

The Challenge of Governance in an Era of Rapid Technological Innovation – the examples of energy (nuclear), space and AI

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Technology Governance

- **Nature of technology/ knowledge** - centralized/ decentralized, public/ private
- A wide range of **actors** involved, in reaction to the numerous social implications of technology in specific societal contexts- **scientists and engineers; research institutes; companies; citizens; users; government- international, national (ministries) and local levels - forming networks**
- **Institutions for risk governance and innovation governance**

Risk Governance

Balancing Risks and Benefits

- **Risk governance management**= the activity of deciding where to draw the line and what level of risk to allow—based on the **risk assessment** (scoping is discretionary element)
 - cf. Security/ diplomatic/ symbolic risks and benefits
 - cf. Range of connected risks to be considered
- It is necessary to consider how the **risks** are balanced by the **benefits** of the technology concerned: the case of car
- There is **uncertainty over both risks and benefits**-uncertainty over scientific understanding and uncertainty over utilization of the technology
- Question of **distributive implications - benefits and risks allocation among actors**
- Question of institutional capacity

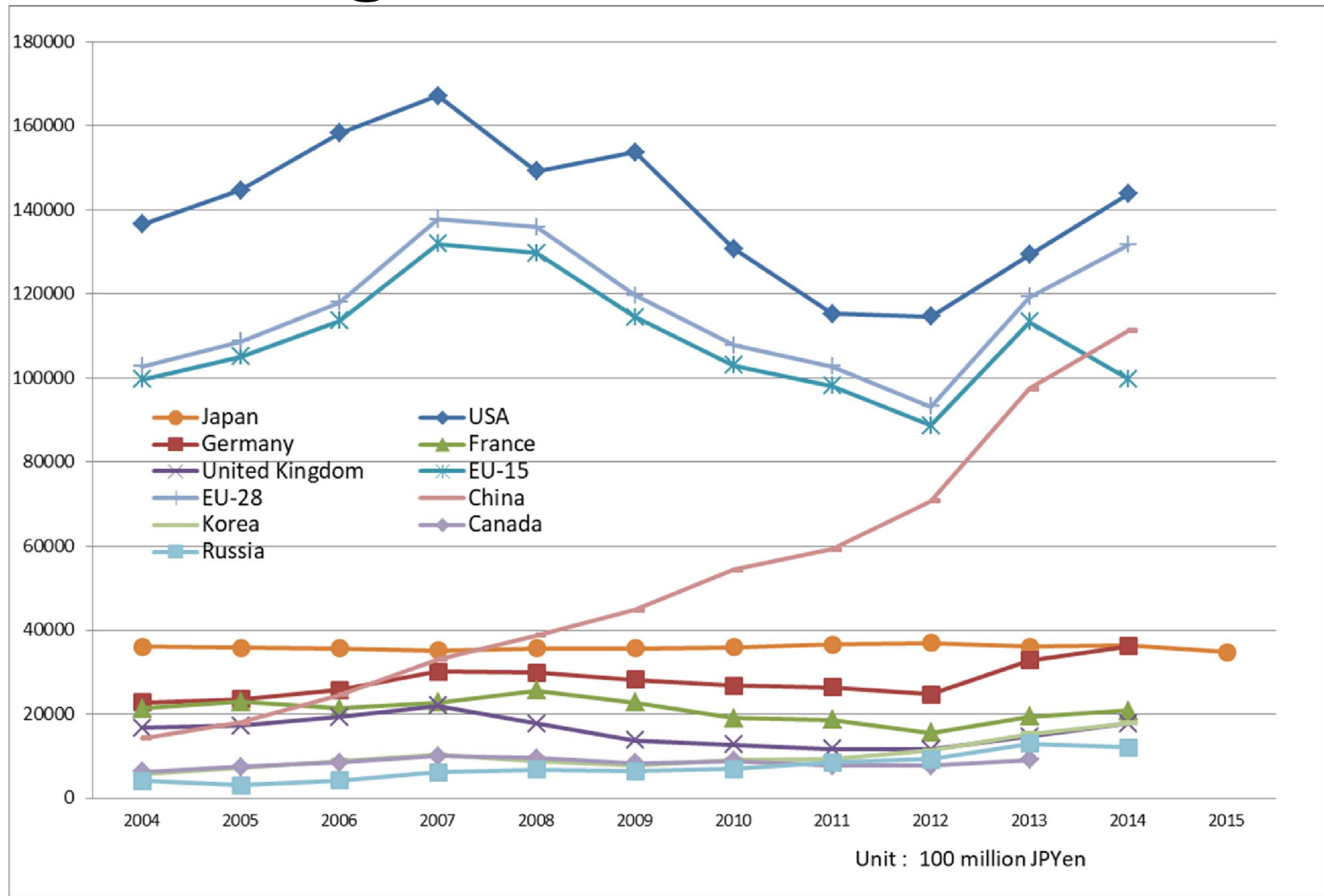
Innovation Governance

Balancing Technology Push and Demand Pull

- The existence of knowledge and technology is not self-evident. For these to emerge, society must foster scientists and technologists, and must stimulate their research activities - funding for R&D.
- It is necessary to try and revisit the role of the legal concepts of “academic freedom” and “freedom of research” which could instead be reinterpreted as the organizing principles for stimulating the generation of knowledge.
- New technology creates new demand - technology push
- On the other hand, involvement of various users are essential for effective technology implementation - demand pull
- Balance between R&D organizations and users

General Trends of R&D

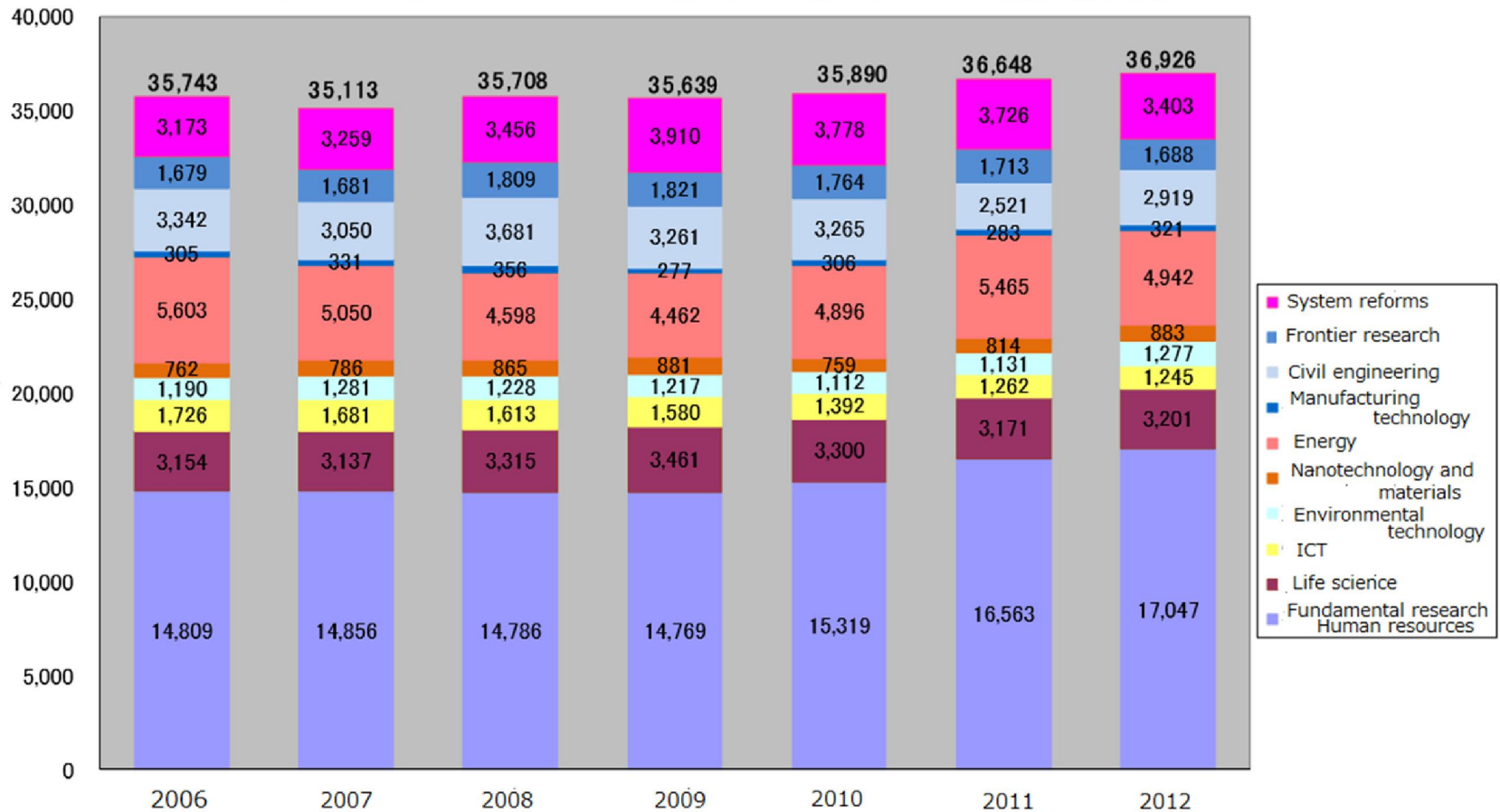
S&T Budget in Selected Countries



Source: Data from Indicators of science and technology (2016), MEXT, Government of Japan

