

How Did an A-Bombed Nation Come to Embrace Nuclear Technology?

ANTH 101: Culture of the Bomb

February 19, 2013

Michiko Hase



March 11, 2011



March 11, 2011

- **Earthquake + aftershocks**
- **Tsunami**
- **Nuclear disaster at Fukushima Daiichi Nuclear Power Plant**
 - **Three meltdowns (Reactors 1, 2, 3)**
 - **Three explosions (Reactors 1, 3, 4)**
 - **Radioactive substances released**

Two Hydrogen Explosions

Reactor 1, March 12 3:36 p.m.



Reactor 3, March 14, 11:01 a.m.



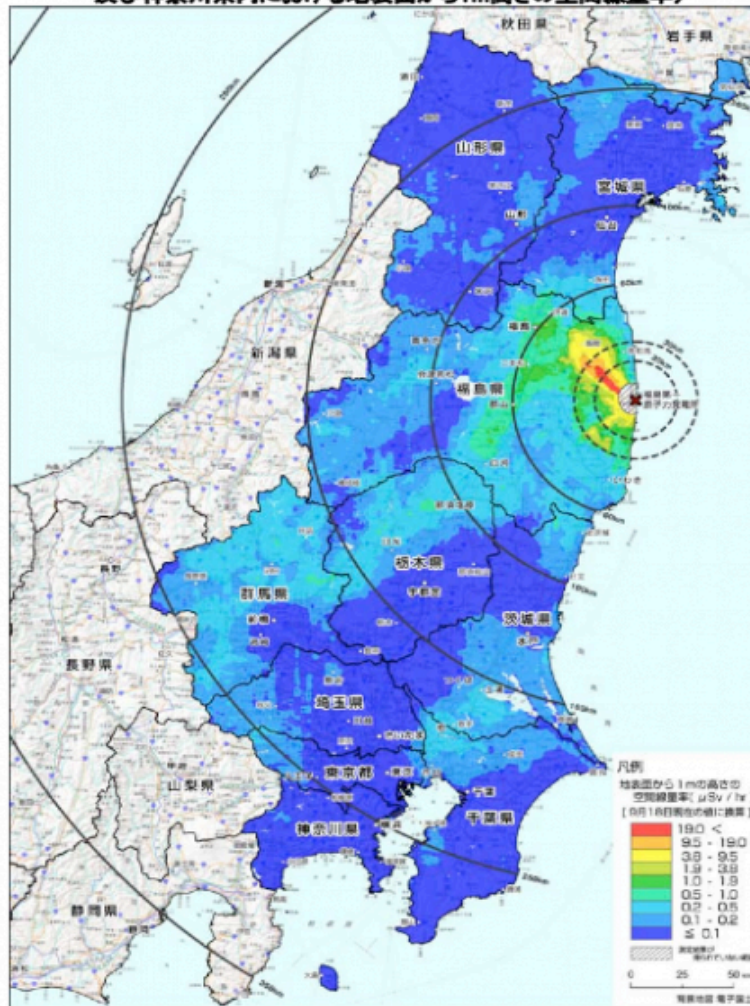
* Reactor 4, March 15: no agreement on the cause of the explosion.



Fukushima Daiichi Nuclear Power Plant
March 19, 2011

Radiation in the air

(参考1)
文部科学省による東京都及び神奈川県内の航空機モニタリングの測定結果
について(文部科学省がこれまでに測定してきた範囲及び東京都
及び神奈川県内における地表面から1m高さの空間線量率)





Fukushima Nuclear Disaster

- **Radiation exposure: workers & residents**
- **Contamination of air, water, ground, food**
- **Loss of “home”: housing, family, community**
- **Contaminated debris and waste**
- **Secrecy and misinformation**



Nuclear Disaster: Long-term Problems

- **Decommissioning**
- **“Clean-up”/Decontamination**
- **Nuclear waste**
- **Long-term health consequences**
- **Displaced people, families,
communities**
- **Legal responsibility**
- **Long-term energy policy**

日本の原発 運転中は54基

■=計画中 ▲=建設中 X=廃止

日本原子力発電

敦賀(福井県敦賀市)

1号 2号 ■3号 ■4号

日本原子力研究開発機構

▲もんじゅ(同上)

Xふげん(同上)

関西電力

高浜(福井県高浜町)

1号 2号 3号 4号

美浜(福井県美浜町)

1号 2号 3号

大飯(福井県おおい町)

1号 2号 3号 4号

中国電力

島根(島根県松江市)

1号 2号 ▲3号

上関(山口県上関町)

■1号 ■2号

九州電力

玄海(佐賀県玄海町)

1号 2号 3号 4号

川内(鹿児島県薩摩川内市)

1号 2号 ■3号

四国電力

伊方(愛媛県伊方町)

1号 2号 3号

北陸電力

志賀(石川県志賀町)

1号 2号

中部電力

浜岡(静岡県御前崎市)

