



**PUBLIC PARTICIPATION
IN JAPAN'S NUCLEAR ENERGY
POLICY-FORMING PROCESS**

Comparison of pre- and post-Fukushima processes

By

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Abstract

This thesis compares the state of public participation in Japan's nuclear energy policy-forming process before and after the March 2011 Fukushima nuclear accident. It assesses public participation against evaluation criteria designed from a public policy perspective and also locates discrete official exercises within the context of the wider public sphere, using deliberative systems theory to analyse the linkages between the micro and macro levels.

Following Bishop and Davis (2002, p. 14), this work assumes that the idea of public participation implies 'a sharing of power between the governed and the government', but finds that most official public participation exercises in Japan's nuclear energy policy-forming process have been tokenistic. Under these circumstances, and in light of the dominant influence of Japan's nuclear industry and bureaucracy, this thesis asks whether, in the field of nuclear energy policy, it is possible for public participation to prevent the subversion of the political public sphere by power. Adopting a broad definition of participation, including both official and unofficial forms, this research shows how public participation has sometimes acted as a countervailing force. For example, after the Fukushima accident public participation briefly influenced national policy, while pre-Fukushima citizen-initiated public participation sometimes influenced local nuclear projects. However, this analysis also confirms that unless the 'communicative power' generated by citizens' movements can be converted into more concrete forms of power, public participation in the high-stakes field of nuclear energy and energy policy is unlikely to exert substantial and lasting influence.

The inability of the post-Fukushima anti-nuclear movement to convert the communicative power it generated into political representation meant that public influence on official policy was temporary. With the election in December 2012 of a government that was not interested in sharing power with the public, it became even more important to look beyond official public participation exercises. This thesis argues that, in the context of moves to liberalise the energy system, there is potential for participation at the local level to compensate to some extent for the lack of official support for participation at the national level. In particular, by converting communicative power into consumer and 'prosumer' (producer-consumer) power, there is potential for citizens' movements to open up new avenues for the public to influence energy policy, or, in Dryzek's (2010) deliberative systems terms, for transmission between public space and empowered space to occur.

While unengaged consumers with no voice in policy decisions might not be seen as contributing to a deliberative system, this thesis highlights that when consumer and prosumer citizens are making active political choices it is appropriate to view their actions through the lens of public participation and to extend deliberative systems theory to include this type of market-based activity.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide.

I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968.

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This thesis is based to a significant extent on interview material. Most of the interviews were carried out during two trips to Japan in 2012 and 2013. I would like to thank the Takagi Fund for Citizen Science for covering most of my expenses for both those trips. The first was as a speaker at the *International Symposium on the Truth of the Fukushima Nuclear Accident and the Myth of Nuclear Safety* (30~31 August 2012), which Takagi Fund sponsored, and the second (December 2012 – April 2013) was a field trip for which Takagi Fund provided a grant. I also thank Meiji University for providing affordable accommodation and the staff of Citizens' Nuclear Information Center for allowing me to use their office as a home base in Tokyo.

Above all, I would like to thank the many busy people who generously agreed to be interviewed. Without their cooperation it would not have been possible to complete this project. Many of their names appear in this thesis, but those who I have not quoted also contributed greatly to the formation and consolidation of my ideas. I would also like to thank the many people who gave me advice along the way, especially those who referred me to sources that I would not otherwise have found, or would have spent much longer searching for.

One person whose name does not appear except in the bibliography, but who deserves a special mention is Masafumi Takubo, manager of the nuclear information website *Kakujoho*¹ and member of the International Panel on Fissile Materials². I thank him for keeping me abreast of nuclear energy policy developments throughout my research.

¹ Kakujoho (Nuclear Information) web site: <http://kakujoho.net>

² <http://fissilematerials.org>

I would particularly like to acknowledge another of my informants. Professor Harutoshi Funabashi of Hosei University passed away as I was completing my thesis. He was very generous to me with his time and wisdom and one of his articles occupies an important place in this thesis, but he also contributed on another level. As a key author of the Science Council of Japan's September 2012 opinion on the disposal of high-level radioactive waste (section 5.2.1), and also as the chairperson of the Citizens' Commission on Nuclear Energy (section 5.4.2), he made a major contribution to the nuclear energy policy debate, which this thesis takes as its theme. The public sphere that he strived so hard to enrich is diminished by his loss.

