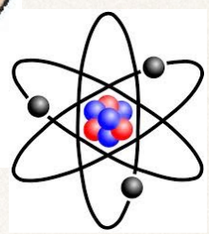

Japan's Nuclear Imaginaries Before and After Fukushima:

Visions of Science, Technology, and Society

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Structure of the Talk

1. Larger Project and Research Questions
2. Analytical Approaches: STS and Cultural Sociology
3. Collective Imaginaries & Relevant Recent Insights
4. Nuclear Imaginaries pre-Fukushima
5. Nuclear Imaginaries post-Fukushima & their Challenges
6. Conclusion

“The Fukushima Disaster and the Politics of Nuclear Power in the United States and Japan”

Meta Research Questions

How are nationally specific configurations of ideas that anchor nuclear governance undergoing refinement and modification in each country in the wake of the 2011 disaster? What implications do these developments have for the future of nuclear governance?

For instance, more specifically…

- How did very different configurations of meanings, narratives, institutions, and material/physical arrangements surrounding nuclear power develop in the two countries?
  - ✓ How did nuclear power become so naturalized in Japan? How did the issue of nuclear energy become depoliticized outside the local-level conflicts? How did the "peaceful use" become dissociated from the memories of Hiroshima and Nagasaki?
  - ✓ How were these developments related to the way policy, politics, and technology developed?

Analytical Approaches:
STS and Cultural Sociology

- **Interpretation matters**
  - Meanings, narratives, categories, framings, etc. are not fixed; they are consequential, even to science & technology!
- **Ontology matters**
  - The same category/concept /material can ***exist differently*** in different contexts (e.g., Hecht [2006, 2007] on nuclear ontologies)
- **Sociotechnical system** (Bijker et al. 1987), not "technology"
- **Hybridity/Co-Production** (Latour 1993; Jasanoff 2004)
  - e.g., The making of a technological system entwined with the making of a nationhood

Collective Imaginaries

World-views; Visions of Society; Narratives & Assumptions about Collectivity & How Things Work; Symbolic Foundations of Society…

- Anderson (1983): a nation as "an imagined political community"
- Taylor (2002):

  "…the ways people imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations."
- Marcus (1995): "technoscientific imaginaries"

Imaginaries & Resilience

CIFAR's Successful Societies program (2002-present): How culture & institutions affect population health and social resilience

Collective imaginaries consequential for social resilience — they capture "how members of a society understand what they are capable of doing together" and therefore are "constitutive of the collective capabilities of a community or society"
(Hall and Lamont 2013)

Sociotechnical Imaginaries

"…collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology"
(Jasanoff forthcoming)

- S&T governance embodies visions of society and assumptions about how it works & how it should work — imaginaries both descriptive & prescriptive

Exploring Nuclear Imaginaries

- Salience — levels of politicization
- Collective benefits and harms
- National identity
- Visions of polity / society: relevant actors & desirable futures
- Relationships / boundaries between bombs and power
- Language: names, categories, narratives
- Images, symbols, cultural products

Nuclear Imaginaries
before Fukushima

- Predominant **naturalization & depoliticization**, coupled with some level of politicization in hosting communities
- **Decoupling of weapons and energy production**
- Benefits:
  - Necessary & inevitable for growth in resource-poor Japan
  - Solution to climate challenges
  - Nation-Building (e.g., 2006「原子力立国計画」)

Nuclear Imaginaries
before Fukushima

- Risks and harms:
  - Radiation exposure: Imagined by local actors
  - Critics marginalized
  - Waste issues bracketed
- Polity / Society / Governance:
  - Risk-bearers (e.g., labor, residents) absent
  - Centralized technocracy; local actors excluded from regulatory processes

Two modes of “hibaku”