X1号 X2号 3号

4号 5号 ■6号

東京電力

柏崎刈羽(新潟県柏崎市)

1号 2号 3号 4号

5号 6号 7号

北海道電力

泊(北海道泊村)

1号 2号 3号

東北電力

東通(青森県東通村)

1号 ■2号

東京電力

東通(同上)

▲1号 ■2号

東北電力

女川(宮城県女川町)

1号 2号 3号

■浪江・小高

(福島県南相馬市)

東京電力

福島第1(福島県大熊町)

1号 2号 3号 4号
5号 6号 ■7号 ■8号

福島第2(福島県楢葉町)

1号 2号 3号 4号

日本原子力発電

東海第2(茨城県東海村)

X東海(同上)

電源開発

▲大間

(青森県大間町)





❖ Most Japanese people didn't know that there were so many reactors in Japan.

How did this happen?

**How could I be so ignorant
and indifferent?**

RC Succession: Summertime Blues (1988)

- Lyrics by IMAWANO Kiyoshirō
(1951-2009)

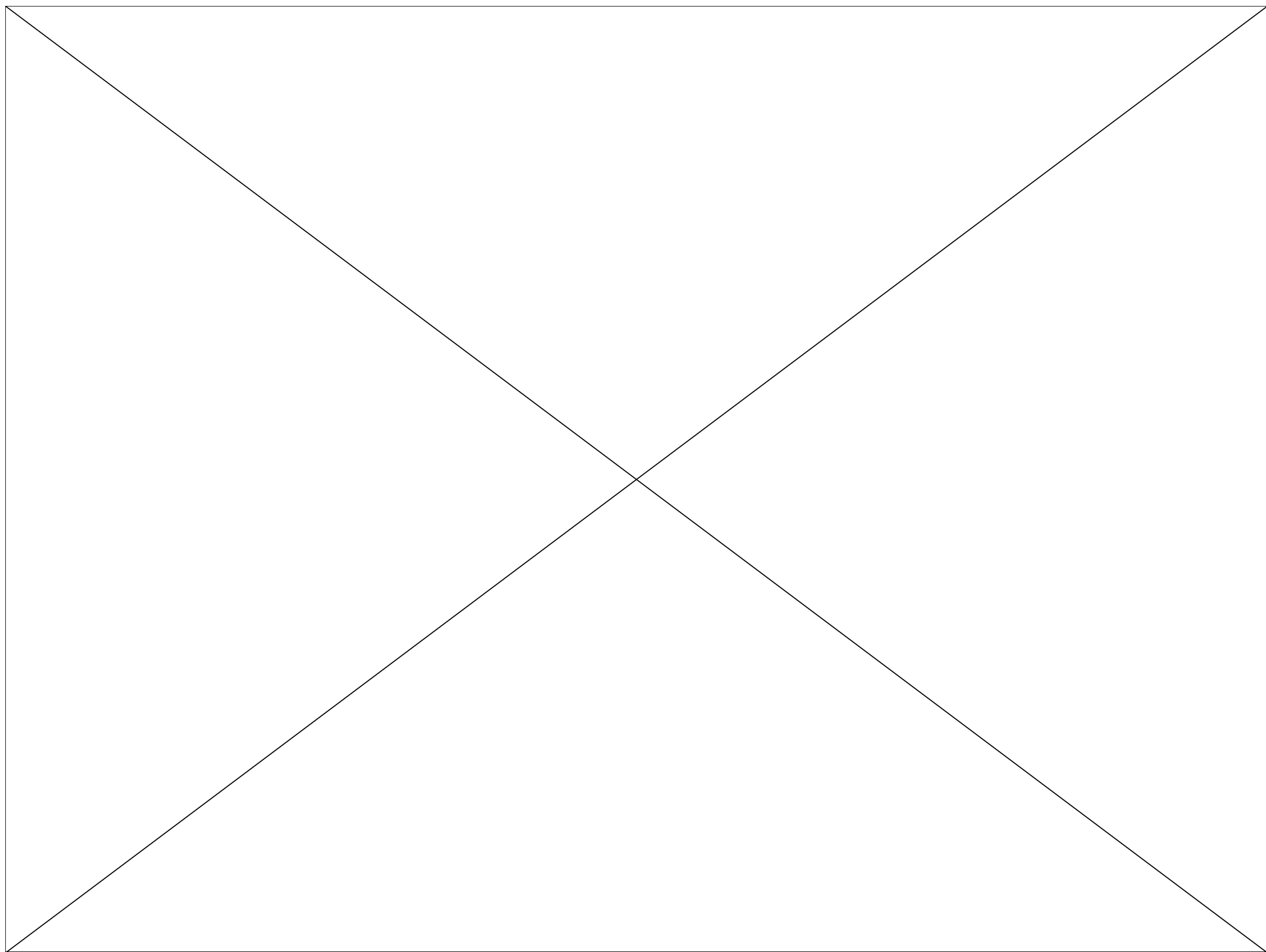


“We don’t need them!”