I am indebted to The University of Adelaide's Centre for Asian Studies for accepting me as a PhD student, for covering expenses of the abovementioned field trip not covered by Takagi Fund, and for subsidising travel to conferences within Australia. In particular, I am grateful to my supervisors Dr Shoko Yoneyama and Dr Gerry Groot for their support and advice throughout and to Professor Greg McCarthy for his advice on the penultimate draft.

Finally, I would like to acknowledge the special role my wife Kayoko played in making this project possible. Besides her unstinting moral support, she also made a direct contribution by correcting the Japanese of my correspondence with interviewees. Without that I would certainly have given offense much more often than I did.

Acronyms

AFC: Atomic Fuel Corporation (superceded by PNC)

ANRE: Agency for Natural Resources and Energy (agency within METI)

ACNRE: Advisory Committee for Natural Resources and Energy

ATR: Advanced Thermal Reactor

BNFL: British Nuclear Fuels Ltd.

BWR: Boiling Water Reactor

CCNE: Citizens' Commission on Nuclear Energy

CNDP: Citizens' Discussions Promotion Network

CNIC: Citizens' Nuclear Information Center

DP: Deliberative Poll

DPJ: Democratic Party of Japan

EEC: Energy and Environment Council

FBR: Fast Breeder Reactor

FIS: Fundamental Issues Subcommittee

GNF: Global Nuclear Fuel

GW: Gigawatt (1 billion (10^9) watts)

HLW: High-level radioactive waste

JAEA: Japan Atomic Energy Agency (superceded JAERI and JNC; agency under the auspices of MEXT)

JAEC: Japan Atomic Energy Commission

JAERI: Japan Atomic Energy Research Institute (superceded by JAEA)

JAIF: Japan Atomic Industrial Forum

JAPCO: Japan Atomic Power Company

JNC: Japan Nuclear Cycle Development Institute (superceded PNC, superceded by JAEA)

JNFL: Japan Nuclear Fuel Ltd.

LDP: Liberal Democratic Party of Japan

LLW: Low-level radioactive waste

LWR: Light Water Reactor

KEPCO: Kansai Electric Power Company

kWh: Kilowatt hours

METI: Ministry of Economy, Trade and Industry (superceded MITI)

MEXT: Ministry of Education, Culture, Sports, Science and Technology (superceded STA)

MITI: Ministry of International Trade and Industry (superceded by METI)

MNF: Mitsubishi Nuclear Fuel

MOX: Mixed oxide of uranium and plutonium (sometimes refers to MOX fuel and sometimes to MOX powder before fabrication into fuel)

MW: Megawatt (1 million watts)

MWe: Megawatt electric

MWt: Megawatt thermal

NFI: Nuclear Fuel Industries

NISA: Nuclear Industrial and Safety Agency (superceded by NRA; agency within METI)

NRA: Nuclear Regulation Authority (superceded NISA and NSC)

NSC: Nuclear Safety Commission (superceded by NRA)

NUMO: Nuclear Waste Management Organization of Japan

PNC: Power Reactor and Nuclear Fuel Development Corporation (superceded AFC, superceded by JNC)

PWR: Pressurized Water Reactor

RDD: Random Digit Dialling

RI: Radioisotope

STA: Science and Technology Agency (superceded by MEXT)

SWU: Separative Work Units (tSWU/y = ton Separative Work Units per year)

TEPCO: Tokyo Electric Power Company

TRU: Radioactive waste containing transuranic elements

Errata

Page 80, paragraph 2

Replace the existing sentence:

‘The Maki nuclear power plant referendum was the first local referendum held in Japan on any theme.’

with the following sentence:

‘The Maki nuclear power plant referendum was the first local referendum established by ordinance in Japan on any theme.’

