

## After Fukushima: Veto Players and Japanese Nuclear Policy

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The major goal of this chapter is to explain Japan's failure to adopt a coherent and credible long-term nuclear policy for at least three years after the March 2011 disaster at the Fukushima Daiichi nuclear power plant.<sup>1</sup> Studying this political failure is important for three main reasons. First, the persistent uncertainty surrounding Japan's nuclear future has been costly economically and psychologically. Second, few expert observers anticipated that Japan's nuclear policy crisis would last so long. Third, by identifying the causes of Japan's nuclear policy gridlock, we can better map out possible future scenarios for significant policy change.

The chapter is organized as follows. In the next section, I present a brief description of Japan's long post-Fukushima nuclear policy disarray. After that, I highlight the contrast between Japan's continuing disorientation and the clearer decisions that many other states made about their reliance on nuclear energy in response to the Fukushima disaster. I then argue that Japan's inability to coalesce around a new nuclear policy consensus was due not merely to the unanticipated disaster but also to well-known political problems that had racked the Japanese nuclear policy-making arena for decades prior to the accident. In particular, I stress the high number of institutionalized "veto players" in the Japanese nuclear policy-making arena as a key cause of the country's nuclear policy gridlock. The chapter's penultimate section assesses the potential for the end of gridlock and the enactment of significant nuclear policy change in the future, especially in light of the bankruptcy and government takeover of the Tokyo Electric Power Company (TEPCO). The final paragraphs summarize and conclude.

My point in highlighting Japan's political failure since Fukushima is not to demand that the country's policy makers adopt this or that alternative nuclear policy mix. Rather, the point is to better understand the sources of Japan's indecision. The goal is analytical, not prescriptive.

## Japan's Nuclear Policy Disarray

Social scientists often note that external shocks and natural disasters provide unparalleled opportunities for major policy change.<sup>2</sup> Scholars of postwar Japanese politics have placed particular stress on the importance of shocks as stimuli for new policies.<sup>3</sup> Accordingly, many observers expected that the Fukushima nuclear disaster of March 2011 would swiftly catalyze a major nuclear policy overhaul.<sup>4</sup> After all, even before the disaster, Japan's nuclear energy ambitions were considerably out of step with those of most of its developed-country peers. For instance, the rest of the developed world had long since abandoned the idea of extracting plutonium from the waste products of spent uranium fuel and using it to power plutonium-based nuclear reactors—the so-called “plutonium economy.” Yet Japan had clung to that plan for fifty years despite poor technical results, soaring costs, and diplomatic frictions.<sup>5</sup> Japan was already long overdue for a course correction.

At first glance, a major Japanese nuclear policy change might appear to have occurred right after Fukushima. Japan had fifty-four operative nuclear power reactors at the time of the multiple explosions that damaged four reactors at Fukushima Daiichi in March 2011. After the accident, one by one the fifty remaining reactors in the country were taken offline. By May 2012, for the first time since 1966 no nuclear power reactors were operating in the country.<sup>6</sup> This was certainly a dramatic change in Japan's nuclear *behavior*, but it was not the result of a dramatic change in Japanese national *policy*. Instead, Japan's descent to nuclear zero between 2011 and 2012 was the unintended consequence of a regulatory snafu.

The Fukushima accident had revealed, in tragic fashion, that the existing nuclear safety standards were woefully inadequate. For example, the off-site emergency command posts were not equipped with air filters to keep out radioactive particles, so when the accident happened the emergency response personnel themselves had to evacuate the premises.<sup>7</sup> This and thousands of other safety items had to be reviewed in the aftermath of March 2011. In principle, new safety rules could have been developed without shutting down

the undamaged reactors. But Japan's antiquated safety regulations featured a standard technical requirement to shut down each reactor after thirteen months in operation for an intensive top-to-bottom safety check and recertification.<sup>8</sup> With the safety rules in turmoil, after a reactor was taken offline as scheduled, the government simply could not legally certify its fitness for a restart.<sup>9</sup>

The result was the gradual shutdown of Japan's entire nuclear reactor fleet, which had previously been providing more than a quarter of the nation's electricity. Attempting to reverse the trend, the government hurriedly declared the safety of two reactors at the Ōi power plant in Fukui Prefecture and approved their restart in July 2012.<sup>10</sup> But it had to use fancy legal footwork to do this because the new nuclear safety rules were still not yet in place. The action caused a storm of protest—including tough criticism from the head of the Nuclear Safety Commission himself, and the largest street demonstrations that the country had seen in decades.<sup>11</sup> As a result, the government hesitated to repeat its questionable maneuvers. When the two Ōi reactors finished their thirteen-month operating period in September 2013, the country returned once again to nuclear zero.<sup>12</sup> At the time of this writing, July 2014, all of Japan's nuclear power reactors were still idle, and no restarts were expected until at least after the summer.<sup>13</sup>

In short, the total collapse of Japanese nuclear power production over the three years from 2011 to 2014 was not the product of a clear new national nuclear policy. Instead, the technological accident at Fukushima led to the subsequent political accident of an unintended, open-ended, nationwide nuclear shutdown.

The unplanned shutdown of the nuclear fleet was hardly the only policy failure in the aftermath of Fukushima. Longer-term nuclear policy questions also became bogged down in political wrangling and remained unresolved more than three years after the accident. Below I briefly describe the inconclusive debates that took place in three key policy areas: nuclear safety standards, the long-term energy mix, and fuel cycle technologies.

First, as noted above, Japan's nuclear safety standards took much longer to overhaul than most experts had anticipated. Soon after the accident, the Democratic Party of Japan (DPJ)-led government announced its intention to create a new Nuclear Regulation Authority (NRA) modeled on the well-respected US Nuclear Regulatory Commission. Practically everyone agreed that this was a good idea. The NRA law was widely expected to sail through the Diet. Not

even the powerful Ministry of Economy, Trade, and Industry (METI), which had previously been in charge of nuclear safety regulation, opposed the creation of a new nuclear safety czar outside its jurisdiction.<sup>14</sup> But at the last minute the opposition Liberal Democratic Party (LDP) attacked the government's proposal on the grounds that the NRA needed to be an "Article 3 organization"—a special status providing absolute independence. The LDP was seeking political advantage by tacking to the "left" of the DPJ on nuclear safety. The LDP ended up blocking the NRA law's passage through the Diet for months until the DPJ finally gave in to its demands.<sup>15</sup> Because of this political struggle, it was not until September 2012 that the new agency could finally begin the hard work of crafting new Japanese nuclear safety regulations.<sup>16</sup> The NRA finally produced its new safety regulations for commercial power plants in July 2013, more than two years after the accident. Only then did it begin assessing the reactors' readiness one at a time—a process that could take several years to complete. The Diet's failure to quickly pass the NRA law was a key reason why Japan's entire nuclear reactor fleet went dark and stayed that way for such a long time.

