

# The End of Nuclear Dependence? Six Years since Fukushima

Melbourne, 9 March 2017

Akira Kawasaki





# Peace Boat

## The floating peace village









# Hibakusha Project





# 11 March 2011 Great East Japan Earthquake





## **Casualties**

15,893 Dead

2,556 Missing (as of December 2016)

## **Evacuees**

About 123,000 Evacuated

About 40,000 in Fukushima; 40,000 from Fukushima to other prefectures (as of February 2017)





[www.37framesphotography.com](http://www.37framesphotography.com)













# 脱原発世界会議

GLOBAL CONFERENCE FOR A NUCLEAR POWER FREE WORLD

## 2012 YOKOHAMA

実行  
委員会:

PEACE  
BOYS

GREEN ACTION



FoE  
Japan

GREEN

主催:



CHURCH

FRIEDRICH  
BERT  
STIFTUNG



The Japan Society for Human Rights  
JSHR  
日本社会人権協会

patagonia









# Nuclear power policy – going back and forth?

**2012 Sep** Democratic Party's government decided  
“Zero nuclear power in 2030s”

**2012 Dec** Liberal Democratic Party (LDP) came  
back to the government, led by Abe

**2014 Apr** Basic Energy Plan adopted: Nuclear  
Power as a key “base-load electricity sources”



# Tokyo Olympic 2020



“Some may have concerns about Fukushima. Let me assure you, **the situation is under control**. It has never done and will never do any damage to Tokyo.”

PM Shinzo Abe

At the 125<sup>th</sup> IOC Session, 7 September 2013





# The Reactors are NOT under control

Still attempting to seize the conditions

No clear pathway established



Radiation level of No.2 reactor - **650 Sv/h**  
In the containment vessel

Robot halted

Photo of molten fuel by TEPCO via Kyodo  
February 2017



About 6,000-7,000 workers everyday  
Over 10,000 workers needed every year for the 30-40 (and more?) years.

A case of leukemia recognized as “labor disease” for the first time in November 2015



# **Water management challenges**

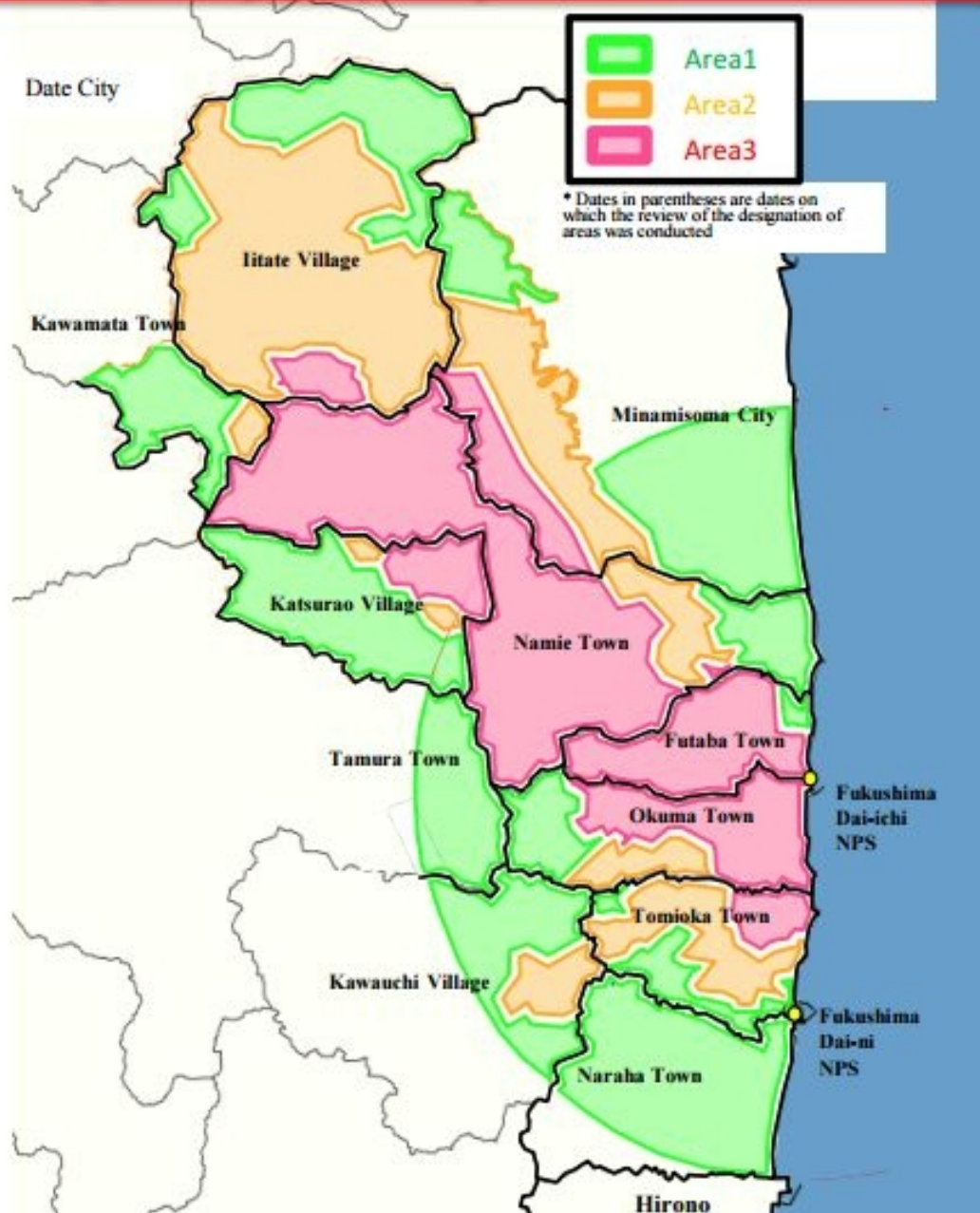
Daily 300-500 tons of groundwater

“Frozen Soil Wall” not working

“Areas to which evacuation orders are ready to be lifted” [Area1]

“Areas in which the residents are not permitted to live” [Area2]

“Areas where it is expected that the residents have difficulties in returning for a long time” [Area3]