Page 342, paragraph 1

Replace the existing sentence:

‘They are the reason why in 2011 the percentage of the electricity market taken by players other than the regional monopoly electric power companies was just 3.6 percent (Electricity System Reform Expert Subcommittee 2013, p. 5).’

with the following sentence:

‘They are the reason why in 2011 the percentage of the electricity market taken by players other than the regional monopoly electric power companies was just 3.6 percent of the liberalised demand (Electricity System Reform Expert Subcommittee 2013, p. 5).’

Page 398, paragraph 1

Replace the existing sentences:

‘However it lacks a uranium conversion facility (for conversion to UF6 feed for uranium enrichment plants). That is the only gap in its otherwise technically complete front end of the fuel cycle.’

with the following sentences:

‘However it lacks a uranium conversion facility (for conversion to UF6 feed for uranium enrichment plants). That is the only gap in its otherwise technically complete front end of the fuel cycle cycle (although Japan had pilot plants at Ningyo Toge which are now shutdown).’

Page 436, footnote 579

Replace the existing sentence:

‘Previous attempts at liberalisation of the electricity system were partial and in 2011 the percentage of the electricity market taken by players other than the regional monopoly electric power companies was just 3.6 percent (Electricity System Reform Expert Subcommittee 2013, p. 5).’

with the following sentence:

‘Previous attempts at liberalisation of the electricity system were partial and in 2011 the percentage of the electricity market taken by players other than the regional monopoly electric power companies was just 3.6 percent of the liberalised demand (Electricity System Reform Expert Subcommittee 2013, p. 5).’

Introduction

1. Overview

This thesis considers the role of public participation in Japan's nuclear energy policy-forming process. In as much as nuclear energy policy is a subset of energy policy, the focus is extended to include energy policy, especially in the period after the 11 March 2011 accident at Tokyo Electric Power Company's (TEPCO) Fukushima Daiichi Nuclear Power Plant. In the early days of Japan's nuclear energy program nuclear energy policy was formed largely independently of energy policy, but the distinction diminished over time and after the Fukushima nuclear accident nuclear energy and energy in general were debated simultaneously. For the post-Fukushima era it therefore became necessary to broaden the focus. The principal concern remains the question of how the public can participate in determining the future of nuclear energy in Japan, but the options include approaches that are only indirectly connected to nuclear energy policy.

The thesis is framed around theories of public participation. It follows the deliberative democracy tradition and a Habermasian understanding of the public sphere (section 1.2.1), and employs various frameworks for evaluating public participation processes. Two of the evaluation schemes (Frewer and Rowe, 2005 and Moro, 2005) address the issue from a public administration angle and focus on official public participation processes (section 1.2.3), while a third, based on the deliberative systems theory of Dryzek (2010), brings in unofficial citizen-initiated processes and deliberation in the wider public sphere (section 1.2.2).

The overriding question posed is, 'To what extent and in what ways has public participation prevented and could public participation prevent in future the subversion of the political public sphere by power?' (Refer the discussion of Habermas in section

1.2.1.) Another angle on the same question is, ‘To what extent and in what ways has power been shared and could power be shared in future between the governed and the government?’ (Refer Bishop and Davis’ definition of public participation quoted in section 1.2.2.) The purpose is not to analyse in detail the nature of the government’s power or the power of those who might act to subvert the political public sphere, although these issues are discussed to the extent necessary to contextualise the argument. Rather, the focus is on the potential for public participation to become an alternative source of power. This issue is investigated by comparing actual public participation processes before and after the Fukushima nuclear accident and considering future directions for public participation in Japan’s energy policy-forming process.

To answer the above questions it is necessary to take a broad view of public participation, focusing not only on spaces provided by government for the public to participate, but also investigating participative spaces actively claimed by the public. Recognising that governments do not necessarily conduct official public participation processes in good faith, but rather tend to resist calls to share power with the public, this thesis considers not only official participation processes but also unofficial citizen-initiated forms of participation. It investigates how various forms of public participation, both official and unofficial, might combine to generate countervailing power.