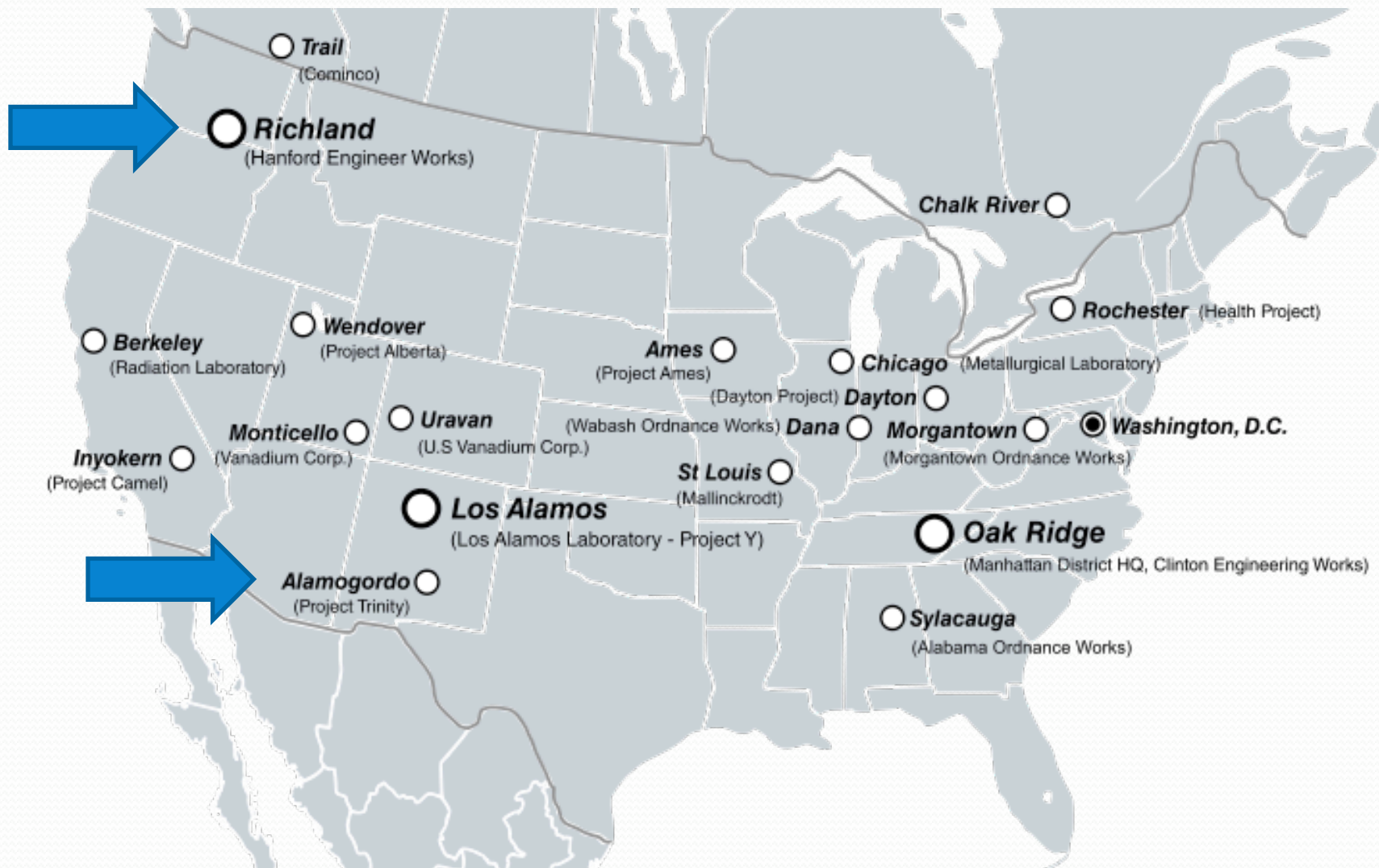


“They’re dangerous!”

<http://www.youtube.com/watch?v=IaUHCFF5BU8>



Manhattan Project map



HIROSHIMA

August 6, 1945



“Little Boy”

(uranium bomb)

dropped from “Enola Gay”

Est. 130-140,000 died by end of 1945

(Population: 420,000)

Est. 200-250,000 died by 1950

Long-term radiation illnesses

NAGASAKI

August 9, 1945



“Fat Man”

(plutonium bomb)

made at **Hanford, WA**

Est. 74,000 died by end of 1945

(Pop. 240,000)

Est. 140,000 died by 1950

Long-term radiation illnesses

Why Two Bombs?

“The nuclear bomb was used to end the war.”

Why were two bombs dropped?