**“Acceleration of recovery” slogan**

Decontamination measures

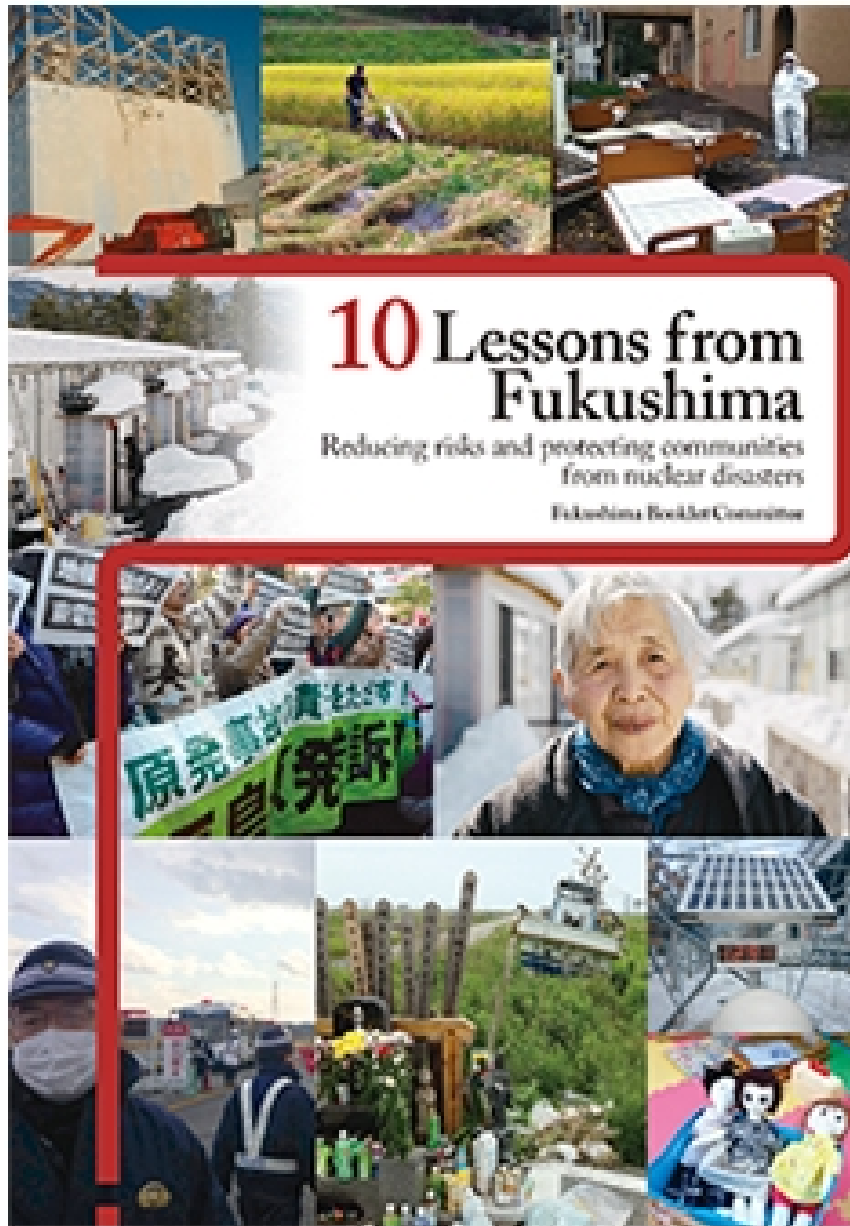
Lifting evacuation orders

Promoting of “early return”

Saving TEPCO

In view of 2020 Olympic





# 10 Lessons from Fukushima

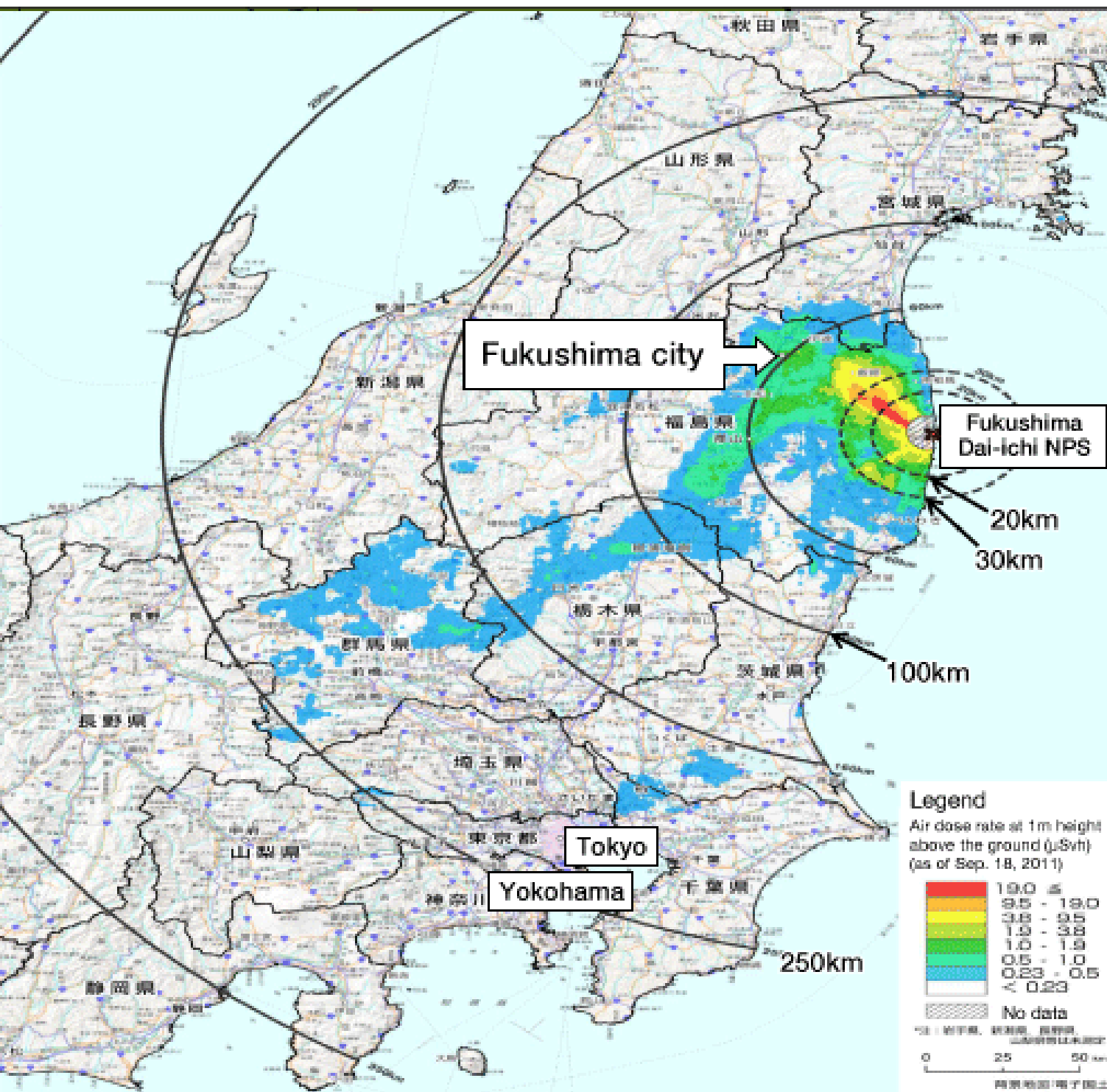
Reducing risks and protecting communities from nuclear disasters