Public participation is defined as ‘any form of participation in which citizens seek to engage with and influence policy and practice’. This definition places citizens at the centre. Opportunities for citizens to participate are not seen as restricted to the spaces offered by government. Thus, attempts to elevate issues and discourses onto the public agenda (for example through protest) when the government is either disinclined or not motivated to do so can also be viewed as public participation.

With this overarching framework, the structure of the thesis is as follows.

2. Summary of chapters

Chapter 1 introduces the theoretical approach to public participation used in this thesis, drawing a distinction between micro and macro approaches to public participation and deliberative democracy. It includes an outline of the evaluation framework and offers a deliberative systems perspective on the role of citizens' movements.

Chapter 2 provides an overview of the status of public participation in Japan, highlighting the fact that public participation is more developed at the local than the national level. In light of this difference, it comments on the implications of the fact that nuclear energy policy has traditionally been national policy, with the role of local governments largely restricted to approval of the siting and operation of nuclear facilities.

Chapter 3 discusses public participation in the pre-Fukushima era, with a special focus on the Round Table Conference that followed the 1995 accident at the *Monju* Prototype Fast Breeder Reactor. It also covers local citizen-initiated participation, including local referendums, as well as the process that produced the 2005 nuclear energy policy. It concludes that official public participation exercises in the pre-Fukushima era were a façade that offered no point of entry for the general public to exert influence.

Chapter 4 covers the post-Fukushima policy review process, describing the committee process where policy options were produced, a national debate involving the general public, and the interaction between these processes and a mass protest movement that peaked at the same time as the national debate took place. The national debate is the pivot around which the thesis revolves. It exerted temporary influence on policy, but a

change of government reversed the previous government's decision. This chapter concludes that although representative democracy trumped public participation, the post-Fukushima public participation process complemented representative democracy in some useful ways.

Chapter 5 looks to the future. It considers the potential for an ongoing national debate on nuclear energy policy and offers some principles that might guide a continuing process, but concludes that in view of the negative attitude of the LDP-Komei government it is unlikely that the government would initiate such a process, although other actors could potentially do so. More promising avenues are for the public to contribute through local energy planning, community energy projects, and as consumer and prosumer citizens in the context of liberalisation of the electricity system. In this way, citizens could potentially exert indirect influence on the future of nuclear energy in Japan.

Chapter 6 concludes the thesis. It shows how the evaluation schemes used in this thesis could be applied to improve future public participation processes. It then uses Dryzek's deliberative systems scheme as a tool to indicate future directions for public participation in Japan's nuclear energy and energy policy, noting in particular the potential for participation at the local level to compensate to some extent for a lack of official support at the national level. From a theoretical perspective, it argues that the distinction between the deliberative system and the market system becomes blurred when consumer and prosumer citizens make politically-motivated market choices. Finally, it draws attention to the special role of the energy transformation movement, in particular the community power movement, in the struggle to democratise the energy system.

Readers who are unfamiliar with the history of nuclear energy in Japan may find useful the historical overview in Appendix 2. Besides outlining the history of Japan's nuclear energy policy, it also summarises the status of Japan's major nuclear energy programs immediately before the Fukushima nuclear accident.

3. Notes regarding terminology and sources

Terminology

Japanese names: For consistency, English name order is used throughout (family name last).

'Fukushima nuclear accident': The nuclear accident that occurred at Tokyo Electric Power Company's (TEPCO) Fukushima Daiichi Nuclear Power Plant on 11 March 2011 is referred to in this thesis as the 'Fukushima nuclear accident'. In deference to the people of Fukushima, who do not wish to be stigmatised by the focus this formulation places on their home prefecture, I would have preferred to have used the longer 'TEPCO Fukushima Nuclear Power Plant accident', as is used in some official documents (The Fukushima Nuclear Accident Independent Investigation Commission 2012, p. 16). This shifts the focus to the company whose negligence was to a major degree responsible for the accident. Unfortunately it is too unwieldy a phrase to use repeatedly throughout the whole thesis, so the shorter form is used.

'3.11': In some places the accident and/or the whole triple disaster are simply referred to as 3.11, using the common abbreviation of the March 11 date of the Great East Japan Earthquake.