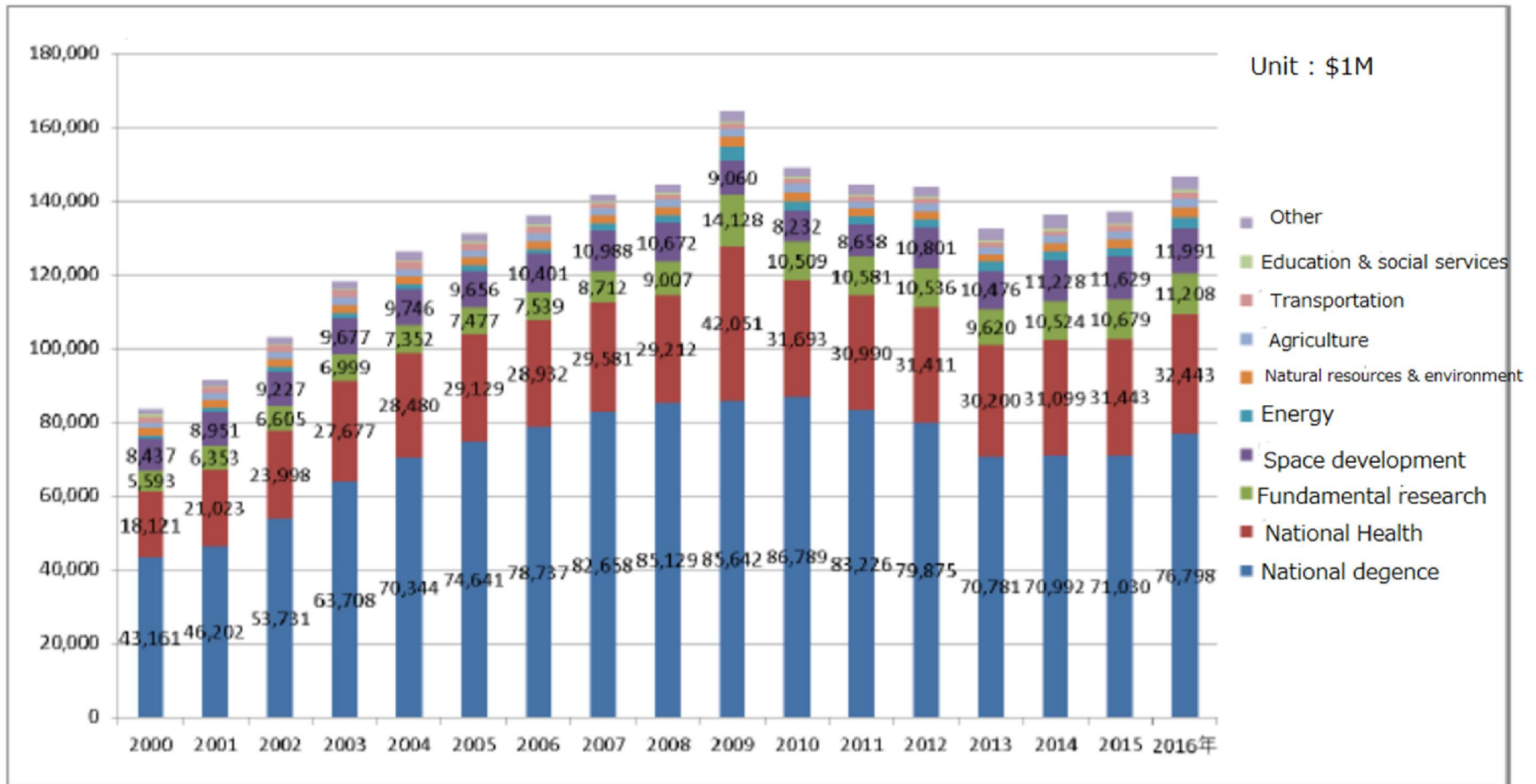
Government Budget Appropriations for Science, Technology and R&D in Japan

8 research fields based on the 3rd Science and Technology Basic Plan Unit: 100M JPYen



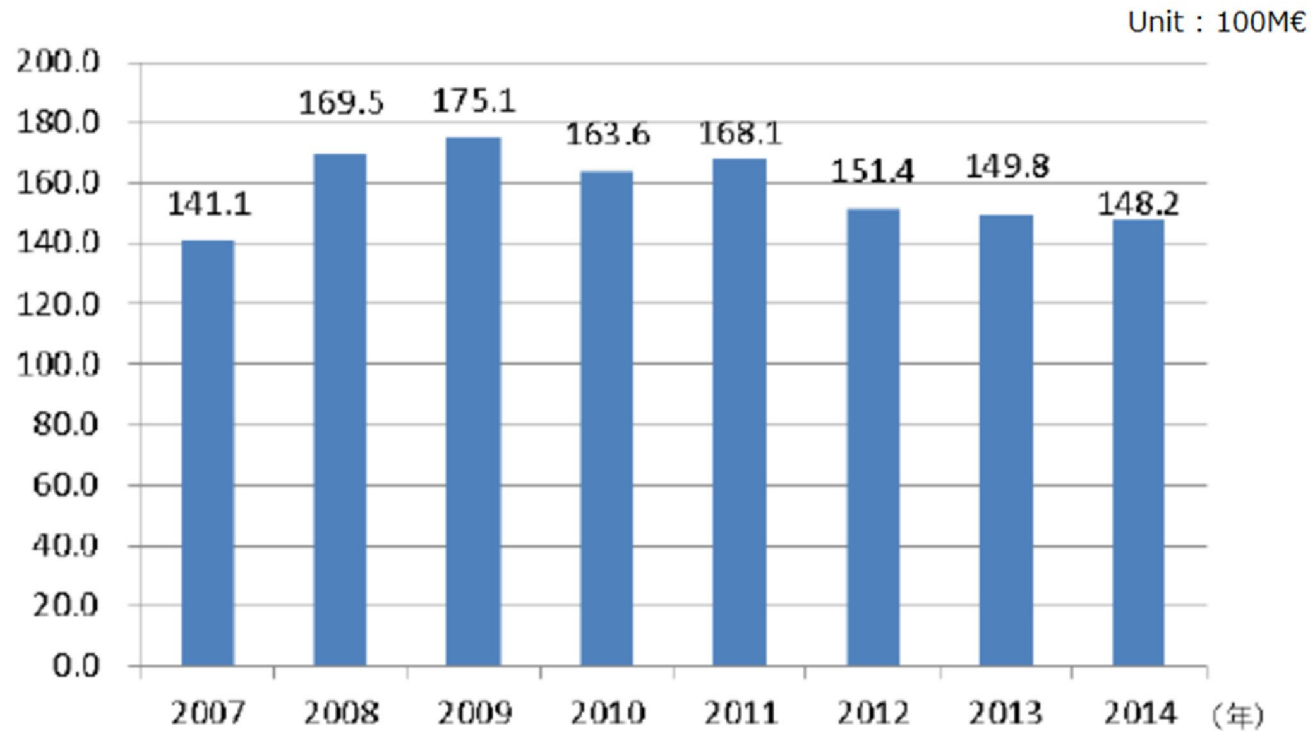
Source: Data from Cabinet Office, Government of Japan

R & D Budget Activities : USA



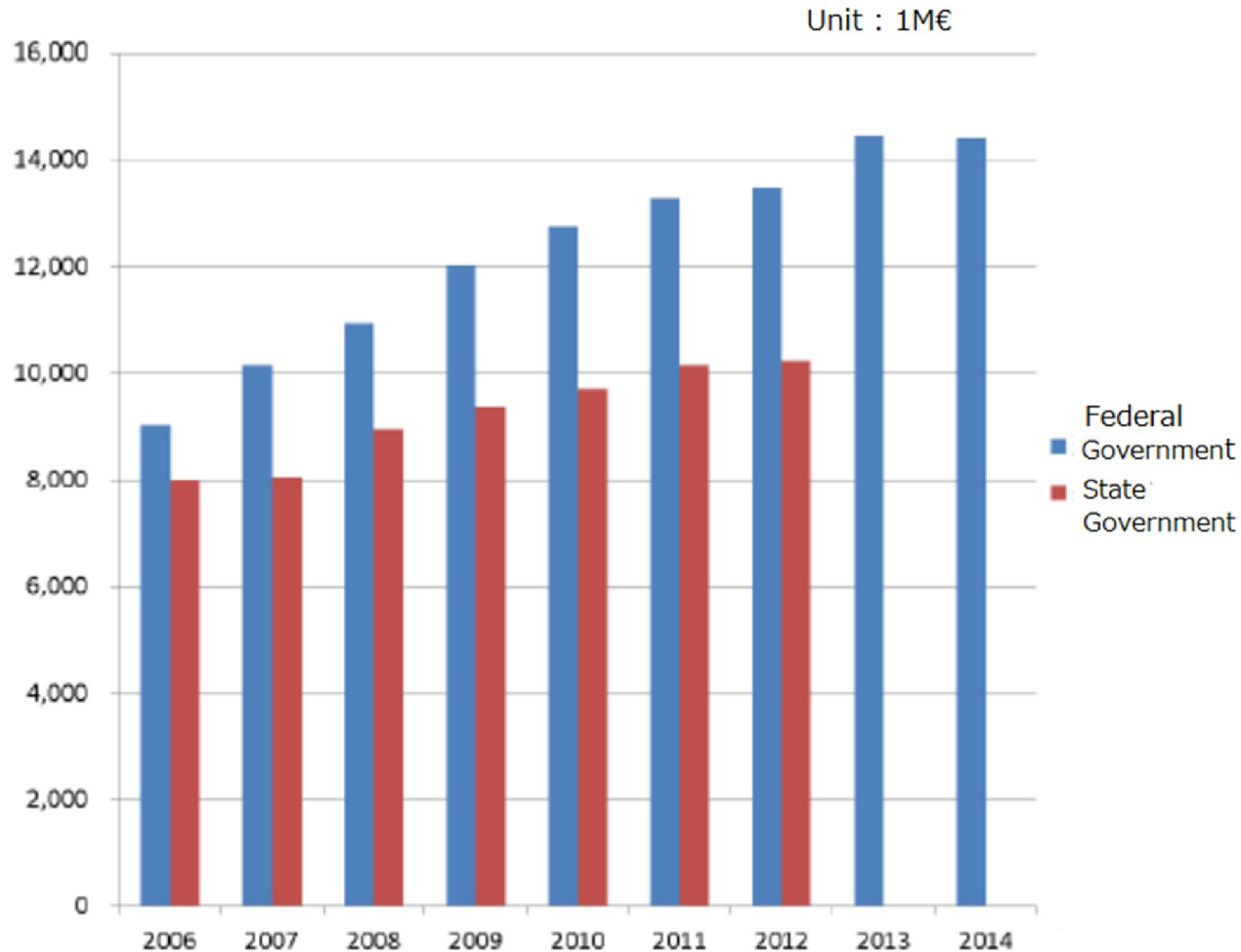
Source : NSF, Federal R&D Funding by Budget Function: Fiscal Years 2014-2016