[fukushimalessons.jp](http://fukushimalessons.jp)

Launched by civil society groups in March 2015

At the 3<sup>rd</sup> World Conference on Disaster Risk Reduction in Sendai, Japan

Japanese, English, Korean, Chinese, French, Spanish, Polish, Arabic, Turkish, Armenian, Bengali, Vietnamese, and Thai (as of March 2017)

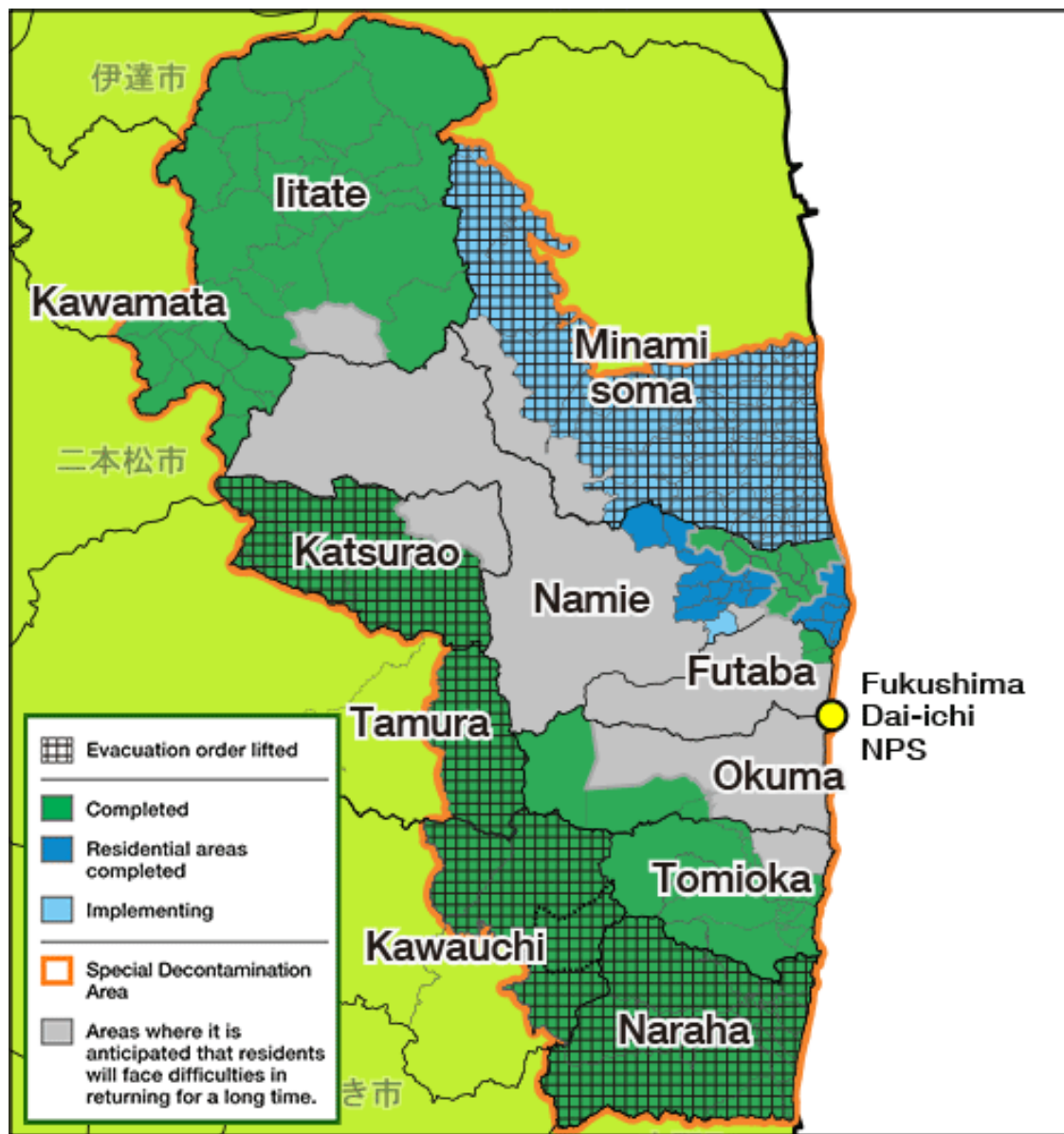


Environmental  
remediation

Ministry of  
Environment  
[josen.env.go.jp/en/](http://josen.env.go.jp/en/)



# Decontamination and Evacuation Order



January 2017

## Evacuation zoning

**50mSv-** “Difficult to Return” zone

**20mSv-** Evacuation order

**1mSv-** Decontamination “target”

## To compare with:

**50mSv:** Workers' standard

**5mSv:** Resettlement zone for Chernobyl (annual)

## Problems:

- Evacuation zone → Compensation
- **Voluntary evacuees**
- Hot spots
- Credibility of measurements
- Other prefectures than Fukushima (Food, agriculture)