As of July 2014 the NRA was up and running, and the power companies had spent over ¥2.2 trillion to fulfill its new safety requirements.<sup>17</sup> Yet there remained considerable institutional uncertainty about the staying power of the new nuclear safety regime. After returning to power in December 2012, the LDP and its allies conveniently forgot their prior insistence on the NRA's absolute independence and started lambasting it for not moving more swiftly to approve reactor restarts. Even more problematically, the politicians sought to curtail the regulator's independence by aggressively trying to pack its top ranks with pronuclear advocates who had received significant sums of money for research projects or consulting jobs from the electrical power companies (EPCOs) over the years.<sup>18</sup> The LDP's goal was obviously to speed up the restarts, but in so doing it was also inviting more political conflict and thereby hurting the chances for public acceptance of any restarts. It was also inviting intervention by the courts. The Fukui District Court ruled in May 2014 that the 2012 Ōi nuclear power plant restart had been illegal, and it even called into question the very possibility of certifying a nuclear plant's safety in earthquake-prone Japan.<sup>19</sup> If the NRA's legal status of absolute independence became compromised, the courts could weigh in even more strongly against any renewed operation of Japan's nuclear estate.

Another area of persistent policy confusion and uncertainty was Japan's future energy mix. To supply its short-term energy needs in the face of the

shutdown of the entire nuclear fleet in 2012, Japan turned to strict conservation and imports of vast amounts of old-school fossil fuels.<sup>20</sup> These emergency measures kept the lights on. But the imports sent Japan's trade balance into deficit, and no one thought that a massive increase in the country's fossil fuel dependence was a good idea. Japan therefore needed to decide on a rational long-term energy plan, and notably on the role of fossil fuels, renewables, and nuclear. But as of July 2014 there still was no plan.

The government did recognize that its 2010 plan to raise the nuclear portion in Japan's electricity mix to 50 percent by 2030 had become impossible.<sup>21</sup> But what percentage of the total would be possible and desirable for nuclear? And what other energies would make up the difference?

Many voices argued that Japan needed to increase its reliance on renewable energies such as solar and wind power, which had represented only 2 percent of Japan's electricity production prior to the disaster (10 percent if one includes large-scale hydropower).<sup>22</sup> Although the electrical power companies and heavy industry were skeptical of these technologies, in September 2011 DPJ prime minister Naoto Kan coerced the Diet to pass a new feed-in tariff subsidy system for renewables. He was able to achieve this reform by making the feed-in tariff a condition for his stepping down from power.<sup>23</sup> The new system came into effect in July 2012, and soon thereafter solar panels and wind turbines were popping up all over the country.

With the creation of the feed-in-tariff system, Kan certainly made his mark on Japanese energy policy. But the key question of whether the increased future reliance on renewables would come at the expense of nuclear power or fossil fuels remained unresolved. This persistent lack of clarity can be seen in the vapid new "Strategic Energy Plan" released by METI in April 2014, which broke precedent by failing to assign numerical targets for the country's future level of reliance on different energy sources. The document stated that the future use of nuclear energy would be "lowered to the extent possible," but what that statement might mean in practice was anybody's guess.<sup>24</sup> At one extreme, it could mean that the government would be actively discouraging continued reliance on nuclear power; at the other, it could mean that the government intended nuclear to take an even more prominent position than it had held before Fukushima, albeit less than the government's pre-2011 projections had anticipated.

Such waffling as late as mid-2014 reflected the fact that the political class had become deeply divided over the long-term future of nuclear power. Kan

produced the first major breach in the elite consensus in July 2011 when he called on Japan to plan its complete exit from nuclear power. The prime minister's statement was reported by worldwide media as the inevitable denouement of the Fukushima accident.<sup>25</sup> But domestically Kan was pilloried for his stance, not only by the LDP and heavy industry but even within his own party, and he ended up weakly declaring a few days later that it was merely his "personal view."<sup>26</sup>

The idea of a nuclear phaseout did not die when Kan was replaced as prime minister by the DPJ politician Yoshihiko Noda, however. On September 14, 2012, Noda's Energy and Environment Council—composed of the most powerful ministers in the government—embraced the nuclear phaseout option in a decision that it presented as definitive. The council pledged that Japan should plan for zero nuclear power generation by the year 2040. But it also declared that, in the meantime, Japan should operate existing reactors at full power, resume building the planned reactors whose construction had been approved prior to the disaster, and continue to strive for commercial reprocessing of spent reactor fuel to extract plutonium for more energy production.<sup>27</sup> In other words, the Noda plan was for Japan's nuclear operations to return to their prior path, but with the understanding that everything would once again come to a screeching halt in about twenty-five years' time. This plan was attacked from all sides as self-contradictory and unrealistic. Then, remarkably, less than a week after the council's decision had been unveiled, the full cabinet failed to endorse its own top ministers' stance.<sup>28</sup> Noda continued to insist that nuclear zero by 2040 was the government's policy, but his credibility was in tatters.

The return to power of the LDP and Shinzō Abe after the December 2012 national elections was widely believed to herald the return of old-time nuclear boosterism, even though the party was vague about its nuclear plans during the campaign. After returning to power, however, Abe and his government continued to avoid getting specific about its nuclear intentions.<sup>29</sup> As noted above, the government did not even dare to put a number on the country's future level of reliance on nuclear power in its April 2014 "Strategic Energy Plan."