R & D Budget Activities : France



Source : OECD Science, Technology and R&D Statistics

R & D Budget Activities : Germany



Source : BMBF (Federal Report on Research and Innovation 2014)

Nuclear Technology

Advantages and Limits of Dual
System

Development of Nuclear Technology in Japan

- 1954.4 Budget for atomic energy was approved
- 1956- AEC (Atomic Energy Commission), STA (Science and Technology Agency), JAIC (Japan Atomic Industrial Forum), JAEA (Japan Atomic Energy Agency)
- "Dual" system established around 1957 (Yoshioka)
 - ① STA/ JAEA → PNC (Power Reactor and Nuclear Fuel Development Corporation) established in 1967 focusing on reprocessing and fast breeder
 - cf. Integration of JAEA and PNC → New JAEA in 2005
 - ② MITI/ Utilities focusing on technology transfer of light water reactors - PWR/ BWR

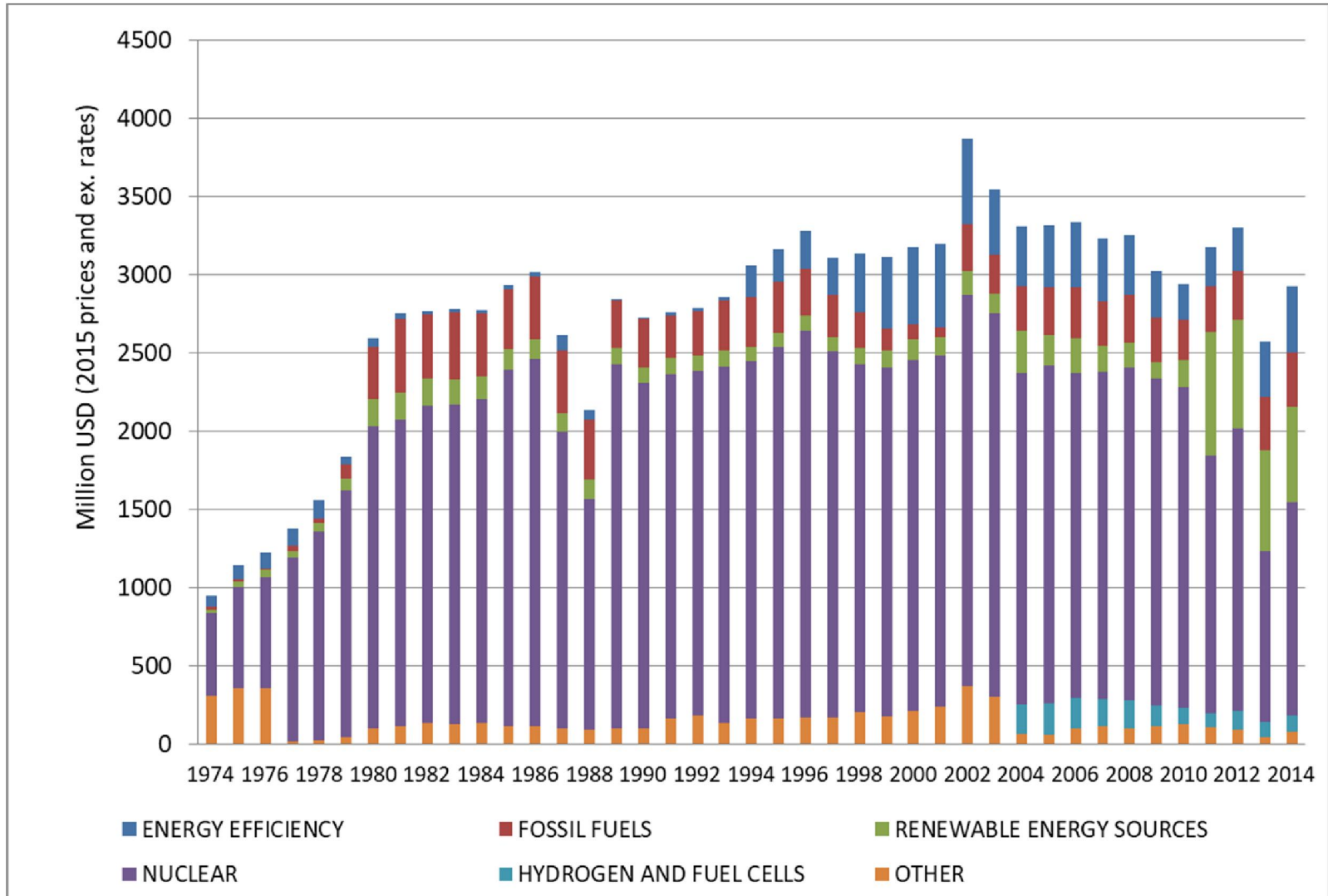
The First Period of Regulatory Regime (1957-1978)

- The **Prime Minister** had authority to approve licenses of nuclear business (actually, the Director-General of the Science and Technology Agency)
- As for commercial nuclear power reactors and commercial marine reactors, however, administrative measures sometimes required the **consent of the competent ministers**
- The Prime Minister should listen to and respect the opinions of the Atomic Energy Commission of Japan (AEC) chaired by DG of the STA

The Second Period of Regulatory Regime Lead by Users (1978-1999)

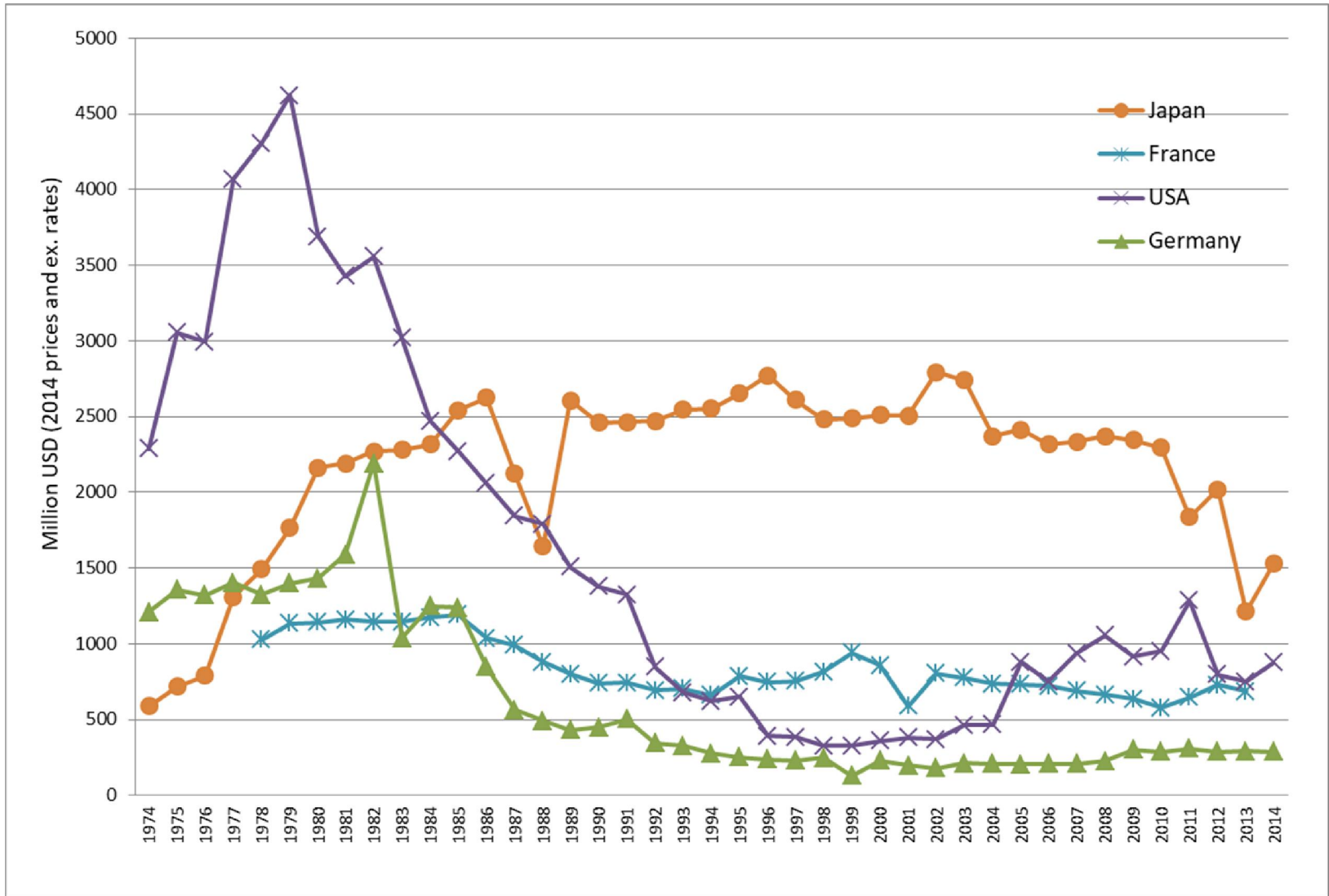
- The radiation leakage accident of Mutsu in 1974
- The Arisawa Advisory Committee submitted the report on July 1976 – The Nuclear Reactor Regulation Law was revised in 1978
- The regulatory authorities had been **decentralized**; and governmental agencies which had held jurisdiction over the development and promotion of nuclear business had also regulated nuclear safety according to the types of business
 - **The integration between promotion side and regulation side**
- On the other hand, independent advisory committee (Nuclear Safety Commission: **NSC**) , separated from AEC, had become responsible for review of regulation by the regulatory agencies (double check) and obtaining public understanding (secondary public hearing)