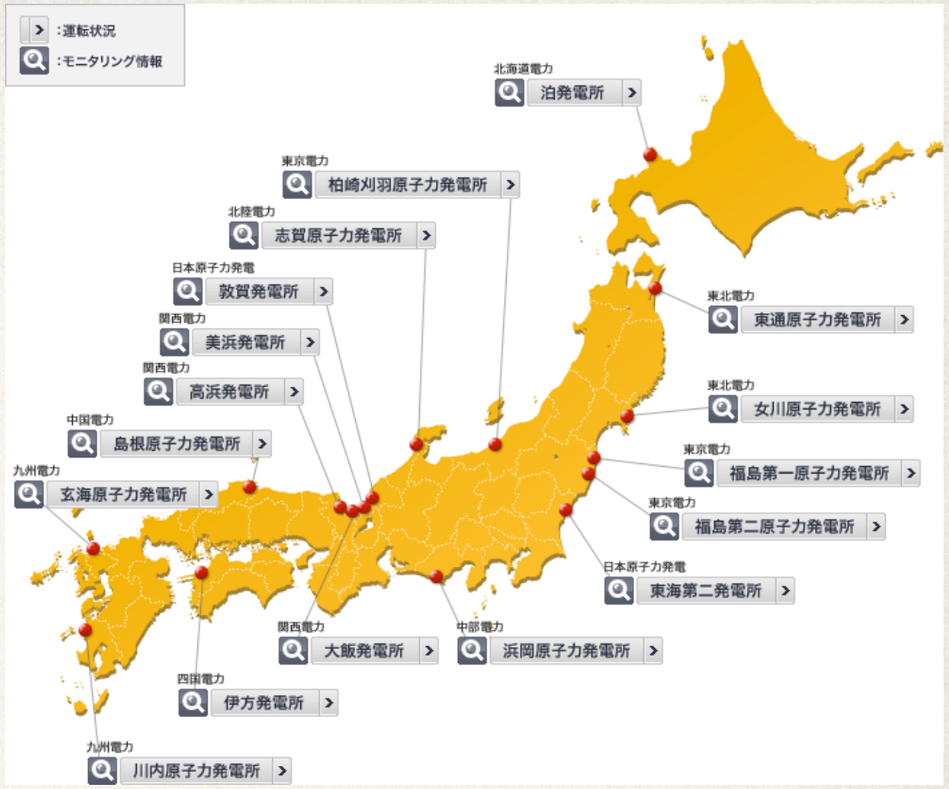
被爆

exposure to **nuclear bombs**

被曝

exposure to **radiation**

Pre-Fukushima Imaginaries



原爆と同じ東海村臨界事故

被曝したＪＣＯ労働者・篠原理人さん（40歳）の治療経過の写真
（第３回日本臨床救急医学会での公表写真）

篠原さん　９月30日　10月10日　11月10日　12月20日　１月４日

Pervasive Vision of Science, Technology & Society

Deficit Model

- Public's fear, skepticism or rejection of specific S&T developments originate in its ignorance or incomprehension
- Knowledge & rationality belong to experts; lay people are ignorant & irrational
- Solutions to public resistance to S&T are communication & education — literacy

Problematizing the "Deficit Model"

A key contribution of Science and Technology Studies (STS):

Research on Public Understanding of Science:

- Information & understanding ("literacy") do not necessarily lead to acceptance

Wynne (1992) on Cumbrian sheep farmers

- S&T are shaped by social factors, including "local" ideas and agreements — as opposed to "universal"
- Lay knowledge can be sophisticated and productive
  - Also: Epstein (1995) on lay participation in AIDS research

Democratic engagement as one procedural solution

Nuclear Imaginaries
after Fukushima

- **Politicization** — public rejection / resistance
- Connection to **Hiroshima & Nagasaki**
- Risks and harms:
  - Radiation effects — heightened awareness
  - Waste issues still bracketed
- Benefits:
  - Efficient & stable energy source in resource-poor Japan
  - Solution to climate challenges

“The accident at the Fukushima Daiichi nuclear power plant is the second major nuclear detriment that the Japanese people have experienced… However, this time it was not a bomb dropped upon us, but a mistake committed by our very own hands... The Japanese people, having learnt through the sacrifice of the *hibakusha* (atomic bomb victims) just **how badly radiation leaves scars on the world and human well-being**, should have rejected nuclear power.”