Why did the LDP—and above all *this* LDP, under Abe's bull-in-a-china-closet style of leadership—tread so gingerly around the nuclear issue? The LDP's cautiousness was due in part to the continuing massive unpopularity of nuclear power in public opinion. For instance, in exit polls at the time of

the December 2012 national Diet elections, 79 percent of respondents favored either a gradual or an immediate complete nuclear phaseout, whereas only 15 percent opposed a phaseout.<sup>30</sup> The LDP found it very hard to change this dynamic in the face of a steady stream of reports of the haplessness of TEPCO in its attempts to deal with contaminated water and other mishaps at the Fukushima Daiichi nuclear site. Abe's implausible claim that Fukushima Daiichi was "under control" in his speech to the International Olympic Committee in October 2013 greatly undermined his personal credibility on the nuclear issue.<sup>31</sup>

But the Abe government's lack of clarity about Japan's nuclear future was not just due to its fear of coming clean about its intentions in the face of hostile public opinion. There were also major fissures over Japan's nuclear direction within the upper ranks of the LDP. Most strikingly, Abe's former mentor, ex-prime minister Jun'ichirō Koizumi, developed an increasingly hard-line antinuclear position and went public with his views beginning in August 2013. Taking his campaign a step further, in 2014 he drafted former prime minister Morihiro Hosokawa to run for governor of Tokyo on an anti-nuclear platform against the LDP-backed independent Yōichi Masuzoe, who had tried to stake out a moderate position on the issue.<sup>32</sup> Hosokawa lost, but his and Koizumi's highly publicized stance destroyed the Abe team's attempt to claim that the antinuclear camp was composed merely of irresponsible leftists and the untutored masses.

As of July 2014, it appeared that the Abe government was content to continue supporting nuclear in a wink-wink nudge-nudge way, without detailing specific plans for Japan's future energy mix. That might be good electoral politics, but the Japanese bureaucracy and big business do not appreciate such a high level of uncertainty.

The question of investments in the nuclear fuel cycle was yet another area of surprising lack of decisive policy change after Fukushima. When you burn uranium for energy in a nuclear breeder reactor, as a by-product you get plutonium containing even more energy than the uranium you started with. The awareness of this strange and wonderful physical property led many states over the years to try to bring about a "nuclear fuel cycle" of cheap and inexhaustible energy. But the fuel cycle theory proved difficult to put in practice, and it was delicate diplomatically, since plutonium is a key ingredient for nuclear weapons. So, one by one, most states dropped out of the game.<sup>33</sup> Apart from Japan, the states that stuck with big fuel reprocessing and/

or plutonium fast-breeder reactor plans after the 1980s were either nuclear weapon states (though not the United States) or states that were warming up to join the nuclear weapon club, notably India and North Korea.

Japan maintained its commitment to building a purely civilian plutonium economy despite major technical problems and cost overruns.<sup>34</sup> The Rokkasho reprocessing plant was still not fully operational in 2011, two decades after the original estimated start date. Similarly, the Monju fast breeder reactor was almost never in operation because of a serious 1995 sodium leak and then various other technical problems and accidents over the years.<sup>35</sup> And the sorry saga of Japan's uranium enrichment work was almost as unedifying. Yet the flow of state funding for these sensitive technologies was unending. The largely unsuccessful effort to complete the nuclear fuel cycle from the 1960s up to 2011 may have cost almost \$250 billion.<sup>36</sup>

In the aftermath of Fukushima, many observers believed that Japan would shut down its white elephant fuel cycle projects. Those projects were not only extravagant but also even more prone to serious, life-threatening accidents than conventional power plants such as Fukushima Daiichi. But the fuel cycle policy remained in place. Indeed, remarkably, at the same time that Japan's reactors were being shut down one by one with little prospect of a quick restart—and with a decent chance that they would never return to service—in January 2012 Japan Nuclear Fuels, Ltd. (JNFL) actually moved to start up the Rokkasho reprocessing plant for a test run.<sup>37</sup> The Princeton physicist and nuclear policy expert Frank von Hippel described Japan's attempt to launch its reprocessing plant while not having any operating power reactors as being simply "crazy."<sup>38</sup> Yet even the DPJ government's nuclear phaseout policy proposal of September 2012 actually doubled down and explicitly endorsed this "crazy" policy course. Later, in April 2014, the LDP government reaffirmed Japan's commitment to creating a complete fuel cycle, while also declaring that the Monju reactor would be modified to burn more plutonium than it produced.<sup>39</sup> Such modifications would be no easy task, especially given that the reactor had never worked properly in the first place. Moreover, shortly after the government's decision, the NRA revealed additional data falsification issues by Monju's operator, the Japan Atomic Energy Agency, and cast doubt on that agency's fitness to run any kind of nuclear facility.<sup>40</sup> As of July 2014, the fate of Monju remained unclear.

In sum, this section of the chapter has shown that, on the four topics of reactor restarts, nuclear safety standards, long-term energy mix, and fuel



cycle technologies, the severe shock of March 2011 did not produce a decisive nuclear policy shift during the three years after the accident. With the partial exception of the creation of the NRA to oversee nuclear safety, the traditional lines of Japanese nuclear policy had neither been significantly changed nor clearly reaffirmed. Instead, the policy had simply become more blurry and disconnected from the reality on the ground.

As of July 2014, it appeared that Japanese reactor operations would probably rebound somewhat over the subsequent months and years. But without a coherent long-term policy, future nuclear restarts and re-stops could be expected to be highly inconsistent and politicized and to routinely violate economic and technical rationality. Since Japan had been unable to arrive at a new nuclear policy equilibrium after three years of debate, it was reasonable to ask if it ever could.

### Japan's Nuclear Policy in International Comparison

It is often helpful to use international comparisons to gauge how surprising or unsurprising a country's policy choices may be. In the previous section of this chapter, I documented a very high level of nuclear policy confusion and uncertainty since 2011 in Japan. By contrast, this section of the chapter will show that other countries reacted much more decisively to Fukushima. Below, I compare Japan's nuclear policies before and after Fukushima with those of eleven other rich democracies with significant nuclear operations. This is the right comparison group from a social-scientific perspective because of their similar political, social, and economic contexts. For our purposes here, how China or North Korea responded to Fukushima is much less relevant than how France or South Korea responded.