# Decontamination

Workers from all over Japan

Involvement of Yakuza

Corruption – Big business for contractors

Job making

Shoddy work

“Residential” areas only



# Waste management?









# Health issues – Children's thyroid cancer?



**3/11 Children's Fund for Thyroid Cancer** launched, September 2016, supported by former Prime Ministers Koizumi and Hosokawa

Fukushima prefectural survey  
**145 thyroid cancer** confirmed  
(+40 suspected) from 380,000  
residents under 19. (February 2017)

**“20 to 50 times”** national levels -  
Prof Toshihide Tsuda of  
Okayama Univ (Journal of  
International Society of Environmental  
Epidemiology, October 2015)

Fukushima prefectural  
commission: Causal relationship  
with radiation **unlikely**

IAEA: Increase of cancer  
unlikely

# Broken communities



Photo: Kristian Laemmle-Ruff

**Lost** neighborhoods,  
cultures

**Divisions** between those  
who get and those who do  
not get compensation

Suicide

Divorce

Life destroyed

Stress and health problems  
under **prolonged evacuation**

“Disaster-related deaths”  
**2,086** in Fukushima out of  
the total of 3,523



# Peace Boat Fukushima Youth Project













Photo: The junior high school kids who joined Peace Boat's program in summer 2016 from Minamisoma, Fukushima

## **“Sixty percent says Fukushima evacuees bullied”**

26 February 2017, Asahi Shimbun

The Asahi Shimbun and Prof Akira Imai of Fukushima Univ survey 184 people of 18 prefectures responded:

**33 (18%)** said that they or their family members became victims of bullying or discrimination.

**81 (44%)** said that they saw or heard of those actions around them





# Evacuation orders to be lifted March/April 2017

Fukushima prefecture's  
population 5.7% decrease  
in 5 years  
(1.9 million in December  
2015)



Lifts for 32,000 people  
=end of compensation and  
housing support

→"evacuees" becoming  
invisible

“The overall cost of wrapping up the Fukushima nuclear disaster is now estimated at more than **JPY 20 trillion (=AUD 230 billion)**, nearly double the previous estimate..”

The Japan Times/Kyodo  
28 November 2016

#### Details

8 trillion: **Compensation\***

4-5 trillion: Decontamination

1.1 trillion: Interim waste storage

5-? trillion: Decommissioning

**A part of the compensation will be charged on households via monthly electricity fees**



# ***A de facto denuclearization process going on***

**Before Fukushima:**

**54 reactors** in Japan

Almost 30% of power generation by nuclear

**March 2011** Fukushima Disaster

**May 2012** **Zero** nuclear power operation

**September 2012** Nuclear Regulation Authority launched

**August 2015** Sendai #2 restarted

Sendai #2, 1, Takahama #3, 4, Ikata #3 restarted

**March 2016** Otsu District Court ordered Takahama #3, #4 to halt

As of 7 March 2017, **only 3 reactors** operating

# Power generation in Japan today (2015)

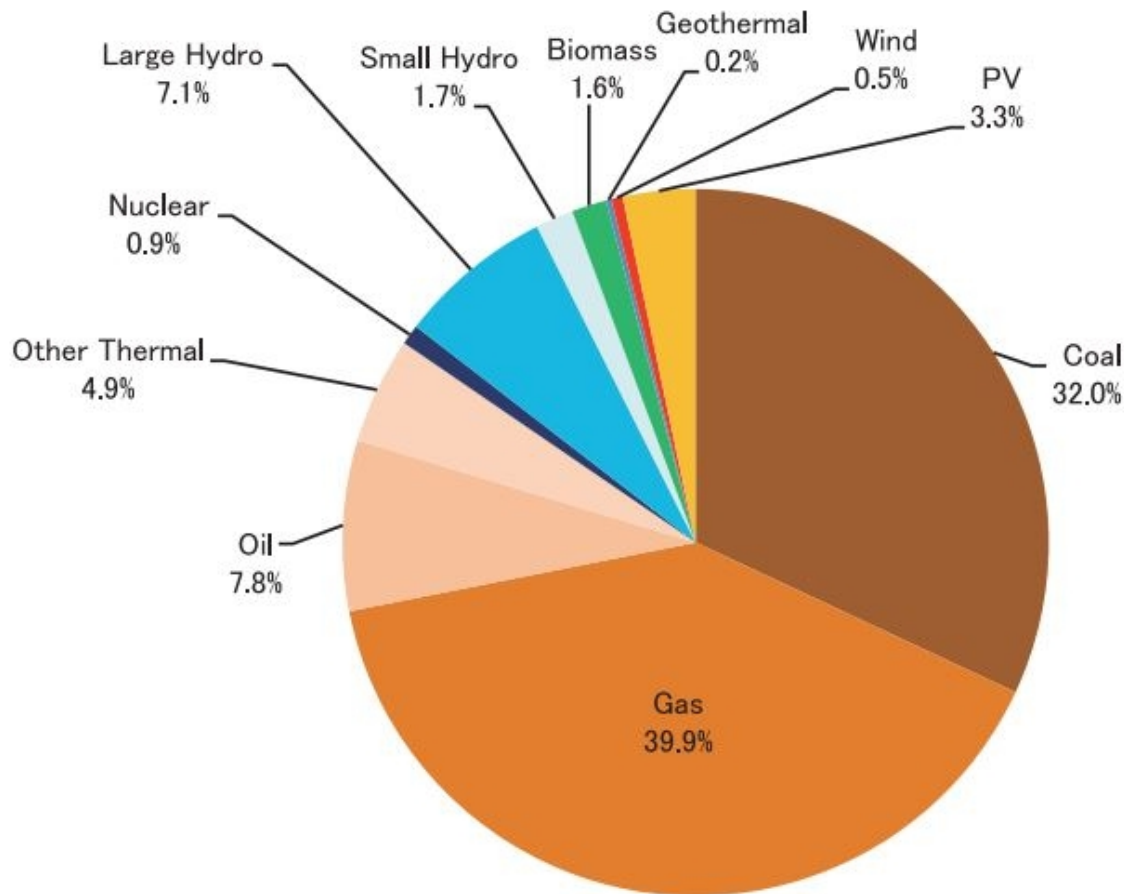


Fig.4 Power Generation in Japan  
(FY2015)  
(Source: METI, Graph: ISEP)