Energy RD&D – Japan



Source: Data from IEA R&D statistics

RD & D Budget for Nuclear



Source: Data from OECD iLibrary database

Planning and Phasing Out of Fast Breeder Weakening of Dual system

- Mentioning about breeder in 1956 Long-Term Plan → 1961 Long-Term Plan (aiming at 1976-79)
- Fast breeder as "mainstream in the future" in 1967 Long-Term Plan (aiming at the end of 1980's)
- **Prototype reactor Monju** constructed after 1985 - first criticality in 1994 - 1994 Long-Term Plan "Parallel use with light water reactor" (and aiming at 2030)
- A sodium leakage accident in 1995 → 1996 Report on "Development of Fast Breeder" - FBR as "one of promising options" → 2000 Long-Term Plan
- 2016.12 Stopping of Monju decided
- Phasing out of FBR ← Changing attitude of US (after Carter Administration on non-proliferation) and **utilities**

The Third Period of Regulatory Regime - Weakening of Dual System (since 1999)

- The **JCO** (a nuclear fuel production company) nuclear criticality accident in September 1999 – recommendation by Investigation Committee
- **The Nuclear and Industrial Safety Agency (NISA)** was newly established as **an quasi independent organization under the METI** – as a “Special Organ” attached to the Agency for Natural Resources and Energy of METI
- The regulation of commercial power reactors, reactors at the stage of research and development and nuclear fuel facilities etc. were **integrated under the jurisdiction of the NISA** cf. commercial marine reactors, test and research reactors under other ministries
- Giving the NSC greater independence and it had been transferred to the Cabinet Office with independent secretariat

Process after Fukushima Accident

- Fukushima accident on 11th March 2011
- Various processes for accident investigation – government, Diet, Non-governmental
- “Basic Concept of Structural Reform of Nuclear Safety Regulation” 15th August 2011 (even before the interim report of government investigation committee) – Nuclear Safety and Security Agency
- Alternative model by LDP – Administrative committee based on article 3 of Administrative Organization Act
- It was agreed to establish **Nuclear Regulatory Commission (Nuclear Regulatory Authority)** in June 2012, which was finally set up in September 2012 (but without the approval of members by the Diet until 2013)

Causes of Fukushima Accident- “Failure” of Interdisciplinary Communication : Delay of Tsunami Regulation

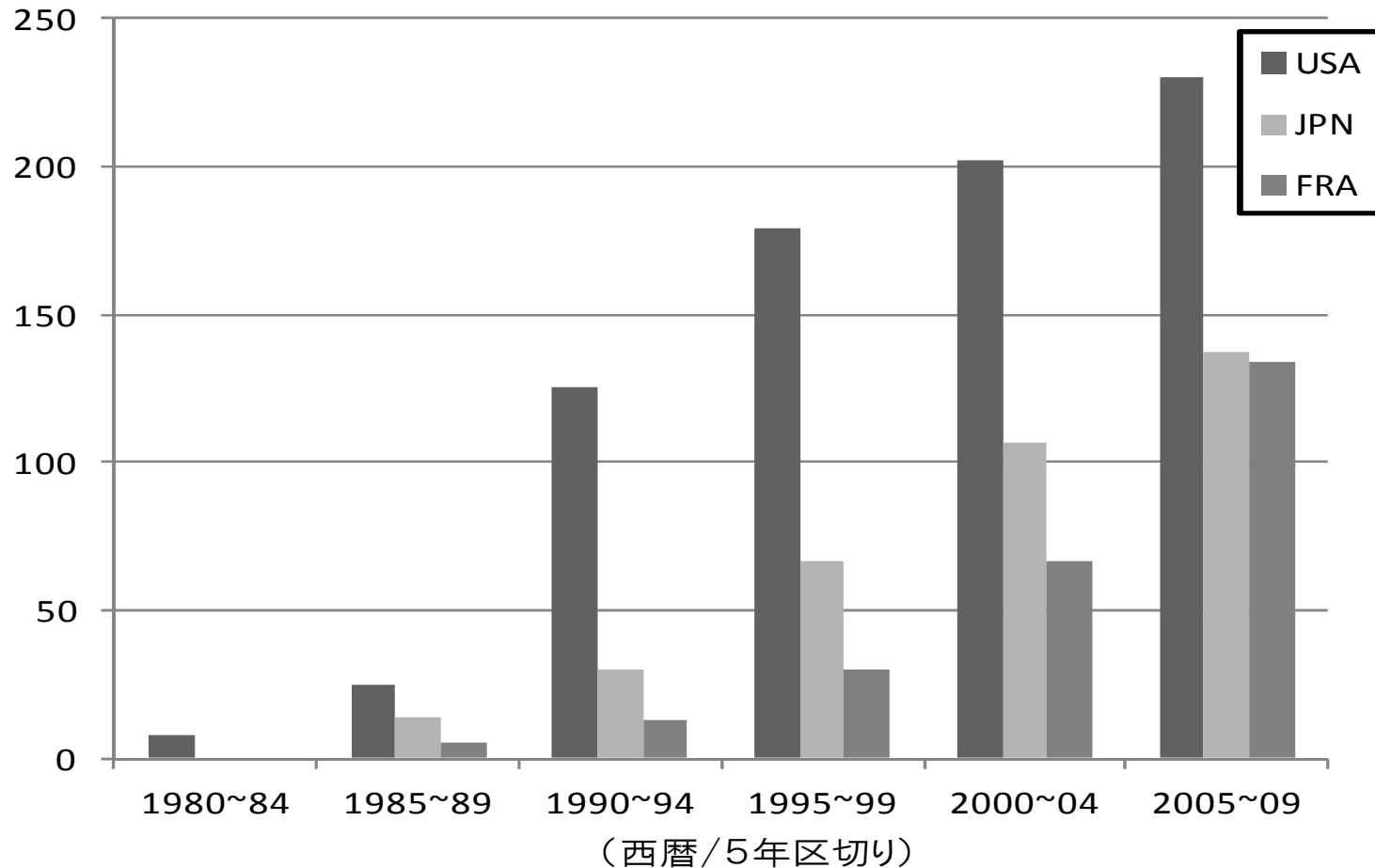
- January 1995 Hanshin Awaji Earthquake
- In September 2006, the Nuclear Safety Commission in Japan (NSC) **revised the Regulatory Guide for Reviewing Seismic Design of Nuclear Power Reactor Facilities** in accordance with the results of the 5 years study
- The Revised Regulatory Guide for Reviewing Seismic Design of Nuclear Power Reactor Facilities - the tsunami is treated as one of the **“accompanying phenomena”** of earthquakes despite some subcommittee members’ claim that the tsunami required particular attention in its revision process

“Limited” Introduction of Severe Accident Management

- Behind other countries, Japan also introduced the **severe accident (accident beyond design basis) management in 1992**
- Accident management measures were been basically **regarded as voluntary efforts** by operators, not legal requirements
- It was decided in keeping with the intention of operators that **the PSA (probability safety assessment), which provides the basis of accident management, limited its subject to internal events**, and excluded external events including earthquakes
- It is said that there had been operator’s considerations from the **viewpoint of public acceptance** in siting areas
- cf. Difference between **engineering thinking** based on Probability and **security expert thinking** based on scenarios

Accumulated Number of Research on Sever Accidents (Hirano 2015)

(累積発表件数)



Problems of Capacity Development

- **Formal independence is not enough – need for capacity**
- **The mid-career staffs from manufacturers** were certainly experts of parts of nuclear technology, but they could not always succeed in regulating in a comprehensive way, nor could they get the skills as regulatory professionals enough to deal with operators
- In the case of the United States, the **Navy**, which has lots of nuclear submarines, has played an important role as an excellent source of nuclear professionals
- Many nuclear experts from the Navy have been employed by the NRC and the Secretariat of the Institute of Nuclear Power Operations (INPO)
- In Japan, it can be said that **Science and Technology Agency (STA)** and some research institutes under the former STA such as the former **Japan Atomic Energy Agency (JAEA)** had played a role somewhat similar to the U.S. Navy

Reorganization of Atomic Energy Commission in 2014

- Expert committee for reorganization
- Major theme: Loss of trust
- Promotion of use → management of issues related to atomic energy
- Changing jurisdiction: comprehensive planning and coordination → **peaceful use and non-proliferation**, management of radio waste, etc. cf. Idea of "Atoms for Peace Commission"
- Implications: **Decreasing attention on the promotion side**