In the 2000s, as the world was faced with high oil prices and the reality of hydrocarbon-caused climate change, many rich democracies began gingerly to return to the option of nuclear power after the long pause following the 1986 Chernobyl nuclear disaster in the Soviet Union.<sup>41</sup> Like an old necktie sitting at the bottom of the closet, Japan's long-standing commitment to increasing its reliance on nuclear power was so out of date that it had come back in fashion. But then Fukushima came along and ruined the party.<sup>42</sup>

As shown in table 5.1, Fukushima had a major impact on the nuclear plans of Japan's peer comparison group: rich democracies with a significant nuclear establishment. Twelve countries including Japan fall into this category. I

define "rich democracies" as states with membership in the Organisation for Economic Co-operation and Development, and I define a "significant nuclear establishment" as states that were operating at least five nuclear power reactors as of December 31, 2012. Table 5.1 (pp. 120–21) shows the evolution between March 2011 and July 2014 of these twelve countries' long-term (i.e., fifteen-to-twenty-five-year) projected reliance on nuclear power production as a proportion of their overall electricity needs. The table sorts the countries' policies into three broad categories: "planned increase," "planned neutral," or "planned decrease or phaseout." I define a "neutral" stance as an expected change of no more than 3 percent in the projected role of nuclear in the country's future electricity mix compared to the pre-2011 number. Note that in some cases countries that are coded as "neutral" planned to build new reactors as of July 2014, mostly in order to replace the power lost from older units that were slated for decommissioning.

Table 5.1 provides clear evidence of a major shift away from nuclear among Japan's peer group countries in the wake of Fukushima. Putting aside the case of Japan, six of the eleven relevant comparison countries made clear decisions to rely much less on nuclear in the future than they had been planning to do prior to the accident, whereas five decided to persist with their prior expected levels. Of the six that decided to downshift their planned reliance, three decided for a complete nuclear phaseout, one decided to shift from a small reduction to a big reduction, and two decided to scrap planned increases. These were major policy shifts.<sup>43</sup> The overall post-Fukushima drop in the nuclear expectations among Japan's peer group was even more striking in light of the strong pre-2011 expectations of a coming nuclear "renaissance." Of course, Fukushima was not the only driver of the changed nuclear plans of Japan's peer group, and in many cases the changes were controversial and not irreversible. But Fukushima was clearly a very strong force for change in all of these places, as it affected both the politics and the economics of nuclear power. If we put this global reaction together with the fact that Fukushima happened in Japan, Japan's failure to clarify its nuclear plans in the aftermath of the accident is all the more surprising.

### Veto Players and Japan's Nuclear Policy Rudderlessness

Why did Japanese decision makers fail to coalesce around a clear and credible long-term nuclear policy for at least three years after the accident?

TABLE 5.1 Rich and Nuclearized Democracies' Long-Term Plans for Nuclear Energy as a Proportion of Their Total Electricity Needs, before and after Fukushima

	Planned Decrease or Phaseout	Planned Neutral (±3%)	Planned Increase
Before Fukushima (March 2011)	France (small decrease) <sup>1</sup> Germany (decrease) <sup>2</sup>	Belgium <sup>3</sup> Canada <sup>4</sup> Spain <sup>5</sup> Sweden <sup>6</sup> Switzerland <sup>7</sup> United Kingdom <sup>8</sup> United States <sup>9</sup>	Czech Republic <sup>10</sup> Japan <sup>11</sup> South Korea <sup>12</sup>
After Fukushima (July 2014)	<i>Belgium</i> (phaseout by 2025) <i>France</i> (major decrease) <i>Germany</i> (phaseout by 2022) <i>Japan</i> ? <i>Switzerland</i> (phaseout by 2034)	Canada <i>Czech Republic</i> <i>Japan</i> ? <i>South Korea</i> Spain Sweden United Kingdom United States	

N.B. Italicized country name indicates a significant post-Fukushima policy shift.  
Source: Compiled by the author.

Notes to Table:

1. France now plans to decrease its reliance on nuclear from 75 percent of electricity to 50 percent by 2025. For the pre-Fukushima policy, see International Energy Agency, *Energy Policies of IEA Countries: France, 2009 Review* (Paris: IEA, 2009); for the post-Fukushima policy, see Pierre Le Hir, "Une transition énergétique encore très fragile," *Le Monde*, July 2, 2014, [www.lemonde.fr/planete/article/2014/07/02/la-transition-energetique-ne-fait-toujours-pas-consensus\\_4449692\\_3244.html](http://www.lemonde.fr/planete/article/2014/07/02/la-transition-energetique-ne-fait-toujours-pas-consensus_4449692_3244.html).

2. Germany's post-Fukushima policy shift is well described in International Energy Agency, *Energiapolitik der IEA-Länder, Deutschland, Prüfung 2013* (Paris: IEA, 2013).

3. For the pre-Fukushima policy, see International Energy Agency, *Energy Policies of IEA Countries: Belgium, 2009 Review* (Paris: IEA, 2009); for the post-Fukushima policy, see "Le gouvernement 'bétonne' la sortie du nucléaire," *LeVif.be*, November 13, 2013, [www.levif.be/info/actualite/belgique/le-gouvernement-betonne-la-sortie-du-nucleaire/article-4000449254356.htm](http://www.levif.be/info/actualite/belgique/le-gouvernement-betonne-la-sortie-du-nucleaire/article-4000449254356.htm).

4. For the pre-Fukushima policy, see International Energy Agency, *Energy Policies of IEA Countries: Canada, 2009 Review* (Paris: IEA, 2009); for the post-Fukushima policy, see National Energy Board of Canada, "Canada's Energy Future 2013: Energy Supply and Demand Projections to 2035," November 2013, [www.neb-one.gc.ca/clf-nsi/rnrgynfimt/nrgyrprt/nrgyftr/2013/nrgftr2013-eng.pdf](http://www.neb-one.gc.ca/clf-nsi/rnrgynfimt/nrgyrprt/nrgyftr/2013/nrgftr2013-eng.pdf).

5. For the pre-Fukushima policy, see International Energy Agency, *Energy Policies of IEA Countries: Spain, 2009 Review* (Paris: IEA, 2009); for the post-Fukushima policy, see Elena G. Sevillano, "La Central de Garoña ya tiene una ley a medida para reabrir," *El País*, February 22, 2014, [http://sociedad.elpais.com/sociedad/2014/02/21/actualidad/1392990332\\_049345.html](http://sociedad.elpais.com/sociedad/2014/02/21/actualidad/1392990332_049345.html).