# Descending nuclear, growing renewable power

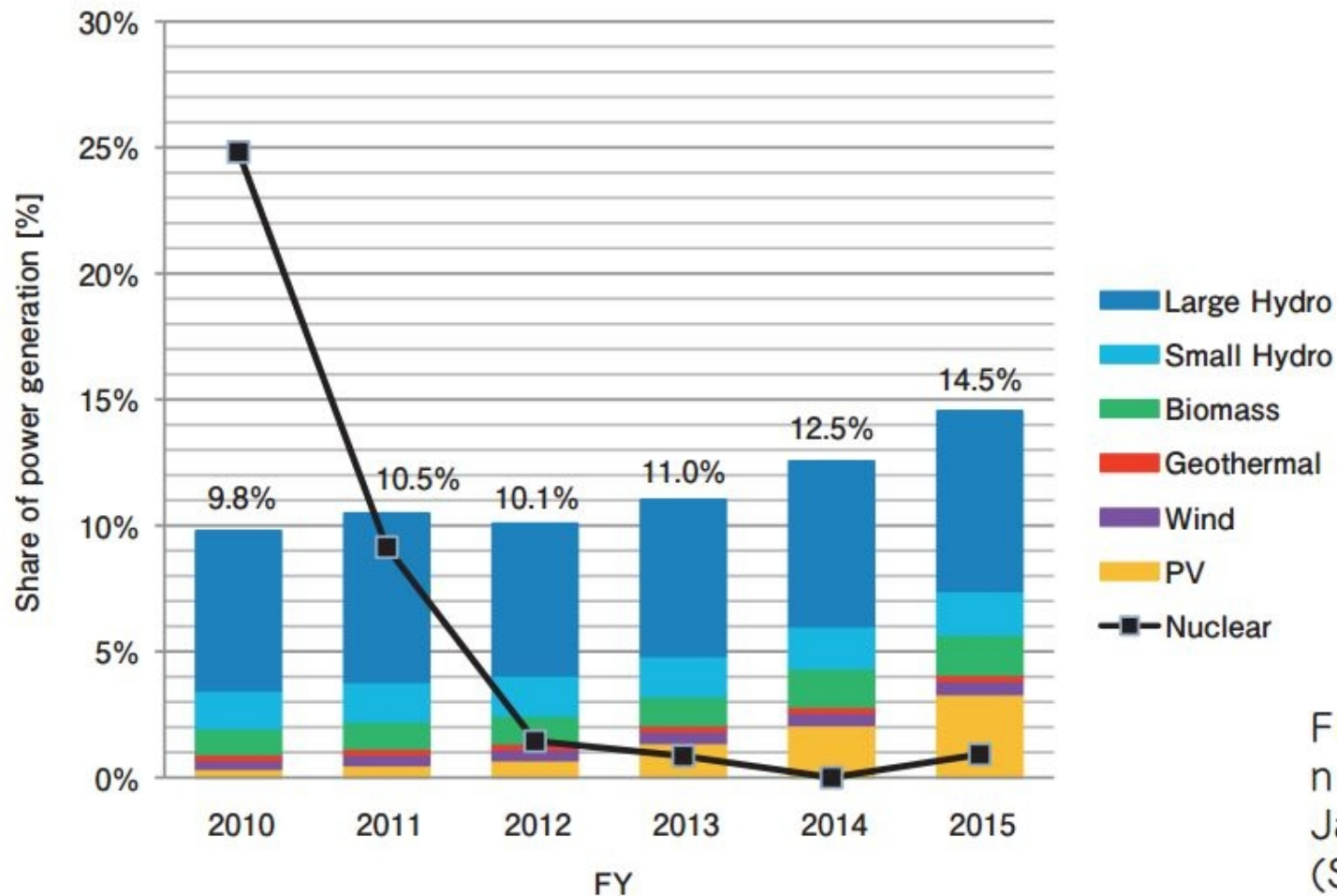


Fig.3 Trends of renewable and nuclear power generation in Japan  
(Source: METI, Graph: ISEP)