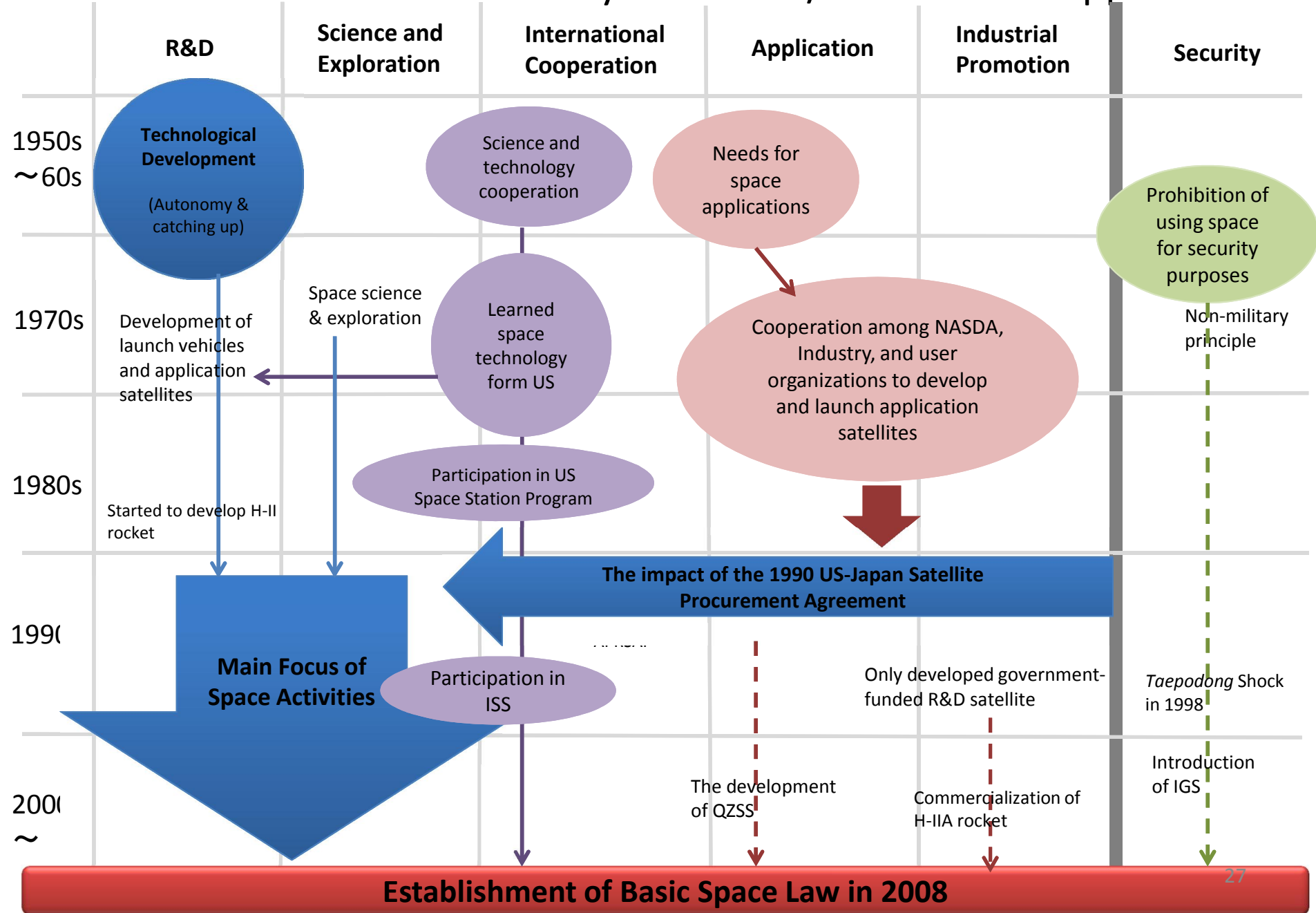
Security Implications of Japan's Nuclear Policy for US

- US: Dependence on Japan concerning nuclear manufacturing capacity - embedded cold war structure?
- Current industrial structure of nuclear industry
 - ① Toshiba – WH, ② Hitachi – GE, ③ AREVA – MHI, ④ Doosan (Korean), ⑤ Rosatom (Russian)
- What is common interests among US and Japan?
 - Short term market in China and long term consequences (unintended transfer of technology)?
- But current situation of Toshiba.....

Space Technology

Another Dual system and the Cycles
of R&D and Promotion of Uses

Historical Overview - 1st Cycle of R&D/ Science and Applications



Historical Overview - 2nd Cycle of R&D/ Science and Applications

R&D

Science and
Exploration

International
Cooperation

Application

Industrial
Promotion

Security

Establishment of Basic Space Law in 2008

Since
2008

“Re-focusing” on space
applications (incl. security) and
industrial promotion

New
emphasis of
space
activities

From “non-military” to
“non-aggressive”

Space
diplomacy and
International
space
cooperation

Cooperation
with Asia

U.S.-Japan Space
Security Cooperation

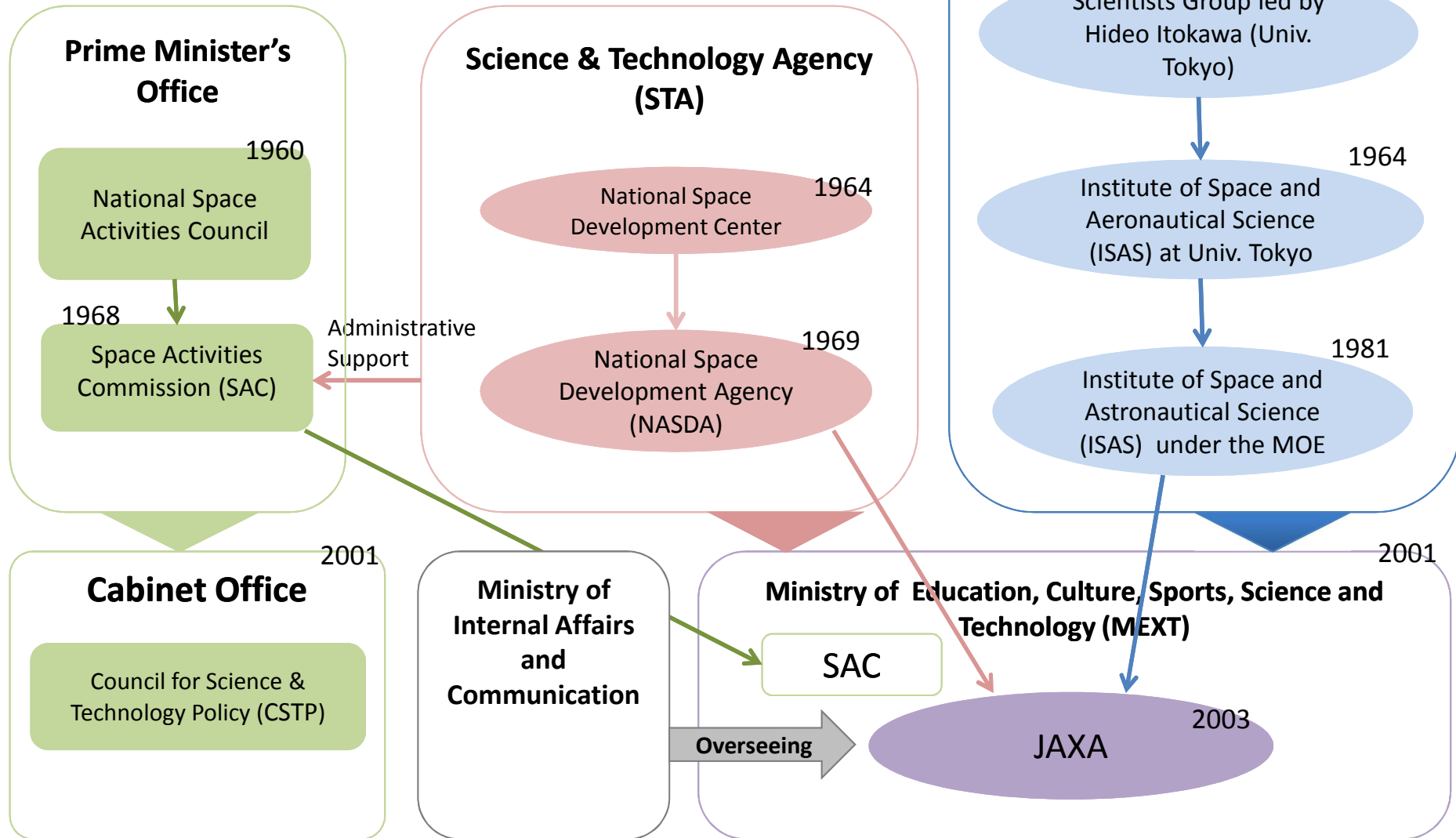
The future of
international space
exploration program,
including post-ISS ??

Needs-based
R&D

The future of space
science & exploration?

Space programs (including R&D) are justified by how much
contribute to realizing social values and industrial development²⁸

Historical Overview: Organization (1950s~2008)



1st Cycle

Brief History of Space Policy in Japan: 1955-1960s

1950s: Started space efforts in Japan

- Started space activities in 1955 with the launch of “pencil” rocket by scientist
- Launched K-6 sounding rocket as a contribution to International Geophysical Year (IGY)

1960s: Organizing for space

- **Space policy making (Prime Minister’s Office)**
 - In 1960, the establishment of National Space Activities Council
 - In 1968, the establishment of Space Activities Commission (SAC)
- **Space organization: two separate organizations - establishment of "dual" system**
 - In 1964, the establishment of **Institute of Space and Aeronautical Science (ISAS)**
 - Established as university-based (Univ. Tokyo) space research organization
 - In 1981, placed directly under the Ministry of Education
 - In 1964, the establishment of National Space Development Center of Science and Technology Agency, and replaced by **National Space Development Agency (NASDA) in 1968**
 - Established as National Space Agency under the S&T Agency
- **1969 US-Japan Agreement on technology transfer (rocket)** ← **Non-proliferation concern** about Japan
← Nuclear test by China 1964 (Kurosaki)
- **Prohibited using space for security and defense purposes**
 - The 1969 Diet Resolution concerning “peaceful” space activities



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ISAS (1964~)

- Scientific and Technical nature
 - Based on scientists and engineers
- Pursued to develop autonomous space technology by its own
- Developed Solid propellant rockets and scientific satellites