Perhaps the most commonly offered hypothesis to explain Japan's post-Fukushima policy disarray was that the country suddenly found itself with no good energy options. Oil and gas come from unstable parts of the world, have high price volatility, and produce climate change; solar, wind, and other renewables are generally expensive and largely unproven as large-scale power sources; and nuclear energy is now perceived as being highly dangerous. Therefore, the government simply did not know what to do. As a government source explained to the *Asahi Shimbun* in late August 2012, "I think the politicians are having trouble making up their minds."<sup>44</sup>

Yet there was no shortage of people who leaped in with bright ideas about how to build a new energy policy framework in Japan. And politicians are used to being blindsided by unexpected events and impossible policy dilemmas. In fact, it is almost definitional to their profession to make difficult choices quickly and to take responsibility for the results—or at least to appear to be doing so.<sup>45</sup> But this time, they simply waffled. Why?

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6. The pre- and post-Fukushima policies are well described in International Energy Agency, *Energy Policies of IEA Countries: Sweden, 2013 Review* (Paris: IEA, 2013).

7. The pre- and post-Fukushima policies are well described in International Energy Agency, *Energy Policies of IEA Countries: Switzerland, 2012 Review* (Paris: IEA, 2012).

8. There is rather more uncertainty about UK plans than about those of most other countries because of a heavily market-driven approach to the energy sector. The current government has reduced the uncertainty by offering a large indirect subsidy for new nuclear building to replace older reactors that have been or will be decommissioned. The pre- and post-Fukushima policies are well described in Paul Bolton, "UK Energy Statistics," House of Commons Library, September 9, 2013, [www.parliament.uk/briefing-papers/sno363r.pdf](http://www.parliament.uk/briefing-papers/sno363r.pdf).

9. There is rather more uncertainty about US plans than about those of most other countries because of a heavily market-driven approach to the energy sector. The pre- and post-Fukushima policies are well described in US Energy Information Administration, "Long-Term Outlook for Nuclear Generation Depends on Lifetime of Existing Capacity," April 25, 2013, [www.eia.gov/todayinenergy/detail.cfm?id=10991](http://www.eia.gov/todayinenergy/detail.cfm?id=10991).

10. For the pre-Fukushima policy, see International Energy Agency, *Energy Policies of IEA Countries: Czech Republic, 2010 Review* (Paris: IEA, 2010); for the post-Fukushima policy, see Ian Willoughby, "Czech Republic to Cease Being Major Energy Exporter and Import Instead, HN Reports," Radio Praha, June 24, 2014, [www.radio.cz/en/section/business/czech-republic-to-cess-being-major-energy-exporter-and-import-instead-hn-reports](http://www.radio.cz/en/section/business/czech-republic-to-cess-being-major-energy-exporter-and-import-instead-hn-reports).

11. For the pre-Fukushima policy, see Ministry of Economy, Trade and Industry, "Strategic Energy Plan of Japan," June 2010, [www.meti.go.jp/english/press/data/pdf/20100618\\_08a.pdf](http://www.meti.go.jp/english/press/data/pdf/20100618_08a.pdf); for the post-Fukushima policy, see METI, "Strategic Energy Plan," April 2014.

12. For the pre-Fukushima policy, see International Energy Agency, *Energy Policies of IEA Countries: The Republic of Korea, 2012 Review* (Paris: IEA, 2012); for the post-Fukushima policy, see Jane Chung, "South Korea Cuts Future Reliance on Nuclear Power, but New Plants Likely," Reuters, January 14, 2014, <http://uk.reuters.com/article/2014/01/14/uk-nuclear-korea-idUKBREAO05K20140114>.

Japanese politicians were hamstrung less by a lack of good *policy* options than by a lack of good *political* options—and by their limited power to reshuffle the political deck. One major political problem caused by Fukushima was the serious difference of opinion about the value of nuclear energy that divided the majority of the Japanese power elite from the majority of ordinary citizens.<sup>46</sup> The power elite, and notably the so-called “nuclear village” of big business, the electrical utilities, and key government ministries, wanted to return to business as usual. They thought that abandoning nuclear power would kill Japan’s manufacturing economy. But the mass public became increasingly antinuclear, not least because of its serious doubts about the competence and honesty of the “nuclear village.” By March 2012, 79.6 percent of the public moderately or strongly endorsed the idea of an eventual complete phaseout from nuclear power, and its antinuclear spirit remained solid thereafter.<sup>47</sup> Antinuclear masses even went into the streets by the tens of thousands to protest reactor restarts during the summer of 2012—the first time in decades that Japan had seen such an outpouring of public sentiment on any issue.<sup>48</sup> In a democracy, the public’s strongly held views could not be ignored even if they were considered unrealistic by many elites.

But the elite-mass nuclear policy standoff was by no means the only cause of Japan’s nuclear policy disarray. It was merely one additional layer of difficulty for a policy-making process that even insiders had long found to be incredibly frustrating. In an interview I conducted before the Fukushima accident, one influential figure in the nuclear establishment told me that the major nuclear players had responded to increasing problems in the sector since the 1990s with “a lack of willingness to collaborate, and even occasionally forming a kind of circular firing squad.”<sup>49</sup> And the lack of elite harmony before March 2011 became a vicious blame game after it. Indeed, it may be precisely because the elites were already deeply divided that public opinion was able to have such a big impact on the post-Fukushima policy debate. The prime minister and his cabinet were not capable of leading this squabbling group of actors; they were part of the squabble.

The conventional wisdom is mistaken in suggesting that the “nuclear village” was a cohesive community that knew what policies it wanted and how to push them through. Actually Japanese nuclear policy was gridlocked long before Fukushima, largely because the “nuclear village” included many distinctive, legally empowered actors—“veto players,” in the language of contemporary political science—with different viewpoints and mutual suspicions.<sup>50</sup>

Veto players are individual or collective actors that have de facto institutionalized authority to unilaterally block major policy change. Many recent comparative politics studies agree that, to quote Andrew MacIntyre, “the wider the dispersal of veto authority, the greater the risk of policy rigidity.”<sup>51</sup> Veto authority typically comes about through gradual processes of historical institutionalization. In Japan, veto authority over fundamental aspects of nuclear policy had gradually dispersed very widely over the decades—and not just to different parts of the state but also to the private, regional monopoly electrical utilities and the heavy manufacturers.<sup>52</sup> This dispersion of power over nuclear policy was much more extensive in Japan than in most other countries. Moreover, because veto power on this issue began to disperse very early in Japan in comparison with other states, it became harder to reverse. Once the key actors became established as veto players, they were able to spread their tentacles far and wide across the entire policy sector. The gradual entrenchment of the nuclear veto players over time is a good example of the “increasing returns” process of historical institutionalization.<sup>53</sup> Meanwhile, the increasing complexity of the Japanese nuclear arena led the veto players to perceive an ever-greater potential for severe “negative externalities” as a result of any major policy reform.<sup>54</sup>

We can count at least seven institutional actors that have traditionally been deeply embedded in the policy-making process to the extent of holding de facto veto power over major nuclear policy changes in Japan. Table 5.2 identifies the seven traditional veto players, the source of their veto power, the amount of time since they definitively rose to veto player status in the nuclear policy-making arena, and their generic nuclear policy preferences.

