatory standards], December 2016. Retrieved from https://www.nsr.go.jp/data/000172848.pdf, accessed January 18, 2021.

Organisation for Economic Co-operation and Development (OECD). (2016). Five years after the Fukushima Daiichi Accident: Nuclear safety improvements and lessons learnt. NEA No. 7284.

Osaka High Court. (2017, March 27). Heisei 28 (Ra) 677. Retrieved from lex.lawlibrary.jp/commentary/pdf/z18817009-00-060971621_tkc.pdf, accessed December 1, 2018.

Pennock, J. R. (1960). The problem of responsibility. In C. J. Friedrich (Ed.), *Responsibility* (pp. 3-27). New York: Liberal Arts Press.

Peters, B.G. (2014). Accountability in public administration. In M. Bovens (Ed.), *The Oxford Handbook of Public Accountability* (pp. 211–225). Oxford: Oxford University Press.

Peters, B. G. (2015). *Pursuing Horizontal Management: The Politics of Public Sector Coordination.* Lawrence: University Press of Kansas.

Pralle, S. B. (2006). *Branching out Digging in: Environmental Advocacy and Agenda Setting.* Washington, DC: Georgetown University Press.

Prefectural Government Association of Nuclear Power (PGANP). (2014, March 4). Genshiryoku hatsuden kankei dantai kyōgikai ni yoru genshiryoku kisei iinkai e no mōshiire ni tsuite [Request of the PGANP to the NRA].

Ramseyer, J. M. (2012). Why power companies build nuclear reactors on fault lines: The case of Japan. *Theoretical Inquiries in Law*, *13* (2), 457-485.

Sabatier, P. A. (1998). The advocacy coalition framework: Revisions and relevance for Europe. *Journal of European Public Policy*, *5* (1), 98-130.

Sabatier, P. A. & Jenkins-Smith, H. C. (Ed.), (1993). *Policy Change and Learning: An Advocacy Coalition Approach*. Boulder, CO: Westview Press.

Sabatier, P. A. & Weible, C. M. (2007). The advocacy coalition framework: innovations and clarifications, In P. A. Sabatier (Ed.), *Theories of the Policy Process* (pp. 189-222). Boulder, CO: Westview Press.

Saga City Assembly. (2017). Saga shigikai kaigiroku [Minutes of Saga city council: Regular session], No. 10, December 19.

Saga Shimbun. (2019, November 14). Genkai jikoji 30-kiro kennai [The area within 30 km in case of Genkai accidents].

Samuels, R. J. (1987). *The Business of the Japanese State: Energy Markets in Comparative and Historical Perspective*. Ithaca: Cornell University Press.

Scharpf, F. W. (1994). Games real actors could play: Positive and negative coordination in embedded negotiations. *Journal of Theoretical Politics*, *6* (1), 27-53.

Shimizu, C. (2018). Genshiryoku anzenkyōtei no unyōjittai ni miru chihō jichitai no yakuwari [Local government roles and power under nuclear safety agreements]. *Yamanashi Gakuin Daigaku Hōgaku Ronshū* [Yamanashi Gakuin University Law Review], *82*, 33-52.

Suga, Y. (2014, July 16). *Press Conference*.

Tanaka, S. (2012, December 12, 2013, March 6, 2013, April 3, & 2014, July 16). Press Conference.

Torfing, J., Peters, B. G., Pierre, J., & Sørensen, E. (2012). *Interactive Governance: Advancing the Paradigm*. Oxford: Oxford University Press.

Vivoda, V. & Graetz, G. (2015). Nuclear policy and regulation in Japan after Fukushima: Navigating the crisis. *Journal of Contemporary Asia*, *45* (3), 490–509.

Yoshioka, H. (1999). *Genshiryoku no shakaishi* [A Social History of Nuclear Power]. Tokyo: Asahi Shimbunsha, 1999.

Yoshioka, H. (2006). Reorganization of the administration and regulation of nuclear

development. In S. Nakayama & Y. Hitoshi (Eds.), *A Social History of Science and Technology in Contemporary Japan*, vol. 4 (pp. 189-273). Melbourne: Trans Pacific Press.