- **Two different types (uranium and plutonium)**
- **To demonstrate superiority over the Soviet Union**
- **Prelude to the Cold War -- context for postwar nuclear arms race**

The Cold War in Asia

- **People's Republic of China, October 1, 1949**
- **Korean War, June 25, 1950—July 27, 1953**
- **“Reverse course”; Rearmament of Japan**
 - National Police Reserve -- August 10, 1950**
 - Self-Defense Forces**
- **San Francisco Peace Treaty and Security Treaty between the U.S. and Japan signed 9/8/1951; went into effect 4/28/1952**
- **Japan=bulwark against communist encroachment in Asia**

March 1, 1954 “Bravo” explosion



Impacts of Bravo on Japan

March 1, 1954 “Bravo” detonated in Marshall Islands

- About 1,000 Japanese fishing boats in the area
 - >crew members exposed to radiation
- Fear of radioactivity; “radioactive tuna”
- Anti-nuclear (weapons) movement

September 23 *Lucky Dragon 5* radio operator dies

November 3 Movie *Gojira*[*Godzilla*] released

GOJIRA (GODZILLA) (1954)

GOJIRA

- **Creature from the Jurassic to Cretaceous periods; has survived in deep sea**
- **Its habitat is polluted by hydrogen bomb testing**
- **It emerges from the sea and attacks Tokyo**
- **Releases radioactivity**

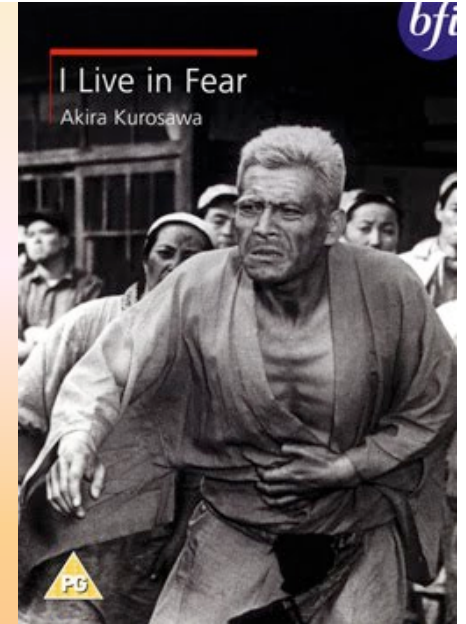
http://www.dailymotion.com/video/x1nl5c_godzilla-1954-movie-trailer_shortfilms#.USK37fKv_bo

GOJIRA (GODZILLA) (1954)

- **Warning about nuclear bomb testing; radiation**
- **Memory of war-time experience**
- **Government secrecy**
- **Scientists' conscience and agony; ethical dilemma**
 - "Oxygen Destroyer": should he use it to kill Gojira and reveal a weapon of mass destruction?



I LIVE IN FEAR (1955)



- Directed by **Akira Kurosawa**
- Family disputes over **Father's extreme fear of : atomic and hydrogen bombs, radiation, fallout from "the south" (= Marshall Islands)**
- *Rashomon* (1950)
- *Seven Samurai* (1954)
- https://www.youtube.com/watch?v=12XBPY_R6Vg

BAREFOOT GEN (1973-)

Keiji Nakazawa

**(March 14, 1939-Dec. 19,
2012)**

Barefoot Gen, vol. 1 (1973)



“Atoms for Peace” Speech (Dec. 8, 1953)

- **President Eisenhower’s speech at United Nations: “peaceful use” of nuclear technology**
- **August 1946 (U.S.) Atomic Energy Act**
 - made the entire nuclear program secret
 - created **Atomic Energy Commission**
- **August 1954, Atomic Energy Act revised**
 - allowed **nuclear technology and material exports** if recipient country is committed not to use them to develop weapons

“Atoms for Peace” Program

- **U.S. launches “Atoms for Peace” program in the U.S. and abroad**
 - **Supplied equipment and information to schools, hospitals, research institutions**
 - **Iran, Pakistan: first reactors built under this program**
- **“Atoms for Peace” exhibit toured in the U.S. , Asia, Europe, South America**

“Atoms for Peace” exhibitions in Japan

- **11 cities, Nov. 1955--Aug. 1957**
--Hiroshima, Mito included
- **2,600,000 attended**

Exhibit included:

- **a full-scale model of an experimental nuclear reactor**
- **a model illustrating a nuclear fission reaction**
- **panel displays that introduced nuclear physics**

“Atoms for Peace” Exhibition in Hiroshima, May-June, 1956

- **11,000 people in 22 days**
- **Co-sponsors:**
 - Hiroshima prefecture
 - Hiroshima city
 - American Cultural Center
 - Chugoku Shimbun (newspaper)
- **Held at A-Bomb Museum (1955--)**
 - A bomb-related displays temporarily removed



International Atomic Energy Agency (IAEA)

“The ‘Atoms for Peace’ Agency”

(Est. 1957)

From IAEA website:

- The IAEA is the world's center of cooperation in the nuclear field. It was set up as **the world's "Atoms for Peace" organization** in 1957 within the United Nations family. The Agency works with its Member States and multiple partners worldwide **to promote safe, secure and peaceful nuclear technologies.**

<http://www.iaea.org/About/about-iaea.html>

Clever Terminology

- WEAPONS – 核兵器 (NUCLEAR weapons)
- ENERGY/POWER – 原子力 (ATOMIC energy/power)
 - “Bad/militaristic” use vs. “good/peaceful” use
 - The distinction helps to obliterate the fact that both use the same technology.
 - ✓ Even the US Nuclear Regulator Commission is translated as “原子力規制委員会” (Atomic Regulatory Commission)

Nuclear Research in Japan

During World War II

- **Two projects to develop nuclear bombs (Army and Navy respectively)**

Defeat (8/15/1945) → Occupation (~4/27/1952)

- **Nuclear research was banned by Occupation forces**

1955 Atomic Energy Basic Act

1956 Atomic Energy Commission

(1949 First Nobel Prize given to a Japanese citizen:
YUKAWA Hideki for predicting “ π -meson” in 1935)

ATOMIC Energy in Japan

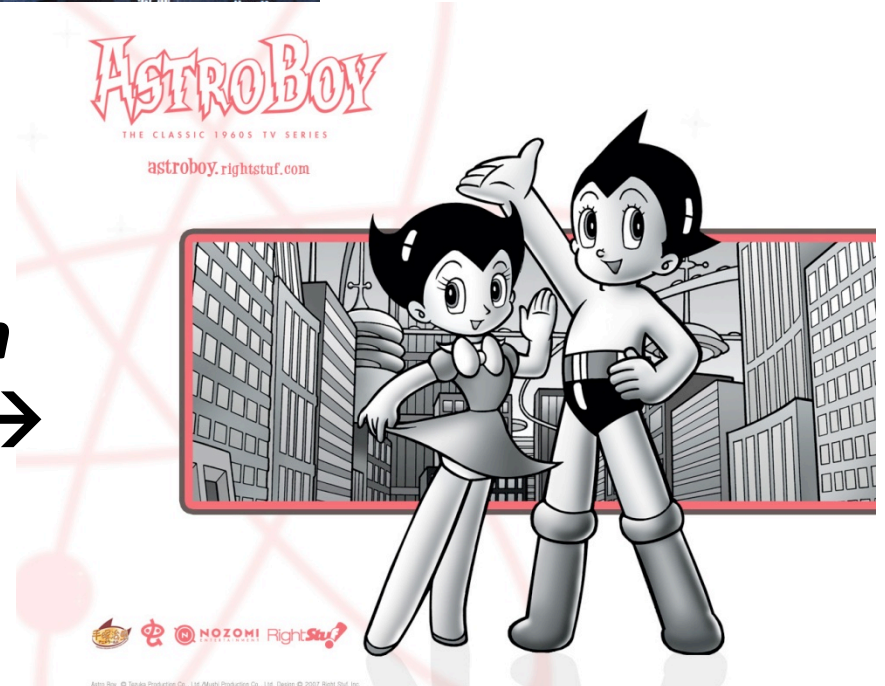
- **April 1952 Occupation ends**
- **July 1952 Proposal to form an atomic energy commission**
- **March 1954 First budget for atomic research and cooperation proposed in the Diet**
- **Nov. 1955 U.S.-Japan Atomic Research Cooperation Agreement → import of enriched uranium from U.S.**
- **Nov. 1955-Aug. 1957 “Atoms for Peace” exhibit –11 cities**
- **Dec. 1955 Atomic Energy Basic Act**
- **Jan. 1956 Atomic Energy Commission**
- **June 1956 Japan Atomic Energy Research Institute**
--1957 Japan’s first experimental reactor
- **Nov. 1957 Japan Atomic Power Company**