In addition to the seven veto players listed in table 5.2, note that the new nuclear safety agency, the NRA, acted as a major block on the government’s nuclear restart intention after its birth in 2012. I have not included the NRA in the table because of the importance of historical institutionalization processes. In other words, however powerful it may seem on paper, a new organizational actor inevitably requires time to put down roots and become strong enough to consistently stop others from undermining its interests. Therefore, although as of July 2014 the NRA seemed to have all the legal characteristics of a veto player, it was necessary to wait and see whether those characteristics would persist.

In addition, as noted previously, after the accident the courts started to make sporadic rulings on the nuclear issue. The courts certainly had the

ability to become yet another veto player if they chose to exercise their full constitutional powers. But, as of July 2014, whether the judiciary would become fully engaged remained to be seen.<sup>55</sup>

The final asterisk to table 5.2 is that the AEC's long-standing veto power was ended by new legislation in 2014. The AEC still existed, but it was a shadow of its former self.<sup>56</sup> This is an extraordinary event from the perspective of veto players theory, and careful study will be required to determine how this fate could have befallen an institution that had wielded tremendous power in earlier decades. My off-the-record interviews indicate that the AEC was a willing participant in its own demise. In the aftermath of 2011, the AEC commissioners found themselves unable to fulfill their mandate to bring the various nuclear players together, especially because of the expansion of the circle of active players and the hot glare of the media and elected politicians. As a result, they were more relieved than angered to watch the government take over their statutory role of setting long-term nuclear policy.

As shown by the fate of the AEC, the mere existence of many veto players does not make change impossible. If all the players agree on a policy change, then it can happen. But the greater the number of veto players, the more unlikely such agreement becomes. The difficulty of major change in a context of multiple veto players is clearly borne out by the history of Japanese nuclear policy. Not only recently but also in the distant past, serious initiatives to change Japan's nuclear direction by one or another of these powerful actors have been consistently blocked or dramatically watered down by others, in line with the expectations of historical institutionalist veto players theory. The result has been many decades of nuclear policy stasis. For instance:

- *Nuclear weapons.* Numerous high-ranking Japanese politicians over the years have been tempted to seek the bomb. Political pressures in this direction were strongest in the 1950s and 1960s, prior to Japan's accession to the Nuclear Nonproliferation Treaty. But as Hiromi Arisawa, an original member of the AEC who served for seventeen years, told the *Asahi* newspaper upon his retirement in 1972, "We were pressed repeatedly for permission to do basic research on how to make an atomic bomb. They tried to persuade us to do so by saying that such research was permissible under the Constitution. Naturally, I always refused."<sup>57</sup> It would be hard to find a clearer indication of the old AEC's veto power than this.

TABLE 5.2 Japan's Traditional Nuclear Policy Veto Players

Actor	Source of Veto Power	Age of Veto Power	Policy Preferences
Prime minister/governing party coalition	Constitutional authority to pass legislation	1950s-	Achieve popular and sustainable policies in line with political views
Upper House majority when divided government	Constitutional authority to pass legislation	Sporadic; most recently, 2010-13	Achieve popular and sustainable policies in line with political views
Regional monopoly electrical power companies (EPCOs)	Traditionally, legal monopoly on electricity generation, transmission, and distribution; own and operate most of Japan's nuclear facilities, including fuel cycle facilities	1950s-	Maximize power production with existing nuclear reactors; minimize own investment costs
Atomic Energy Commission (AEC)	Authority under Atomic Energy Basic Law to set long-term nuclear policy	1950s-2014	Promote peaceful use of nuclear power; achieve nuclear policy consensus
Ministry of Economy, Trade, and Industry (METI)	Authority under Energy Policy Basic Law to draft long-term energy policy and set retail electricity rates, pass out funds to localities, etc.	1970s-	Increase domestic energy production; build the "plutonium economy"; increase nuclear exports
Prefectural governors	Quasi-legal requirement to approve Nuclear Safety Agreement with plant operator	1970s-	Achieve sustainable and popular policies; get subsidies from national government and EPCOs
Nuclear plant makers (e.g., Hitachi, Mitsubishi, Toshiba), backed by Keidanren	Makers of most of Japan's reactors; would also be key for reactor decommissioning	1990s- (previously were in coalition with the EPCOs)	Increase nuclear construction at home and abroad

Source: Compiled by the author.



- Reprocessing.* In the early 2000s, the nine EPCOs, along with neoliberal forces inside METI and the Koizumi government, pushed for a retreat from the costly and fruitless fuel cycle policy. The EPCOs were already skeptical of the plan for spent fuel reprocessing in the 1970s, but they had bowed to the wishes of the government, Mitsubishi Chemical, Sumitomo Chemical, and other heavy manufacturers to create the JNFL consortium that would build the Rokkasho reprocessing plant.<sup>58</sup> By the 2000s, the EPCOs had turned clearly against making any more investments in that money pit. To fend off their attack, METI first quashed its internal neoliberal dissenters who agreed with the EPCOs. Then it pushed the Diet to create a special “reprocessing fund” worth ¥12.7 trillion in May 2005. In this act, the government agreed to pay all existing debts and future costs associated with the Rokkasho facility, using special surcharges on electricity transmission and household consumption.<sup>59</sup> The EPCOs ended up accepting this as a partial win and, against their better judgment, agreed to keep working on the project.
- Nuclear power production.* As noted above, Kan’s July 2011 attempted peremptory announcement of a nuclear power phaseout was overwhelmingly rejected by the other veto players, and he had to backtrack. Noda’s more carefully deliberated phaseout plan met with the same ignominious fate. It failed even to gain the endorsement of Noda’s own cabinet.

It was fundamentally because of the fractionalized nature of the Japanese nuclear policy-making arena that these serious attempts to overturn the existing order did not succeed.