NASDA (1969~)

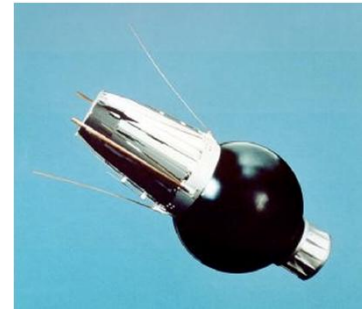
- Emerging needs for space applications
 - Communication, broadcasting, and weather
- Developed liquid-fueled space launch vehicles capable of launching application satellite to geostationary orbit
- Technological transfer from US

Brief History of Space Policy in Japan: **Dual System** in 1970-80s

ISAS: autonomous space technology, science, and exploration

- **Successfully launched the Japan's first satellite *Osumi* with L-4S rocket developed by ISAS (1970)**
 - Japan became the fourth nation to launch a satellite by its own
- **Carried out various space scientific missions since 1970s**
 - X-ray astrophysics, Solar physics, Halley's comet's exploration, planetary exploration (1990s-), . . .
 - Contribution to international space science missions

Osumi



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NASDA: Introduction of technology from US (rocket and application satellite), social needs

- **Started to develop liquid fueled space transportation systems with technological assistance from US**
 - Catching up with advanced spacefaring nations
 - Development of N-I (1975), N-II (1981), and H-I rockets (1986) :NASDA and Mitsubishi Heavy Industry
 - In 1977, successfully launched the Japan's first geostationary satellite, *Kiku-2* (satellite communication engineering satellite), by N-I rocket
- **Decided to develop H-II rocket without US technological assistance in 1984**
 - 100% domestically-developed space launch vehicle ⇒ independent space capabilities
- **Started to develop space application satellites by close cooperation among NASDA, User, and Industry**
 - **Communication:** NASDA, Nippon Telegraph and Telephone Public Corporation, and Mitsubishi Electronic (*Sakura* in 1977)
 - **Broadcasting:** NASDA, NHK(Japan Broadcasting Corporation), and Toshiba (*Yuri* in 1978)
 - **Meteorological:** NASDA, Meteorological Agency, and NEC (*Himawari-1* in 1977)

Japan decided to participate in U.S. Space Station Program in 1984

The End of 1st Cycle

Brief History of Space Policy in Japan: 1990s

The 1990 U.S.-Japan Satellite Procurement Agreement ⇒ R&D Turn

- U.S-Japan trade conflict
 - Strong criticism from US that Japanese government protects space industry by unfair satellite procurement protocols
- Opening governmental market for non-R&D (application) satellite to international tender
- NASDA and Japan's space industry had to focus on R&D satellites

Changing security environment and space activities

⇒ Security Turn

- The end of cold war
- Changing security environment in Asia
 - North Korea's missile program
 - Taiwan Strait Crisis (1995-96)
- *Taopodong* Shock
 - In 1998, North Korea launched ballistic missile, which flew over Japan's territory
 - Shocked Japanese politicians and citizens
 - Need to have its own "eyes" (spy satellite) in space

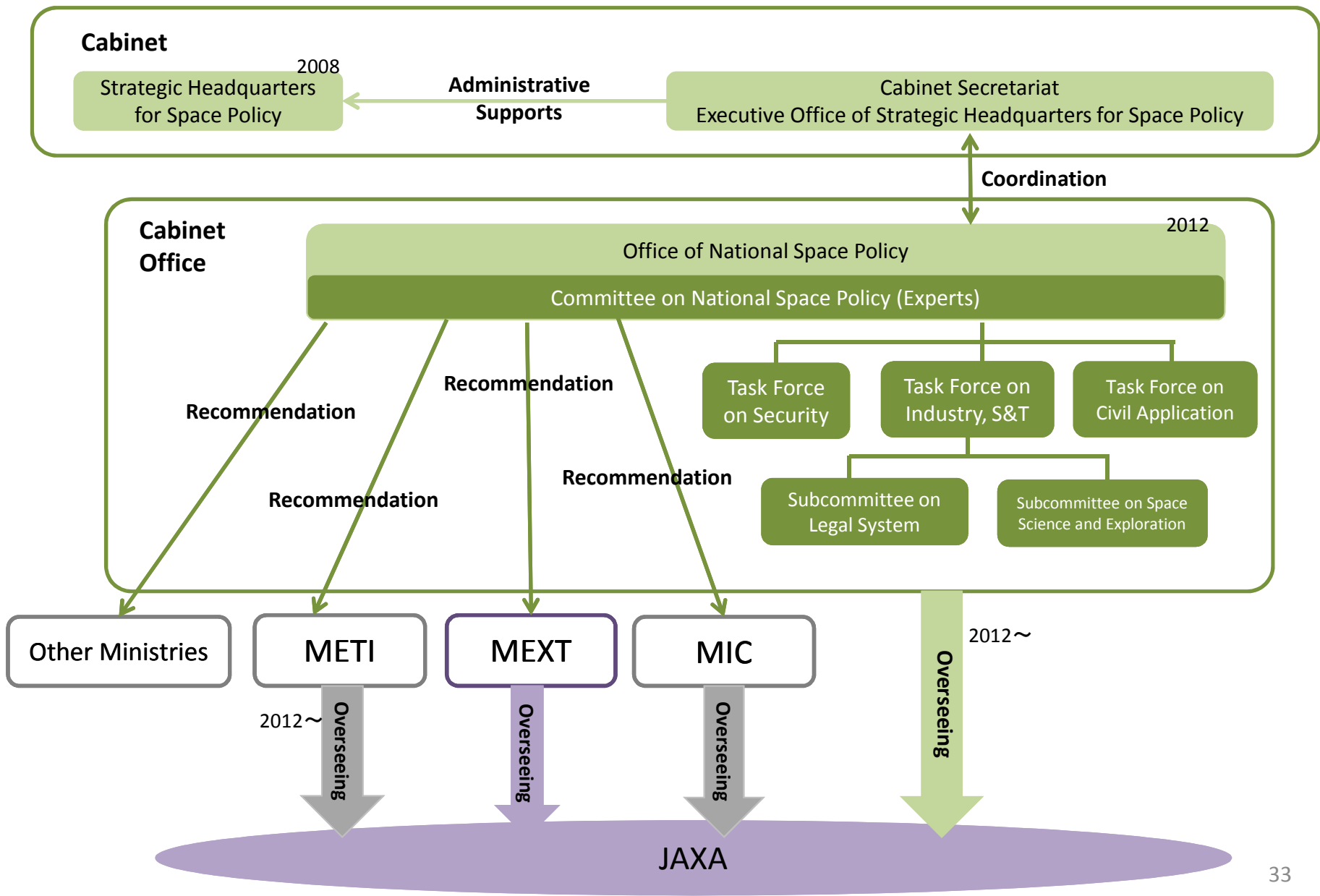
Technological Background?

Since late 1980s, NASDA started R&D for remote sensing satellites

- Meteorological satellite (*Himawari*): 1977-
- Ocean monitoring (*Mono-1*): 1987
- Earth resources observation (radar) (*Fuyo-1*): 1992
- Advanced Earth Observation Satellite: (*Midori-1*): 1996

Decision to introduce Information Gathering Satellite (IGS) in 1998

Overview of Organization (2008~)



2nd Cycle

Brief History of Space Policy in Japan: 2000s

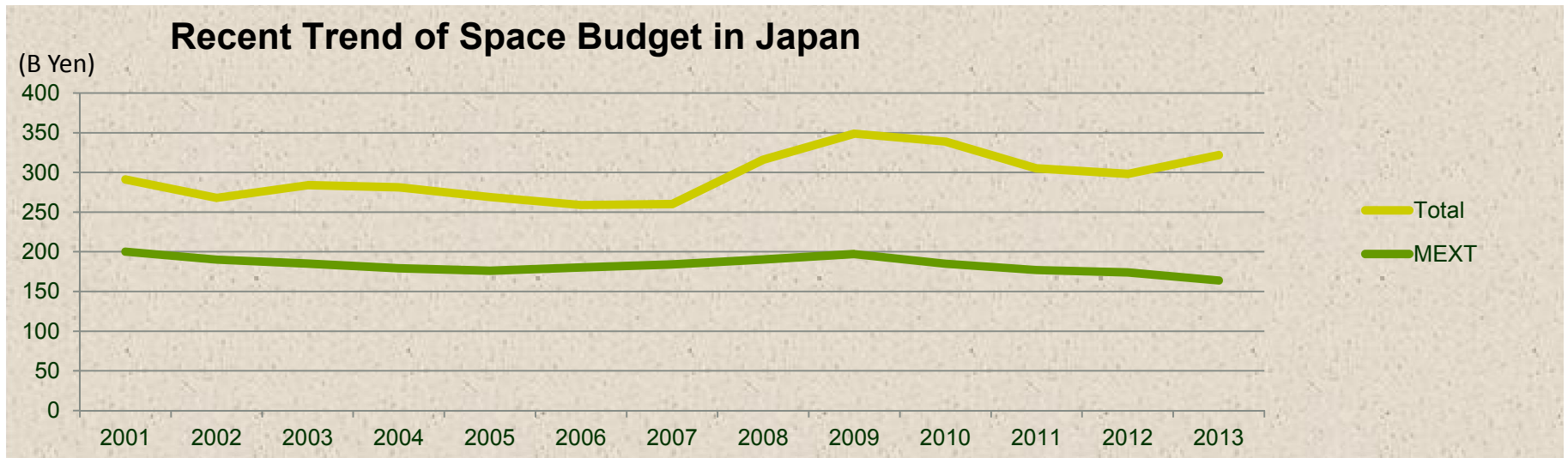
Administrative reforms in 2001 and the establishment of JAXA in 2003