# 2011, the turning point for Japan's power generation

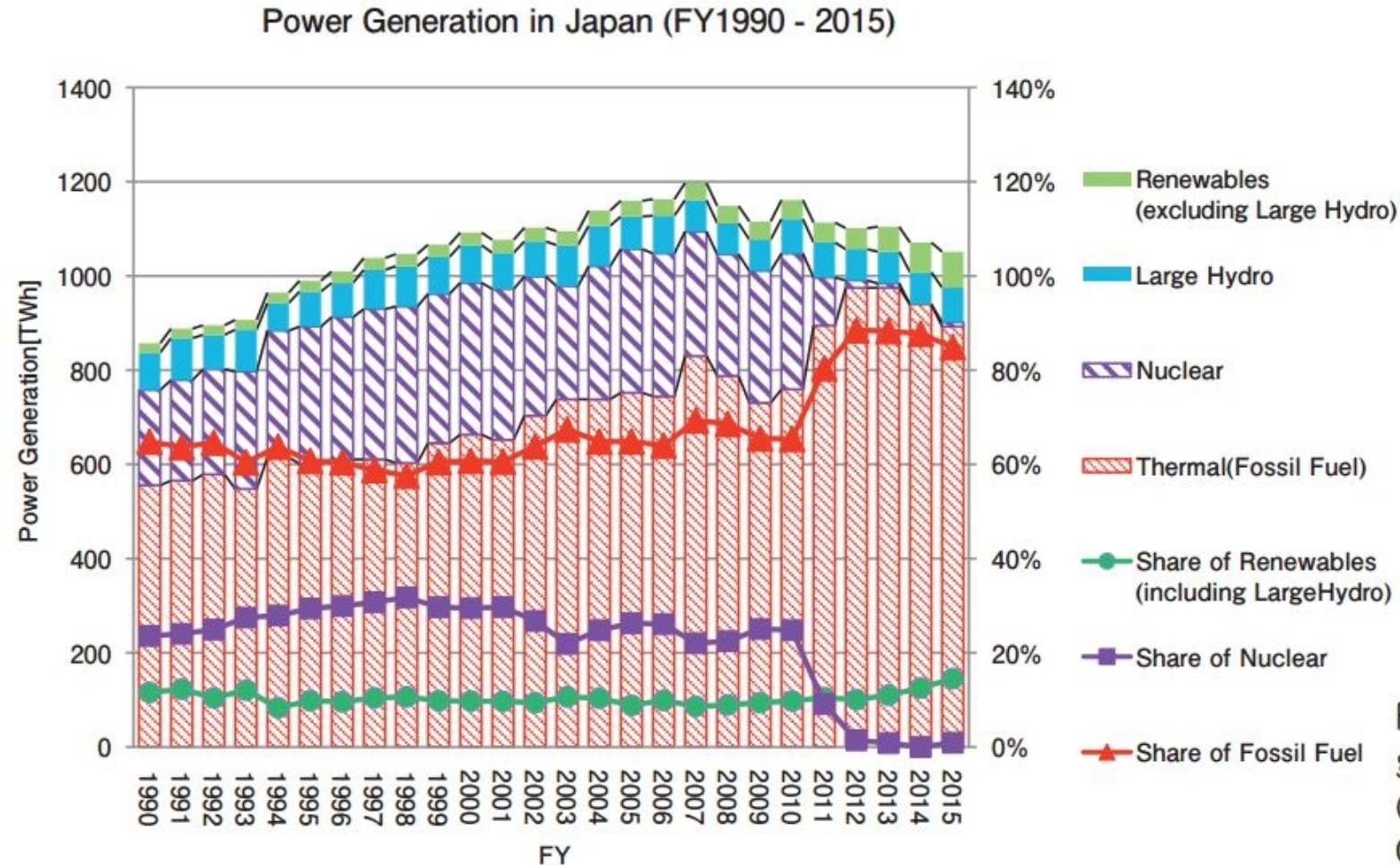
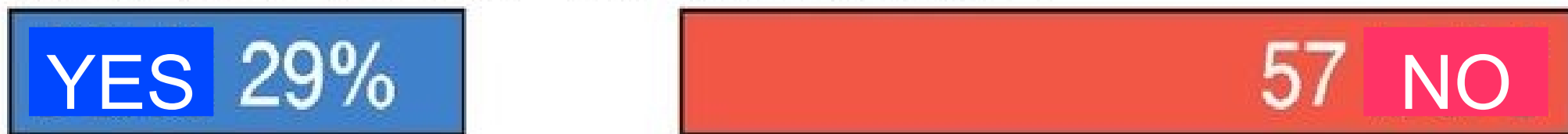


Fig.2 Trends of power generation in Japan  
(Source: EDMC, METI, etc.  
Graph: ISEP)

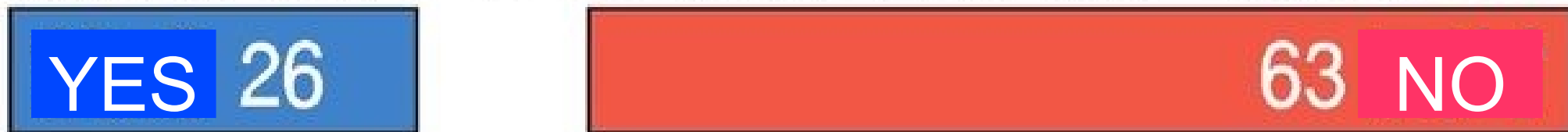


# Public support for a nuclear phase out

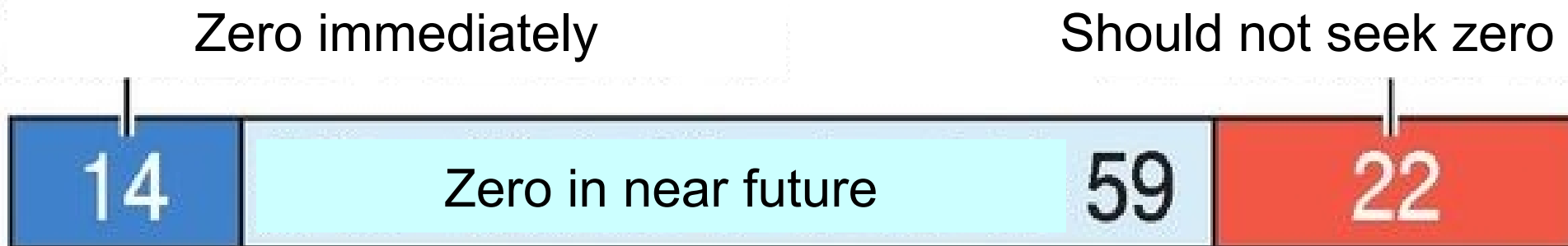
Do you support restarting nuclear power plants?



Do you support establishing an upper limit for utilities' compensation in case of nuclear accidents?



What do you think Japan should do with nuclear power?



**Toshiba Corp**

+ Add to myFT

## Downfall of Toshiba, a nuclear industry titan

President says woes stem from purchase of Westinghouse reactor business

FEBRUARY 15, 2017 by: Kana Inagaki and Leo Lewis in Tokyo, and Ed Crooks in New York



Nuclear power is a  
risky business now

*Toshiba president Satoshi Tsunakawa makes a bow of apology on Tuesday © EPA*



# Mayors for a Nuclear Power Free Japan



**Launched:** April 2012

**100 members** (45 mayors and 55 former mayors) from 37 (out of 47) prefectures:  
December 2016

## **Activities:**

- Advocacy to stop restarting nuclear power plants; to develop evacuation plans; on safety standards; on waste depository
- Community power initiatives
- International activities – eg exchange with Germans

# Taiwan to end nuclear power generation in 2025





WORLD NEWS | Tue Nov 22, 2016 | 11:02am EST

# Vietnam abandons plan for first nuclear power plants



A man sits behind a model of a Japanese Mitsubishi nuclear reactor at the World Nuclear Power 2012 exhibition in Hanoi, Vietnam October 26, 2012. REUTERS/Kham/File Photo

“Vietnam's National Assembly voted on Tuesday [22 November 2016] to abandon plans to build two multi-billion-dollar nuclear power plants with Russia and Japan, after officials cited lower demand forecasts, **rising costs** and safety concerns.”