It is also important to note that such serious attempts at major nuclear policy reform have historically been rare. Why was the traditional nuclear policy not under more pressure, more often? This brings us to the second key historical institutionalist insight: the effects of the intertwining of different strands of nuclear policy over time. In other words, Japan’s nuclear policy rigidity has been a function not only of the large number of veto players but also of the legacies of the deals that the veto players struck with each other in the past.

The difficulty of bringing about change in the context of intertwined policy strands can be seen in the case of the white elephant Rokkasho reprocessing plant. Prior to 2011, a METI bureaucrat informed me that even though

METI had historically been strongly in favor of Rokkasho for energy security reasons, at some point most METI bureaucrats realized that the plutonium economy was never going to materialize. But they nevertheless kept funding the Rokkasho project, mainly because of Japan's continuing inability to find a site to build a permanent nuclear waste storage facility.<sup>60</sup> The existence of the Rokkasho facility, even in its unfinished condition, had become necessary to justify the national government's promises to local and prefectural governments that the large quantity of spent fuel in above-ground storage sites under their jurisdiction was merely there "temporarily" and would be taken off their hands once Rokkasho could be brought into operation. Otherwise those governments would no longer agree to host nuclear power reactors. Moreover, a large quantity of spent fuel is already present at Rokkasho itself, and it would be next to impossible to convince the local and prefectural governments to take it back. Thus Japan arrived at the ridiculous situation of endless massive spending on a still-inoperative fuel-reprocessing plant that was not going to solve the problem of long-term waste disposal even if it did enter into service. Rokkasho's importance for central-local relations was such that not even the shock of Fukushima could change the national government's determination to keep the dream alive, even at a time when it was seriously contemplating a complete nuclear phaseout.

The question then arises, why has Japan faced so much trouble finding a permanent nuclear waste site? Despite generous state and corporate offers of payments to localities over the years, as of July 2014 no amount of money had been sufficient to convince any of them to become the permanent dumping ground for Japan's nuclear waste.<sup>61</sup> Of course the waste siting issue is a headache in many countries, but some have found solutions. One important reason why the waste siting issue has proven so difficult in Japan and other places is that antinuclear activists have effectively mobilized the public's instinctive "nuclear fear."<sup>62</sup>

Ironically, then, the actions of the antinuclear activists may be said to be partially responsible for the persistence of METI's commitment to building the plutonium economy. After all, if there were a permanent waste site, the genuine reason METI has had for keeping Rokkasho on life support would disappear overnight.

One of the leading antinuclear activists, Hideyuki Ban of the Citizens' Nuclear Information Center, explained to me that although he has tried to convince fellow activists to be "more flexible" on the waste issue and other

issues, the antinuclear movement itself is riven with internal divisions that keep it locked into a fundamentalist antinuclear position.<sup>63</sup> This point brings up the third historical institutionalist insight. The nuclear village's veto player-driven gridlock is matched by an equally high level of fractionalization among its antinuclear opponents, with the result that neither side can compromise with the other. The bad blood created by this polarized situation leads to even more gridlock. And if this conflict spiral was already intense before Fukushima, it became even more intense after it.

### The Fall of TEPCO and Japan's Possible Nuclear Futures

In the previous section of the chapter, I argued that if we want to understand why Japan failed to come up with a coherent set of policy reforms during the three years and counting *after* Fukushima, then we need first to understand why it was unable to reform its traditional nuclear policy for so many years *before* the accident. The answer, in short, is the large number and complex relationships of Japan's entrenched nuclear veto players. This insight can also help us to better understand the kinds of potential structural changes that could finally open the door to major nuclear policy reform in the future.

Before Fukushima, no institutionalized veto player had ever been disestablished from the nuclear policy-making arena. Once a veto player, always a veto player. If this tradition were to hold firm, then there would be little reason to imagine any other possible nuclear future for Japan than an unlimited extension of the post-Fukushima policy disarray. The potential addition of the NRA to the lineup of veto players seemed to foretell even more fractionalization and gridlock in the future. But Fukushima did change the traditional veto players lineup to some extent. First, the AEC's veto power was ended. Second, and potentially much more significant, in 2012 the government took over TEPCO, the giant utility that had been the operator of Fukushima Dai-ichi. The post-Fukushima political and economic weakness of TEPCO and its sister EPCOs raises the possibility that their veto power could be ended as well. And if that were to happen, radical changes in Japanese nuclear policy would certainly become imaginable.

TEPCO was by far the largest of the nine EPCOs—private, vertically integrated, regional electrical utility monopolies—and it was their unquestioned leader in their many political battles with the Japanese state.<sup>64</sup> Under TEPCO's leadership, the EPCOs had notably succeeded in preventing the

implementation of retail electricity liberalization, thus bucking the strong liberalizing trend across most of the rest of the industrialized world during the 2000s.<sup>65</sup> However, the Fukushima accident caused the company to descend into virtual bankruptcy, and the government gained a majority stake of voting shares in the company.<sup>66</sup> Bankrupt TEPCO was still providing electricity, but it was certainly not in a position to fight one-on-one with the government anymore. The other EPCOs were not nationalized, and they continued to fight for their interests. But without the giant TEPCO to lead them, the EPCOs' veto power was in peril. In January 2013, a METI panel came out in favor of definitively breaking up the power generation, transmission, and distribution functions of the utilities and introducing true competition into the retail electricity market.<sup>67</sup>

The prospect of neoliberal electricity market reform was a dagger pointed at the heart of the EPCOs. It also provided a glimmer of hope for those who wanted to see Japan exit from nuclear power.<sup>68</sup> In a truly market-based energy sector, power companies would probably be unwilling and even unable to take on the enormous risk of new nuclear plant construction, with its very long lead times before any profits appear. And the government would no longer have its thumb on the scales to encourage such investments. Therefore, Japan's nuclear estate would become obsolescent. It might linger on for a while, but as the reactors aged they would not be replaced. This is essentially the story of the United States nuclear power industry since the 1980s.