- **Administrative reforms in 2001**
 - MoE and STA ⇒ MEXT / Establishment of Cabinet Office and CSTP
- **Establishment of JAXA in 2003- Weakening of dual system**
 - NASDA and ISAS (+ National Aerospace Laboratory: NAL) ⇒ **JAXA**

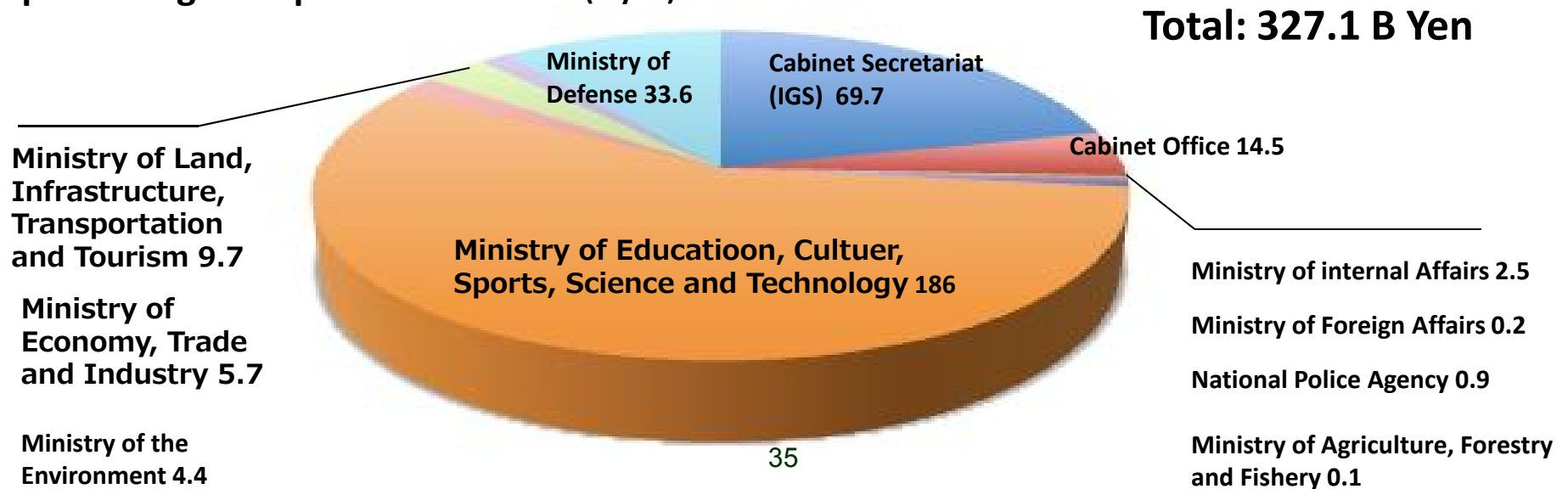
2000s

- **Contribution to International Space Station (ISS) program**
 - In 1998, Inter-Governmental Agreement (IGA)
- **Launched the first two IGS satellites in 2003**
 - Recognizing the importance of space for national security
 - **Contradiction with Japan's strict interpretation of "peaceful" space activities**
- **Started the research and development of QZSS (positioning satellite) in 2002**
 - In 1999, Communication Research Laboratory started research on Quasi-Zenith orbit
 - MIC was interested in advanced satellite communication (IT society)
 - In 2001, Japan Business Federation (*Keidanren*) proposed to develop QZSS for satellite communication and positioning
 - In 2002, CSTP decided to start R&D for QZSS
 - Satellite communication and positioning technology (MEXT, MIC, METI, and MLIT)
 - **Future needs for space applications?**
- **Commercialization of H-IIA rocket in 2007 (MHI)**
 - Launch service for government satellites: **insufficient international competitiveness of space industry**
 - The first commercial launch by H-IIA was the launch of Korean satellite in 2012
- **The establishment of the Basic Space Law in 2008**

Space Budget in Japan



Space Budget Request for FY 2015 (B yen)



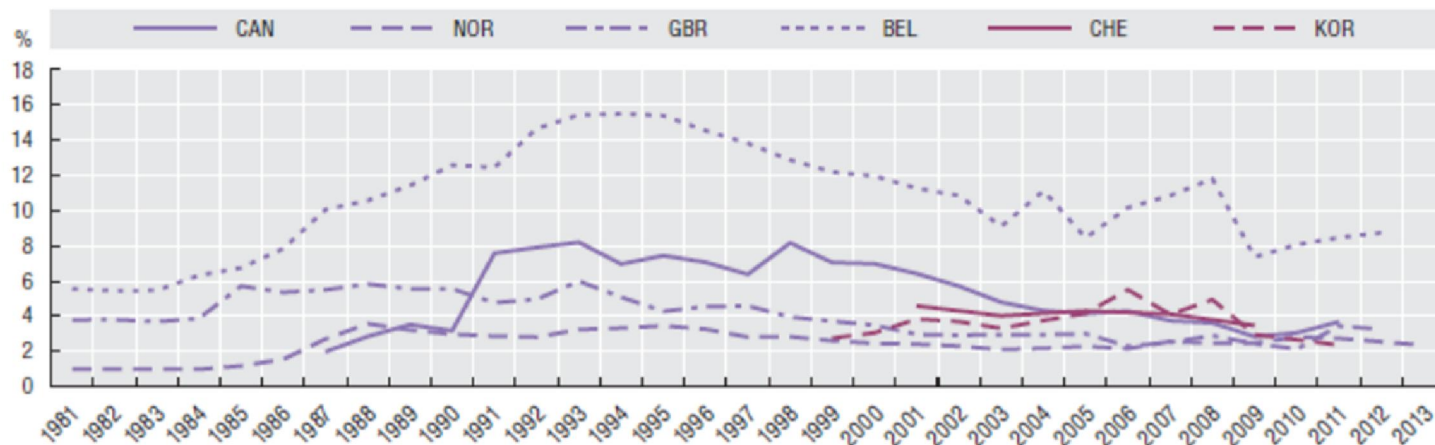
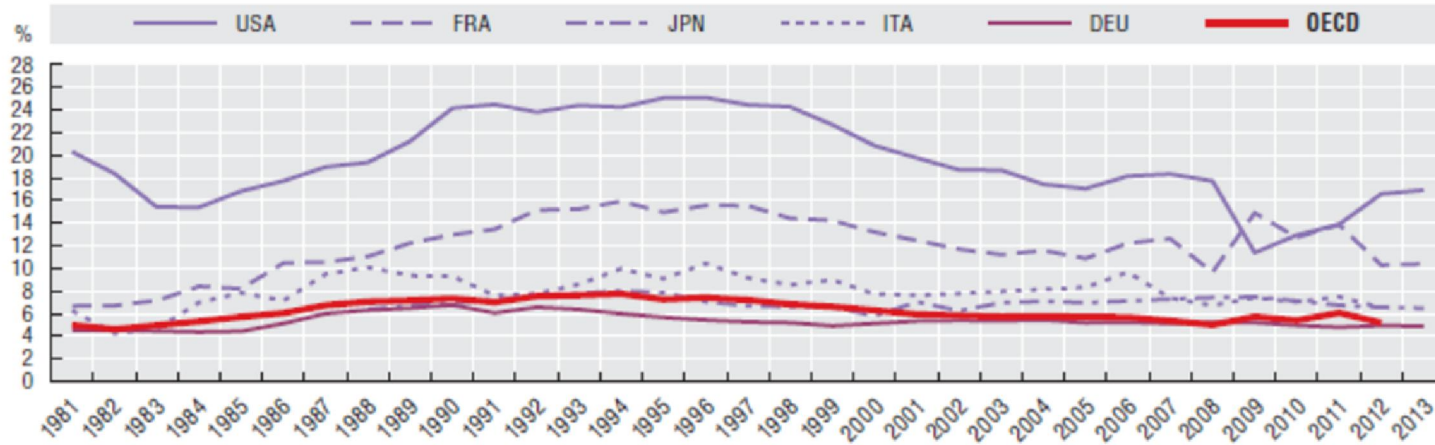
Space Budgets in PPP and per capita for Selected Countries


	Space budget in USD millions (PPP), 2013	Budget per capita
USA	39 332.2	123.2
CHN	10 774.6	7.9
RUS	8 691.6	61.0
IND	4 267.7	3.3
JPN	3 421.8	26.9
FRA	2 430.8	38.0
DEU	1 626.6	20.1
ITA	1 223.3	20.7
KOR	411.5	8.2
CAN	395.9	11.5
GBR	338.9	5.3
ESP	302.9	6.7
BRA	259.2	1.3
BEL	244.8	21.9
IDN	142.0	0.6

Source: OECD "The Space Economy at a Glance 2014"

Evolutions of Civil Space Budgets in Government Budget Appropriations or Outlays for R&D

For selected countries, 1981-2013, as a % of GBAORD (or latest available year)



StatLink  <http://dx.doi.org/10.1787/888933141684>

Basic Space Law (2008)

Basic objectives of space activities

- Improving the daily lives of Japanese citizens
- Strengthening national security
- Ensuring international peace
- Encouraging Japan's space industry
- Fostering socioeconomic development
- Promoting international cooperation and space diplomacy
- Advancing scientific research and technological capabilities

“Refocusing” on the promotion of space application, including security, and industrial development

International Comparison of Space Policy and Governance

France

- Solidifying sovereignty

- Priority on national security
- Pursuing leadership in Europe
- Maintaining technological independence and autonomous access to space

- President and Prime minister
- CNES as space policy making and implementing
- CNES controlled by Ministry of Education and Ministry of Defense
- CNES' close cooperation with Ministry of Defense

- Indispensability for autonomous diplomatic and security policy
- Autonomous capabilities for military space activities
- Multiple satellites for military and dual-use purposes

- Maintaining industrial base for autonomy

Orientation

Characteristic

Governance

Relationship to security

Industry

Germany

- A tool for solution to global challenges
- Emphasis on industrialization of space

- Priority on benefit and needs
- Space as social infrastructure
- Space activity as high-tech strategy and innovation strategy

- Cabinet space committee as coordinating body
- Transition of control over DLR to Ministry of Economy and Technology
- DLR as space policy planning and implementing body
- DLR in charge of R&D in various fields (transportation, energy, aeronautics and so on,)
- DLR space committee for horizontal coordination and cooperation among ministries

- Meeting various global threats
- Effective use of dual-use technology for national security

- Spring of innovation for industrial bases in various fields
- Focusing on dual-use technology and PPP for effectively promoting space industry

Japan's Space Policy

Basic Plan on Space Policy

The Government of Japan decided a new Basic Plan on Space Policy in January 2015.