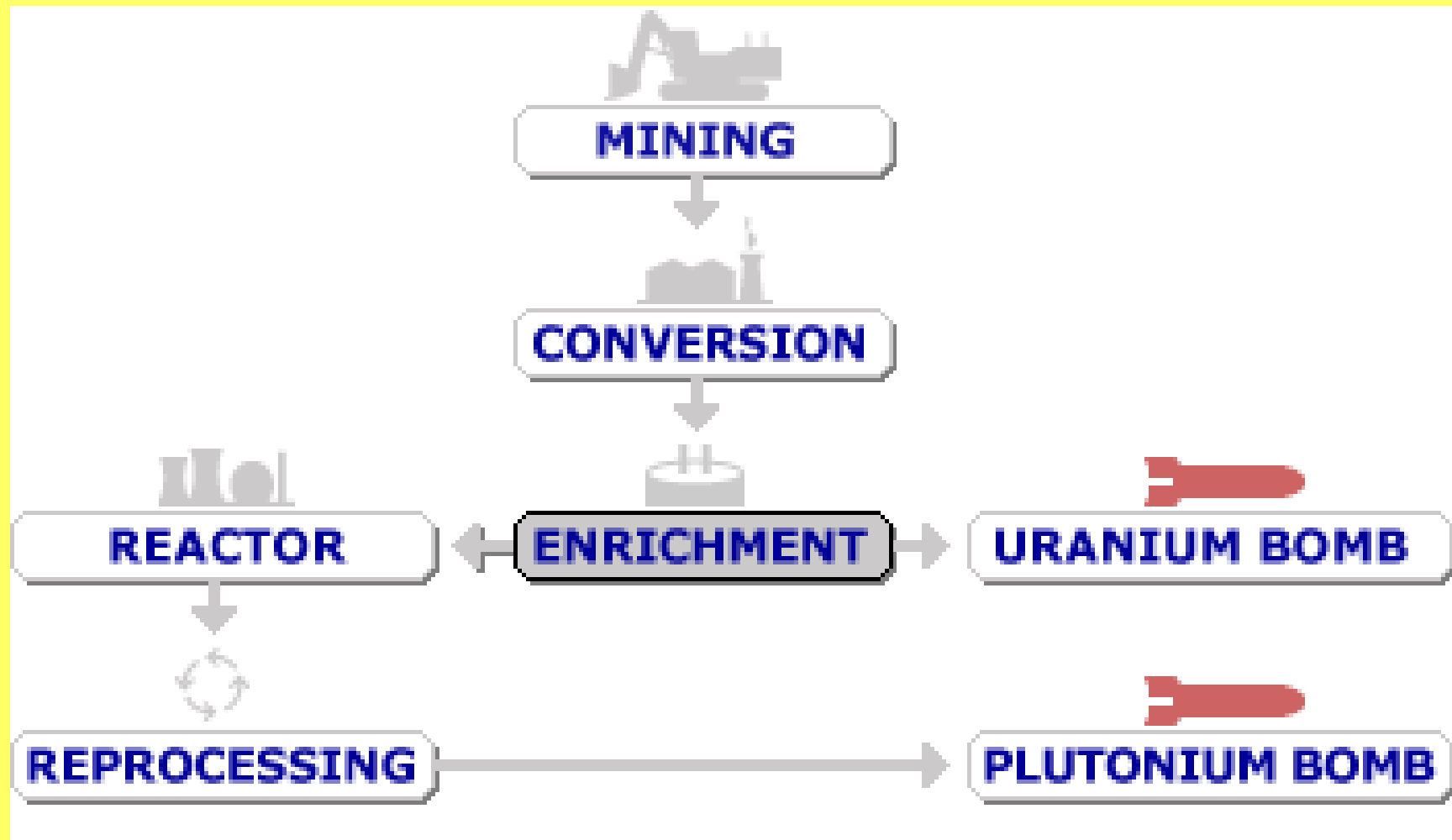


# Decision to decommission the fast breeder reactor **Monju**, December 2016



Future of “nuclear fuel cycle” policy?

# Nuclear Fuel Chain





# Rokkasho Reprocessing Plant?



# A WORLD OF POTENTIAL BOMBS

## Fissile Material Inventory 2016.6

Separated Plutonium : Non-military use (brown) Military Use (dark brown)  
Highly Enriched Uranium : Non-military use (light yellow) Military Use (yellow)

Nuclear Weapon Countries (9 countries)  
Non-nuclear Weapon Countries with Fissile Materials (with 114 or more countries)  
Non-nuclear Weapon Countries (others)



Highly Enriched Uranium 1,369.8 - 21,403 tonnes (Bombs eq. 1,369.8 - 21,403)

Separated Plutonium 504.6 - 84,099 tonnes (Bombs eq. 504.6 - 84,099)

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Separated Plutonium 504.6 - 84,099 tonnes (Bombs eq. 504.6 - 84,099)

# 105,502

Total

Bombs equivalent (Bombs eq.)

\* Fissile materials are Highly Enriched Uranium (HEU) and plutonium (Pu) which can be used for nuclear weapons.  
 \* Military use: Those currently used for nuclear weapon and nuclear submarines, and those that can be used for military use in the future.  
 \* Non-military use: Those currently used for civilian use and those considered no longer suitable for military use.  
 \* Fissile materials owned by non-nuclear weapon countries are shown only as total of materials owned by all non-nuclear weapon countries except separated plutonium owned by Japan and Germany.  
 \* Global map is shown as a design and thus may not be accurate. BAT data are as of the end of 2014.  
 \* PCU Nagasaki Council for Nuclear Weapons Abolition (PCU-NC)  
 \* Research Center for Nuclear Weapons Abolition, Nagasaki University (RCNA) Detailed data: <http://www.rcna.nagasaki-u.ac.jp/rcna/database/nuclear01.htm>





United Nations Office  
for Disarmament Affairs



must be **ZERO.**



**i can**

**international campaign  
to abolish nuclear weapons**





## **X BIOLOGICAL WEAPONS**

Banned under the Biological  
Weapons Convention

**1972**



## **X CHEMICAL WEAPONS**

Banned under the Chemical  
Weapons Convention

**1993**



## **X LAND MINES**

Banned under the Anti-  
Personnel Mine Ban Treaty

**1997**



## **X CLUSTER MUNITIONS**

Banned under the Convention  
on Cluster Munitions

**2008**



## **NUCLEAR WEAPONS**

**NOT YET BANNED  
BY TREATY**





A/C.1/71/L.41

Voting Ended

27-Oct-16

17:59:50

Item 98 (kk) **WHOLE** Taking forward multilateral nuclear disarmament negotiations