'Nuclear village' and 'nuclear complex': The term 'nuclear village' (*'genshiryoku mura'*) was coined by Tetsunari Iida in the 1990s to describe the insular nature of the

network of people, organisations and interests that promoted nuclear energy in Japan.³ The nuclear village includes as its core members the nuclear bureaucracy and nuclear industry, but its wider membership may be considered to include pro-nuclear political parties, the academy, the mass media, local and prefectural governments, and trade unions.⁴ Some splits have appeared post-Fukushima, but the core membership remains intact. This thesis uses the phrase ‘nuclear village’ to refer to this wider network, especially where the sense of a club, or a community of shared interests and values is implied. The term ‘nuclear complex’ is used to refer to nuclear proponents as a locus of power within Japanese society.

Referencing style

Both endnotes and footnotes are used, depending on the nature of the source. Footnotes are used for official documents related to the policy-forming process, such as transcripts and handouts for committee meetings, which were published on the internet. The publication of such documents represented a major step towards greater transparency in the policy-forming process. Final reports from such committees are referenced as endnotes, as are the committees’ overall web sites from which all the documents should be accessible. URLs quoted in both footnotes and endnotes were confirmed as live links as of September 2014.

³ In a presentation to meeting 5 of the FY1998 series of the Round Table Conference (21 January 1999), Tetsunari Iida identifies, among other things, the prioritisation of ‘appearances’ (*tatema*) over ‘reality’ as a feature of village society that also characterises the nuclear village:

Handout: <http://www.aec.go.jp/jicst/NC/iinkai/entaku/H10/5kokai/5koukai51.html>

Transcript: <http://www.aec.go.jp/jicst/NC/iinkai/entaku/H10/5kokai/minute5.html>

⁴ Definitions of membership vary. As an example, Kingston (2014) writes: ‘The “nuclear village” is the term commonly used in Japan to refer to the institutional and individual pro-nuclear advocates in the utilities, the nuclear industry, the bureaucracy, the Diet (Japan’s parliament), business federations, the media, and academia’ (p. 108).

Translations

Except where otherwise stated, translations of laws come from the Japanese Law Translation web site.⁵

All other translations are my own, unless otherwise indicated.

Some official documents that are referenced by their English title are in fact ‘provisional translations’ published on government web sites. This should be clear from the context and the form of the reference.

Interviews

I interviewed over 70 people, most of whom have in some way or other been directly involved in Japan’s nuclear energy policy debates. The interviews were conducted during field trips in August–September 2012 and December 2012 – April 2013. Interviewees included politicians, officials in the nuclear administration, representatives of quasi-government and non-government organisations, academics, and activists.

The interview data was used to confirm facts, elicit insights, and ascertain attitudes, judgments and opinions. Some of the interviews conducted in the early stages followed a formula designed to elicit responses in line with the evaluation schemes used in this thesis. This approach was not very fruitful, so I shifted to a more informal style, asking questions tailored to match more closely the experience of the interviewees, rather than the framework of my project. This approach generated much richer responses.

All except a couple of interviews were recorded. All quotes used in this thesis are taken from audio recordings or written responses. Some of the interviews were conducted in English, some were in English and Japanese, but most were conducted entirely in Japanese. Quotes from Japanese interviews were translated by me. Where the quoted

⁵ Japanese Law Translation web site (Ministry of Justice):
<http://www.japaneselawtranslation.go.jp/law/>

comment was made in English, this is indicated in the footnote. I take full responsibility for interpretation of interview data.

Ethics clearance for the interviews was obtained from the University of Adelaide Human Research Ethics Committee and permission was obtained from interviewees to quote them.

4. Personal disclosure statement

For seven years, including at the time of the Fukushima nuclear accident, I was the international liaison officer for the Citizens' Nuclear Information Center (CNIC), a leading Japanese anti-nuclear energy NGO. I support CNIC's goal of phasing out nuclear energy, but the purpose of this thesis is not to argue the case for a nuclear phase out. Rather, it is to consider whether citizens' input has been reflected in Japan's nuclear energy policy to date, and through what mechanisms it might be reflected in future.