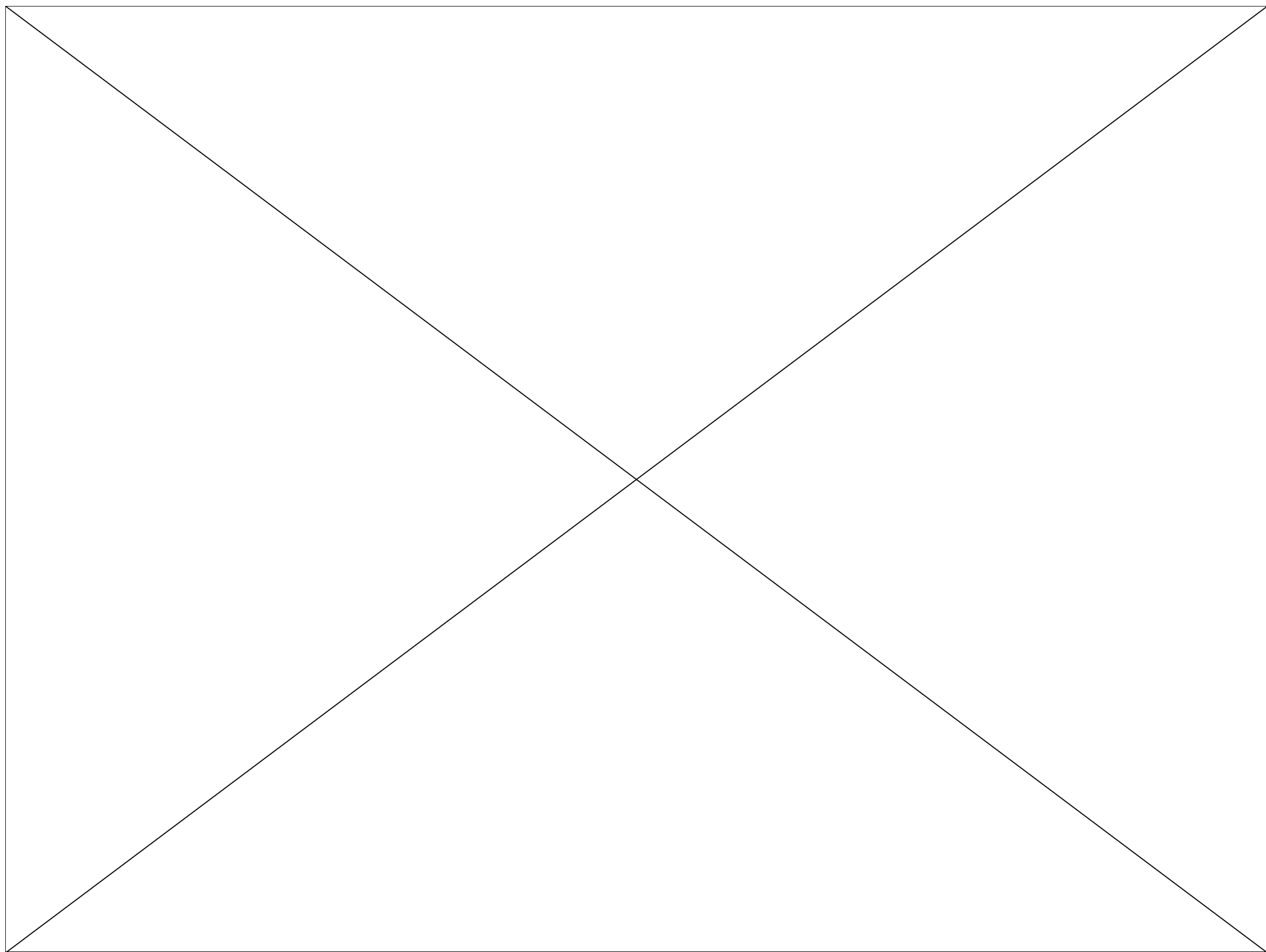
ASTRO BOY (*Tetsuwan Atomu*) (1952-)

Atomu
(atom)