The nationalization of TEPCO made electricity market liberalization and, as a consequence, major nuclear policy change more possible; but it also undermined the desire of the politicians and bureaucrats to pursue that objective. When the government became the majority shareholder in TEPCO, all of the company's gigantic and upward-spiraling financial liabilities became the government's responsibility. Anticipating these costs, the Ministry of Finance had weighed in strongly against METI's drive to achieve control of the company in the spring of 2012.<sup>69</sup> But METI won, so the question then became how its "prize" would be paid for. The two basic options were to raise taxes or to return TEPCO to profitability. Anyone would prefer the latter option. But TEPCO's business model has always depended heavily on its monopoly status and on its cash-cow nuclear reactor fleet.<sup>70</sup> The same is also true of most of the other EPCOs, whose own financial situations went from prosy to critical in just a few months because of the nationwide nuclear shutdown.<sup>71</sup> Therefore, the nationalization of TEPCO greatly complicated the

government's calculations, paradoxically dimming its enthusiasm for liberalizing reforms at the very moment when its power to achieve them was at its height. Table 5.3 summarizes how the government perceived its main policy dilemmas.

Because of the government's newly complicated policy calculations, after the nationalization there was a marked slowdown in the momentum toward a big-bang change in Japan's electricity market. The December 2012 return to power of the LDP, historically a close ally of the EPCOs, made the road to liberalization even more challenging. A step in that direction was taken in November 2013 with the passage of a law foreseeing the creation of a genuine national grid.<sup>72</sup> But the hard work still lay ahead. To bring a genuine free market into existence, over forty laws would have to be amended or written anew, over the determined objections of the EPCOs and their many allies within the LDP and METI.<sup>73</sup> Such a massive reform would be a tall order for any prime minister, let alone one who was also determined to revive the nuclear estate from its dormancy. As of July 2014, it appeared that the government would most likely opt for a partial, or even superficial, reform that would leave the EPCOs in a strong position to continue to control the lion's share of the market, while maintaining the flow of subsidies to the nuclear industry.

In the wake of the Fukushima shock, most expert observers expected that Japanese nuclear policy would quickly find a new equilibrium. Some believed that resource-poor Japan would swiftly reaffirm the centrality of nuclear energy in its economy; others expected a definitive decision to move stepwise toward nuclear zero. On two occasions during 2012, the international press confidently reported that such a definitive national decision for nuclear zero had in fact been made, just as in Germany, Switzerland, and Belgium. But in fact, Japan abjectly failed to settle on a new nuclear policy for more than three years after the accident. There was neither a grand nuclear policy turnaround nor a strong reaffirmation of the traditional nuclear policy. There had been a nationwide nuclear shutdown, but it was unintentional. There was a new nuclear safety regulator, but its independence was fragile. The relative portion of nuclear in the country's future energy mix was entirely unknown. The continued support for fuel cycle facilities in this context was simply crazy.

Why did this policy failure happen? In this chapter, I have noted the rise of antinuclear public opinion after Fukushima, but I have also stressed that

TABLE 5.3 How Nationalizing TEPCO Complicated the Government's Policy Calculations

Issue	Interest as the Government Only	Interest as TEPCO's Largest Shareholder
Reactivation of reactors	Prior to reactivation, requiring greatly increased safety and consent of localities and prefectures	Reactivating at least seven reactors as soon as possible to put balance sheet back in the black
Further electricity rate hikes	Implementing lower rates to encourage economic growth	Implementing big rate hikes to avert bankruptcy
Electricity system reform	Separating power generation and distribution businesses to encourage competition and limit EPCO power	Going slow on deregulation. If competition intensifies and TEPCO loses customers, rate hikes become impossible and it goes bankrupt
Paying for nuclear decommissioning and decontamination	Making TEPCO pay for everything	The more TEPCO is made to pay, the closer it comes to bankruptcy, especially if its reactors remain offline

Source: Adapted by permission from Chiaki Toyoda and Takeyo Miyazaki, "Govt, 'New TEPCO' Face Thorny Path," *Daily Yomiuri*, August 2, 2012, 7.

this was an additional complication for an already highly gridlocked policy-making arena. There were three interlocking structural obstacles to building a credible and comprehensive nuclear policy in Japan both before and after the devastating Fukushima nuclear accident:

- First, the difficulty of gaining agreement among a large number of well-entrenched and mutually distrustful veto players
- Second, the difficulty of changing course in light of the complex legacy of past policy compromises among the veto players
- Third, the existence of a similarly fractionalized situation in the anti-nuclear camp, leading to extremism and rigidity on that side as well, and ultimately a polarized pro- versus antinuclear debate that further undermined momentum for policy reform

The fact that Japanese policy makers achieved so little in the nuclear policy arena between 2011 and 2014 did not mean that significant nuclear policy change was impossible, however. The most likely potential pathway to major nuclear policy change would run through electricity market liberalization. The nationalization of TEPCO made it much more feasible for the government to pursue liberalization if it cared to. However, the nationalization of TEPCO also made the government less eager to enact such reforms.

Japan's nuclear future remains deeply uncertain. But what can be said with certainty is that future political debates will carry deep scars from the long post-Fukushima period of political confusion, indecision, and recrimination. Japan's nuclear policy meltdown has dealt a severe blow not merely to Japan's economy and environment but also, and most troubling of all, to the credibility of the country's fundamental political institutions.

## Notes

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## Japan's Megadisaster Challenges: Crisis Management in the Modern Era

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Japan is a hazard-prone country,<sup>1</sup> and for nearly a century it has made incremental reductions to its hazard risk status.<sup>2</sup> The twenty-first century, however, presents larger threats from megadisasters, of which the Great East Japan Earthquake on March 11, 2011, is an example. The government and societal responses to the 3/11 disaster event, as well as responses to the 1995 Great Hanshin-Awaji (Kobe) Earthquake, demonstrate that disaster management in Japan is still evolving. The administrative reforms begun in 2001 by Prime Minister Jun'ichirō Koizumi are still being refined and reexamined in terms of fit and function.<sup>3</sup>

In fact, for the first time since the Meiji Restoration (1868–1912) we see a new approach to disaster management emerging: a shift from natural science and engineering to a more holistic view that embraces the actions of people and business in achieving societal safety. Built on the principle of partnerships with both the business sector and civil society as well as flexibility within the central government, this approach is an adaptation to the present realities—the demographic and economic transitions of the last twenty years—that combine to place more emphasis on constructing a disaster-resilient society. A key element of Japan's future disaster management will be the concept of operational continuity (the ability to continue activities under conditions of hardship) in all sectors of society. The continuance and swift renewal of household socioeconomic status, for example, reduces the hardships inherent in recovery. Through an overall reduction of uncertainty, collective actions establish a positive direction for reconstruction.