AFGHANISTAN	+	CAMEROON	+	FRANCE	-	KYRGYZSTAN	X	NETHERLANDS	-	SERBIA	-	UKRAINE	+
ALBANIA	-	CANADA	+	GABON	+	LAO PDR	+	NEW ZEALAND	+	SEYCHELLES	+	UNITED ARAB EMIR...	+
ALGERIA	+	CENTRAL AFR REP....	+	GAMBIA	+	LATVIA	-	NICARAGUA	X	SIERRA LEONE	+	UNITED KINGDOM	-
ANDORRA	+	CHAD	+	GEORGIA	+	LEBANON	+	NIGER	+	SINGAPORE	+	UNITED REP TANZA...	+
ANGOLA	+	CHILE	+	GERMANY	-	LESOTHO	+	NIGERIA	+	SLOVAKIA	-	UNITED STATES	+
ANTIGUA-BARBUDA	+	X CHINA	+	GHANA	-	LIBERIA	+	NORWAY	-	SLOVENIA	-	URUGUAY	+
ARGENTINA	+	COLOMBIA	+	GRENADA	+	LIBYA	+	OMAN	+	SOLOMON ISLANDS	+	X UZBEKISTAN	+
X ARMENIA	+	COMOROS	+	GUATEMALA	+	LIECHTENSTEIN	+	X PAKISTAN	+	SOMALIA	+	X VANUATU	+
AUSTRALIA	-	CONGO	+	GUINEA	+	LITHUANIA	-	PALAU	+	SOUTH AFRICA	+	VENEZUELA (BOLIV...	+
AUSTRIA	+	COSTA RICA	+	GUINEA-BISSAU	+	LUXEMBOURG	-	PANAMA	+	SOUTH SUDAN	+	VIET NAM	+
AZERBAIJAN	+	COTE D'IVOIRE	+	X GUYANA	+	MADAGASCAR	+	PAPUA NEW GUINEA	+	SPAIN	+	YEMEN	+
BAHAMAS	+	CROATIA	+	HAITI	+	MALAWI	+	PARAGUAY	+	SRI LANKA	+	ZAMBIA	+
BAHRAIN	+	CUBA	+	HONDURAS	+	MALAYSIA	+	PERU	+	X SUDAN	+	ZIMBABWE	+
BANGLADESH	+	CYPRUS	+	HUNGARY	-	MALDIVES	+	PHILIPPINES	+	SURINAME	+		
BARBADOS	+	CZECH REPUBLIC	-	ICELAND	-	X MALI	+	POLAND	-	SWAZILAND	+		
X BELARUS	+	DEM PR OF KOREA	+	INDIA	X	MALTA	+	PORTUGAL	-	SWEDEN	+		
BELGIUM	-	DEM REP OF CONGO	+	INDONESIA	+	MARSHALL ISLANDS	+	QATAR	+	X SWITZERLAND	+		
BELIZE	+	DENMARK	-	IRAQ	+	MAURITANIA	+	REP OF KOREA	-	SYRIAN ARAB REP...	+		
BENIN	+	DJIBOUTI	+	IRELAND	+	MAURITIUS	+	REP OF MOLDOVA	+	TAJIKISTAN	+		
BHUTAN	+	DOMINICA	+	ISRAEL	-	MEXICO	+	ROMANIA	+	THAILAND	+		
BOLIVIA (PLURINAT...	+	DOMINICAN REP...	+	ITALY	-	MICRONESIA (FS)	-	RUSSIAN FED...	-	THE FYR MACEDONIA	+		
BOSNIA-HERZEGOVI...	-	ECUADOR	+	JAMAICA	-	MONACO	-	RWANDA	+	TIMOR-LESTE	+		
BOTSWANA	+	EGYPT	+	JAPAN	-	MONGOLIA	+	SAINT KITTS-NEVIS	+	TOGO	+		
BRAZIL	+	EL SALVADOR	+	KAZAKHSTAN	+	MONTENEGRO	-	SAINT LUCIA	+	TONGA	+		
BRUNEI DARUSSAL...	+	EQUATORIAL GUINEA	+	KENYA	+	X MOROCCO	+	SAINT VINCENT-GR...	+	TRINIDAD AND TOB...	+		
BULGARIA	-	ERITREA	+	KIRIBATI	+	MOZAMBIQUE	+	SAMOA	+	TUNISIA	+		
BURKINA FASO	+	ESTONIA	-	KUWAIT	+	MYANMAR	+	SAN MARINO	+	TURKEY	-		
BURUNDI	+	ETHIOPIA	+			NAMIBIA	+	SAO TOME-PRINCIPE	+	TURKMENISTAN	+		
CABO VERDE	+	FUJI	+			NAURU	+	SAUDI ARABIA	+	TUVALU	+		
CAMBODIA	+	X FINLAND	+			NEPAL	+	SENEGAL	+	UGANDA	+		



IN FAVOUR: 123



AGAINST: 38



ABSTENTION: 16







THE BAN  
IS  
COMING

BAN ME!  
I'M IMMORAL

**Ban Nuclear Weapons Now!**

核兵器禁止条約を今こそ! 지금이야말로 핵무기 금지조약을



PEACE  
BOAT KOREA  
GREEN FOUNDATION

# Japan's Four Basic Nuclear Policies, 1967

## **1. Non-Nuclear Principles**

Not possessing, not producing, **not permitting the introduction of** nuclear weapons

## **2. Make efforts for Nuclear disarmament**

## **3. Relying on the US nuclear deterrence**

## **4. Promotion of peaceful use of nuclear energy**



## Peace Boat's 96th Voyage Oceania (Jan-Mar, 2018)

Like 0 Share 0 Tweet



Peace Boat's 96th Voyage will depart from Japan on January 8 and return on March 5, 2018. Voyaging through the Oceanic region, participants will visit various ports in Australia and New Zealand, learning about issues including the indigenous cultures of the region and efforts for environmental sustainability. This voyage will also include first-time calls to ports in Bali and Saipan.

[peaceboat.org/english](http://peaceboat.org/english)