Sister: *Uran*
(uranium) →





『鉄腕アトム』主題歌

作詞: 谷川俊太郎

作曲: 高井 達雄

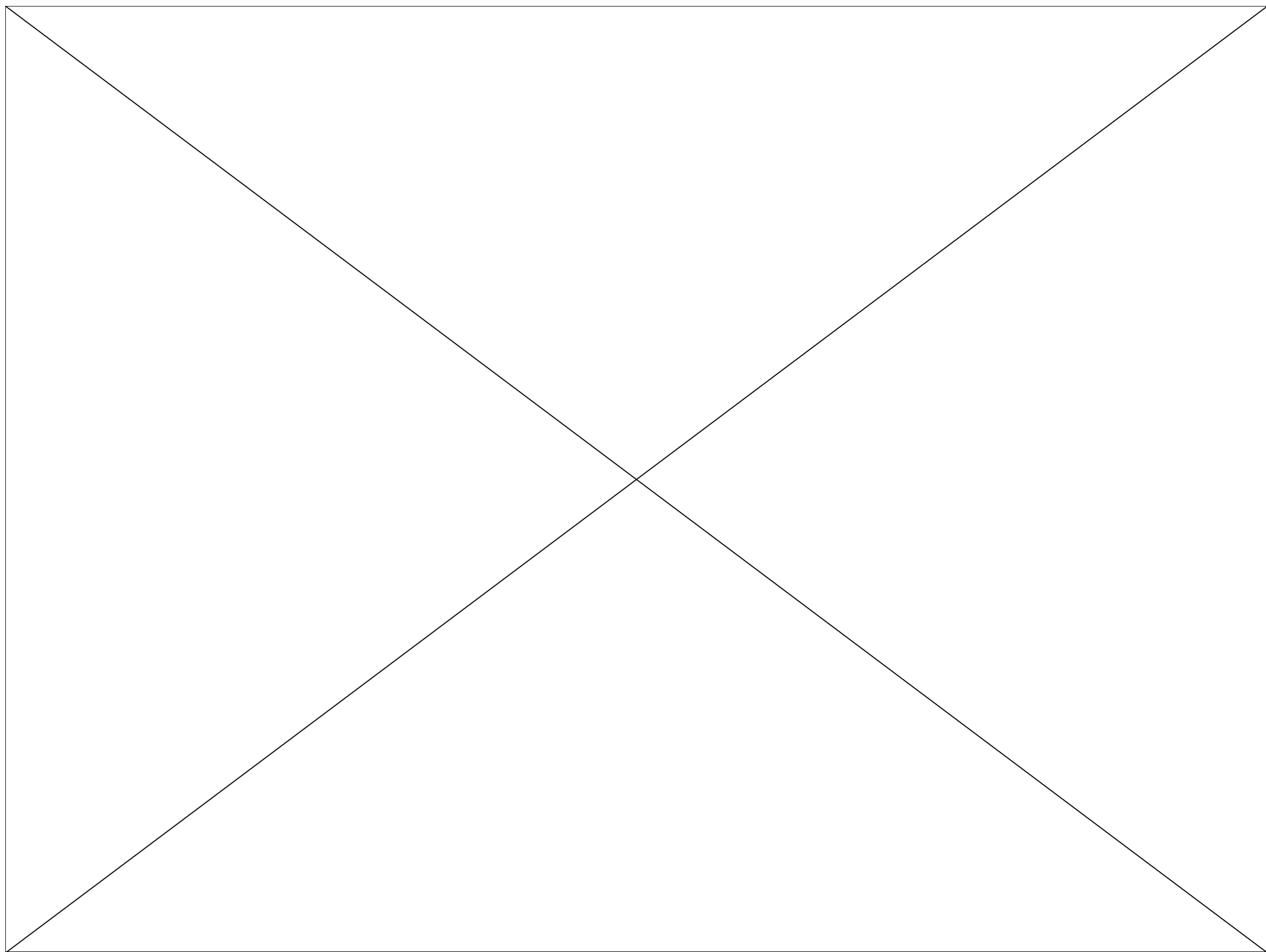
空をこえて ラララ 星のかなた
ゆくぞ アトム ジェットの限り
心やさし ラララ 科学の子
十万馬力だ 鉄腕アトム

耳をすませ ラララ 目をみはれ
そうだ アトム 油断するな
心ただし ラララ 科学の子
七つの威力さ 鉄腕アトム

町角に ラララ 海のそこに
今日も アトム 人間まもって
心はずむ ラララ 科学の子
みんなの友だち 鉄腕アトム

空をこえて ラララ 星のかなた
ゆくぞ アトム ジェットの限り
心やさし ラララ 科学の子
十万馬力だ 鉄腕アトム





1960s B&W Series

Opening Credits

There you go, Astro Boy,
On your flight into space
Rocket high, through the sky
For adventures soon you will face!

Astro Boy bombs away,
On your mission today,
Here's the countdown,
And the blastoff,
Everything is go Astro Boy!

Astro Boy, as you fly,
Strange new worlds you will spy,
Atom celled, jet propelled,
Fighting monsters high in the sky!

Astro Boy, there you go,
Will you find friend or foe?
Cosmic Ranger, laugh at danger,
Everything is go Astro Boy!

Crowds will cheer you, you're a
hero,
As you go, go, go Astro Boy!

DRAEMON (1969-)

Robotic Cat from the 22nd Century



Why Did “Atoms for Peace” Appeal to the Japanese?

❖ Devastated Nation: Disarmed and Occupied by Foreign Forces

- Defeat (8/15/1945) → Occupation (~4/27/1952)**
- Lost colonies**
- Disarmed; nuclear research banned**
- Devastation, hunger, poverty**
- “Peace Constitution” (11/3/1946; 5/3/1947)**