Haruki Murakami, Barcelona
June 10, 2011

“I have long contemplated the idea of looking at recent Japanese history through the prism of three groups of people: those who died in the bombings of Hiroshima and Nagasaki, those who were exposed to the Bikini tests, and **the victims of accidents at nuclear facilities**… However this unfolding disaster ends… its significance is not the least bit ambiguous: Japanese history has entered a new phase, and once again we must look at things through the eyes of the victims of nuclear power, of the men and the women who have proved their courage through suffering.”

Kenzaburo Oe, *The New Yorker*
March 28, 2011

Nuclear Imaginaries
after Fukushima

- Polity / Society / Governance:
  - More inclusive: some opening of decision processes & awareness of center / periphery
  - Yet the deficit model still dominant: focus on communication & literacy
  - Risk-bearers (e.g., labor, residents) still largely invisible or powerless

Current Challenges

Ongoing struggles of Fukushima residents are fading from the public consciousness…

- Yet evacuation, decontamination, rebuilding hardly over
- Communities divided, stigmatized
- Uncertainty of living with low-dose radiation continues; marginalization and silencing of those who contest expert advice and voice fear
- Precarious conditions of labor

In Conclusion…

Public Engagement with S&T instead of the deficit model

- framing of problems and objectives
- energy needs; waste; labor; risk distribution; local prosperity

Modes of public engagement to be discussed and evaluated

Thinking about and deciding on how to live — or not to live — with nuclear technology is… thinking about and deciding on what kind of society we want and try to achieve.

Thank You!

Two Images of the Nuclear in Post-war Japan

Astro Boy (1952)

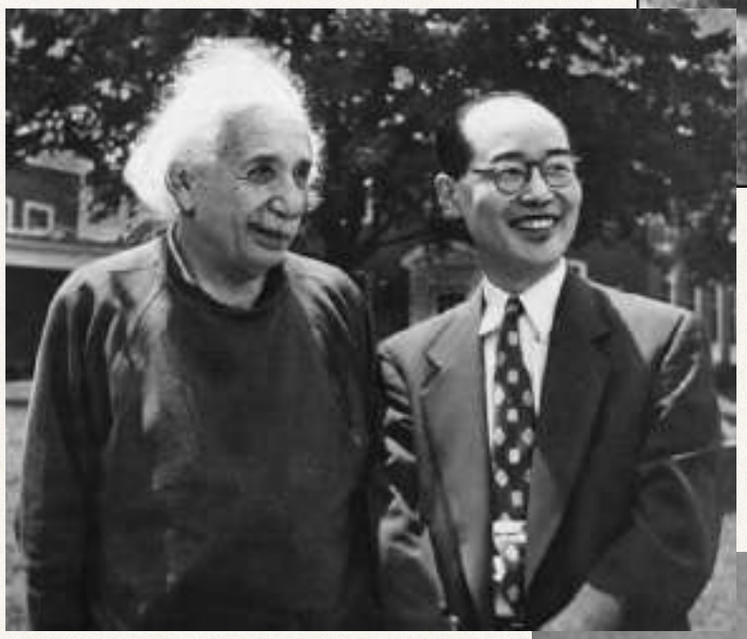
Godzilla (1954)

Nuclear Imaginaries: 1945-1952

Central Narrative: Peace, "peaceful use"

- "Japan's a-bomb experience allows its greater contributions to peace"
- "Sharing nuclear science leads to peace and prosperity"
- "Hiroshima as a symbol for peace"
  - **1947.12**: Emperor visits Hiroshima, "Sacrifice for the world peace"
- Very little critique of the bombings
  - **1951**: Toy "atom" for kids, "atomic fever," *Let's Face It* (1943, Bob Hope & Betty Hutton): translated as "Coward and A-bomb Girl"