Why Did “Atoms for Peace” Appeal to the Japanese? – Political Economy

Need for energy for economic recovery & growth

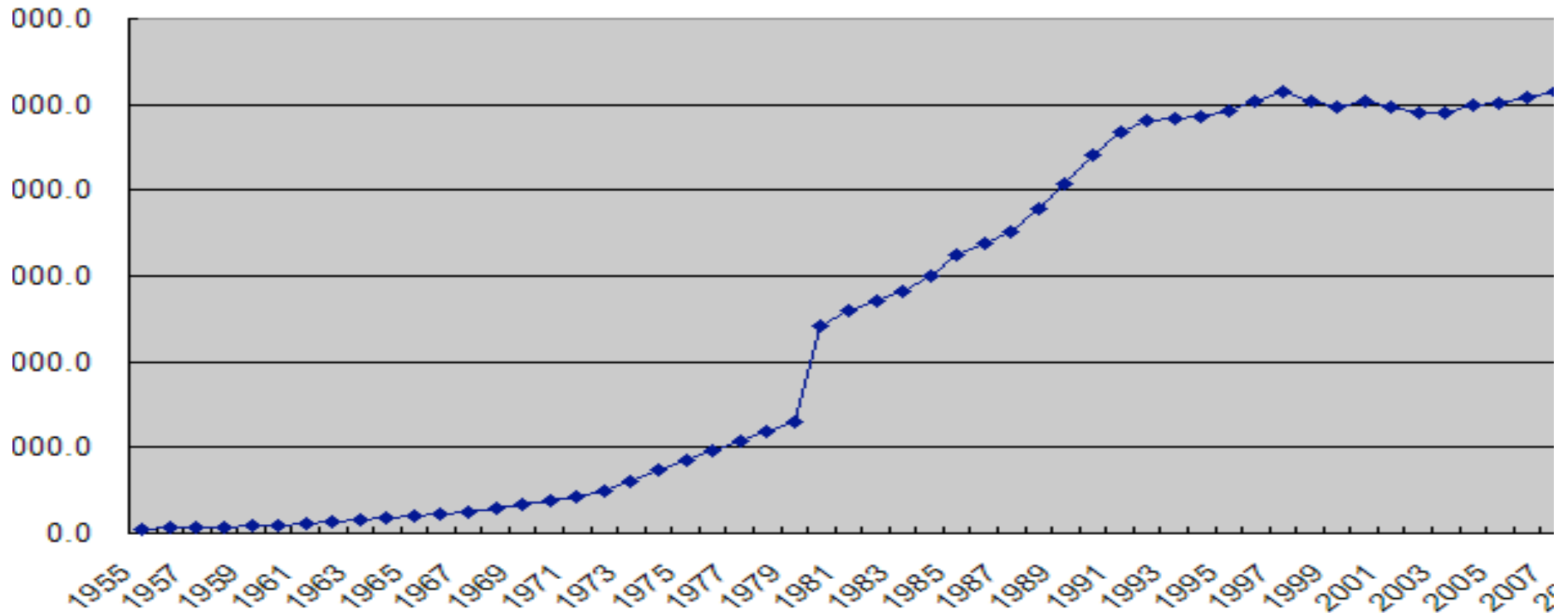
- Japan is “resource poor” – fossil fuels
 - But rich in natural resources for renewable energy : water, solar, wind, geothermal

Political motives of proponents

- Desire to have a “nuclear option” in defense – continuity with prewar nuclear research
- Desire to regain standing in world politics
- <http://www.cnfc.or.jp/e/arsenal/index.html>

日本の名目GDP推移(1955年-2009年)

：10億円



(*) 内閣府『国民経済計算』の数値を基

1963 Japan's first nuclear power produced in Tokai-mura

1970 4 reactors

1974 3 laws providing for subsidies to host communities

1988 37 reactors

2009 54 reactors

Why Did “Atoms for Peace” Appeal to the Japanese? – Psychological Aspect

- U.S. censorship of discussions and photos of Hiroshima & Nagasaki ; public show of victims’ suffering not allowed.
- Loss of pride, self-confidence as a nation
- Need to feel hopeful, to look to the future
- Horrified but dazzled by nuclear technology
- Overcoming victimization and powerlessness by mastery of potentially destructive technology:

Japanese are especially suited for putting the dangerous technology to a peaceful use precisely because they are “the only nation attacked by the nuclear bomb.”

- The A-bomb: symbol of US military might and scientific prowess (<->Japan’s bamboo spears)
- The A-bomb: science, modernity ↔ Japan’s backwardness

“Japan, the only nation attacked by the nuclear bomb”– Hypocrisy of the mantra

- **Not all Japanese were victims of the atomic bombings.**
- **Actual A-bomb victims were and still are discriminated against by other Japanese and by the government: stigma, ostracism, prejudice, governmental neglect**
- **The same politicians and media that are fond of this mantra harbor(ed) nuclear ambitions.**
- **The mantra helps to hide Japanese aggression toward other nations.**

Role of the Mass Media

- **SHŌRIKI Matsutarō & Yomiuri Shimbun**
 - Shōriki: Japanese collaborator for “Atoms for Peace”
 - Yomiuri ponsored “Atoms for Peace” exhibit
 - Shōriki: First Chairperson of AEC
- **Other media followed suit**
 - Positive articles/programs about nuclear industry
 - Accidents/problems downplayed/ignored
 - Massive advertisement money (electric companies are regional monopolies – no competition)
 - Wining & Dining by nuclear industry
 - *TEPCO Chair in China with journalists on 3.11.2011

Education

The Exciting Atomic-Power Land --Supplementary reader for elementary schools (given to schools for free)



A nuclear power plant's visitor hall with “Alice in Wonderland” characters



After Fukushima Disaster...

“The Exciting “Atomic-Power Land”



“Let’s Think About Radiation”



**Indifference and Ignorance
No More!**

Thank you!