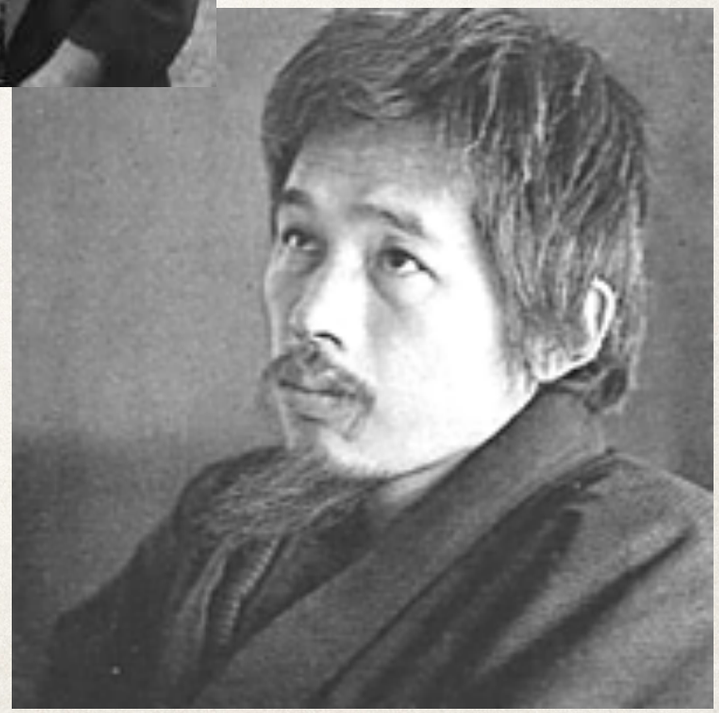
Scientists frequently featured for "peaceful use"



Yoshio Nishina (physicist)

Hideki Yukawa (theoretical physicist, 1st Nobel laureate [1949] in Japan)

Takashi Nagai: physician/ radiologist, survived Nagasaki bomb; Roman Catholic; novelist; portrayed a-bombs as divine providence and a "wake-up call" for lazy and wasteful humanity



Nuclear Imaginaries: 1952-1970

Nation-building; Decoupling of peaceful from military use

- Political and business leaders (e.g., Yasuhiro Nakasone, Matsutaro Shoriki): “efficient technology that allows Japan’s energy independence”“technological prowess”
- Emerging Cold War order: “Japan committed to int’l collaboration” ”new national identity based on peace and S&T”
- 1st opposition to **nuclear weapons** after the 1954 Bikini incident
- Very little opposition to **nuclear power**

Nuclear Imaginaries: 1952-1970

For Fukushima Pref. and townships (Okuma & Futaba)

- NPPs as ticket to prosperity & community building: “dream”
- Some concerns about risks, but mostly trusting national-level regulation and TEPCO
- Everyone imagined to “win”
- Almost no opposition to 1F

Nuclear Imaginaries: 1970s-2000s

Naturalization & **Depoliticization** at the National level; Political Conflict at the Prefectural/Local levels

- Inevitable for the rapid growth in resource-poor Japan
- Marginalization of critics
- Still nationalistic narrative, yet local actors excluded from the regulatory processes — incrementally included following accidents and scandals.
- Risks and harms imagined at the local, rather than at the national
- Technocratic approaches faced democratic challenges, but overall governance structure remained intact

- There is no such thing as the Scientific Method.
- Modern science resembles much more a stock-market speculation than a search for truth about nature.
- New knowledge is not science until it is made social.
- Scientists do not find order in nature, they put it there.
- The basis of physics cannot be inductively secured from experience, but can only be attained by free invention.
- Modern physics is based on some intrinsic acts of faith.
- At any historical moment, what pass as acceptable scientific explanations have both social determinants and social functions.

- Richard Lewontin, **evolutionary geneticist at Harvard U.**
- Erwin Chargaff, **biochemist at Columbia U**.

- Edward O. Wilson, **biologist at Harvard U**.
- Jacob Bronowski, **mathematician/biologist at Sulk Institute.**
- Albert Einstein, **recipient of a Nobel Prize in physics**

- Brian Petley, **physicist at the National Physical Lab.**
- Lewontin, Steven Rose **(neurobiologist at U. of London)**, and Leon Kamin **(psychologist at Princeton U.)**

Steven Shapin

- A key STS figure. Co-authored a 1985 classic, ***Leviathan and the Air- Pump: Hobbes, Boyle, and the Experimental Life***, with Simon Schaffer

- From his 2010 book:

Never Pure:

Historical Studies of Science as if It Was Produced by People with Bodies, Situated in Time, Space, Culture and Society, and Struggling for Credibility and Authority