- The fundamental national space policy document in Japan
- Discussed in Space Policy Committee of the Cabinet Office, and decided by the Strategic Headquarters for Space Policy
- **10 years plan for Japan's space activities (5years ⇒ 10 years)**

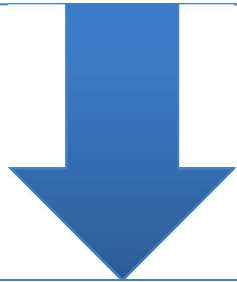
Historical Overview of the Basic Plan on Space Policy in Japan

- 1st Plan, June 2009 (2009-2013)
- 2nd Plan, January 2013 (2013-2018)
- **3rd Plan, January 2015 (2015-2024)**
 - **Promoting space applications and industry**
 - **In particular, 3rd Plan places more emphasis on security than previous plans**

Space Activities Act - Introduction of Risk Management

Basic Space Law (2008), Article 35

“The government shall comprehensively and immediately conduct the development of laws regulating space activities and laws necessary to perform treaties and other international commitments concerning space use and exploration”



- Discussion within the Government during the 2008-2010 period
- Interim Report on legal framework for space activities (2010)
- **However, as of 2015, Space Activities Act has not yet been established**

Basic Plan on Space Policy, January 2015

- Submit bills concerning **Space Activities Act** and **Satellite Remote Sensing Act** to the Diet **(2016)**

Reasons for Space Activities Act

- Compliance of treaties and other international agreement in the age of **commercial space activities**
- Public safety and victim protection
- Legal system **to promote space industry**

Reasons for Satellite Remote Sensing Act

- **Promotion of the use of remote sensing data**
- Promotion of private sector's activities and creation of new business and services
- **Protecting security interests**

Discussion about Space Activities Act

Role of JAXA in regulation framework

- **JAXA as national space agency under regulation of government (MEXT)**
 - JAXA's activities should be covered by Space Activities Act?
 - If yes, how to deal with risks of research and development?
- **JAXA as promoter of space industry**
 - Expected conflict of interest between promotion and regulation of industry
- **JAXA as an organization with expertise which can support regulation activities by government**
 - Needs for human resources and budget for its operations (safety reviews, etc.)

Request form private sector

- Not to increase too much burden for private sectors activities
- To minimize complexity of procedures
- To maintain the freedom of space business
 - Freedom of outsource and acceptance (launch service, satellite operation, etc.)
 - Freedom of purchasing and selling on-orbit satellite
- Not to inhibit new entry to space business
- To ensure the compensation by government for responsibility not to be covered by insurance

What is the appropriate balance between regulation and industrial promotion?

Comparison between Nuclear/ Space and Discussion

Comparison

- Different types of dual system
<Nuclear> STA/JAEA (PNC) ⇔ MITI/Utilities
cf. Regulatory function of STA/ JAEA
<Space> ISAS/ MOE ⇔ NASDA/ STA
- Different types of phasing out of dual system
<Nuclear> Increasing importance of METI/Utilities and independent regulatory body
<Space> Involvement of METI and cabinet office- security concern and privatization - small satellites, etc.
- Different status of users in technology governance
<Nuclear>Utilities
<Space>New emphasis on user involvement
cf. Historical cases of 1970's
- Risk management component
<Nuclear> Important component since the beginning
cf. Increasing importance after "accidents"
<Space> Becoming important at Space Activities Act
cf. Issues of who will be regulators

Discussion

- Cost and benefit of Public R&D

Technological capital?

Industrial impact?

Security/ diplomatic benefits?

- Future prospect of human resource development

Potential Market

Nuclear: Secured for decades (waste,
decommissioning)

Space: New fields for ventures (small/ nano-satellite.,etc.)?

Different popularity for students at universities

- Possible collaboration between Japan and France on nuclear and space

AI

Searching for the Role of Public
under the Private Lead R&D and
Various Users Networks

Conference toward AI Network Society in Japan

1 Purpose

To examine the items below toward AI networking (*) based on the recommendation by the Conference on the Networking Among AIs

- To examine the draft which will be used for international discussions toward formulating the “AI R&D Guidelines”
- To assess impact and risks brought by AI networking to each societal sector
- To examine the matters related to social, economic, ethical, and legal issues toward promoting AI networking in the entire society

(*) Definition of “AI networking”

- **Construction of Networked AI Systems** (meaning a systems including one or more AI system(s) as its component(s) which is connected to information and communication network(s) such as the Internet)
- **Advancement of Networked AI Systems** (example: The coordination among plural AI Systems via one of more information and communication network(s) such as the Internet)

2 Study framework

[Chairperson] Osamu SUDOH (Professor of the University of Tokyo Interfaculty Initiative in Information Studies, Director for the University of Higher Education) Tokyo Center for Research and Development of

[Members] Experts in industries, academia and private sectors (such as persons who chair/chaired related academic communities, and persons in charge of chairpersons, presidents or other key positions in related companies) in total of 71 members (As of March 1, 2017)

[Observers] Related administrative agencies such as the Cabinet Office, related national R&D centers and the Council on Competitiveness-Nippon

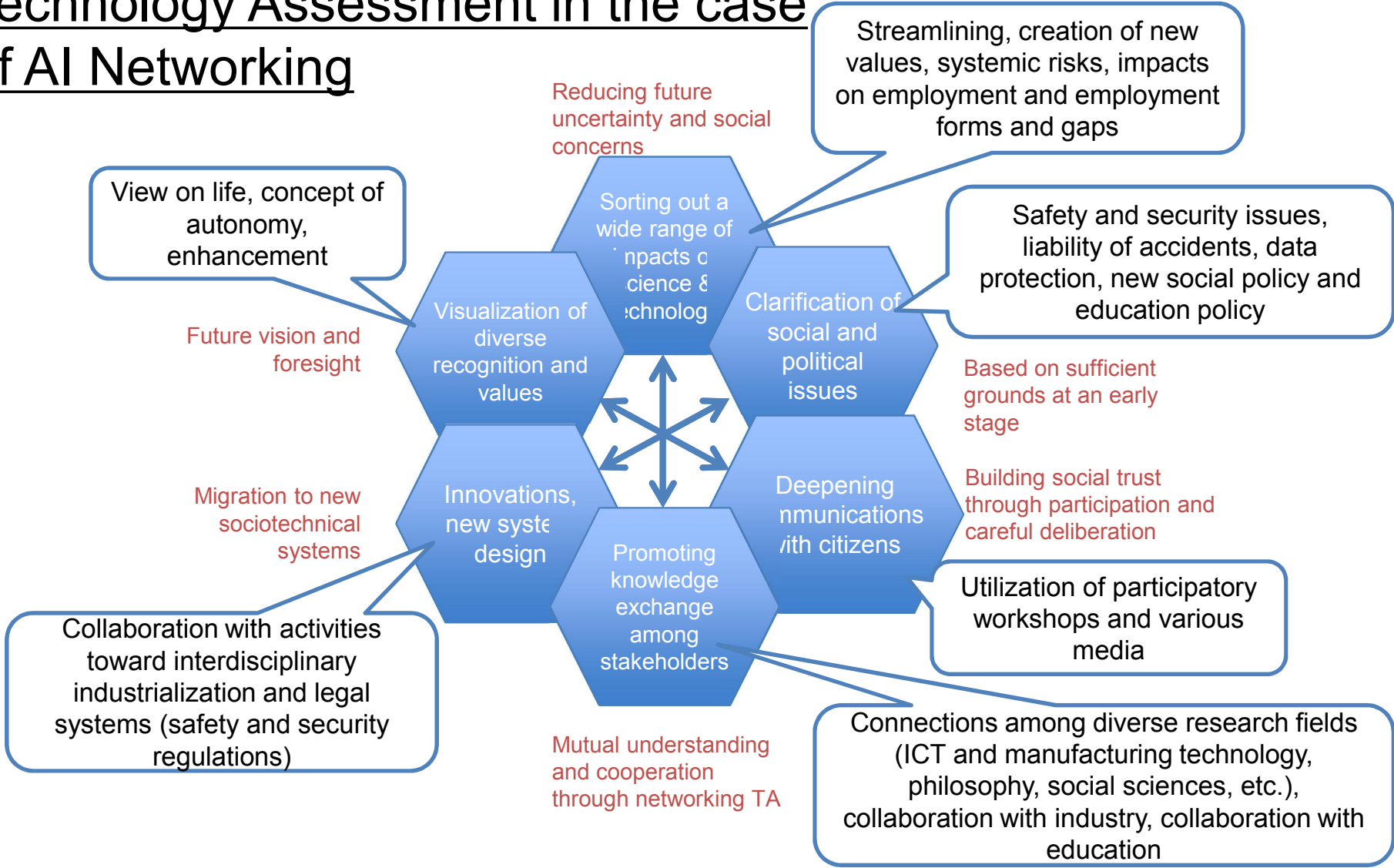
3 Schedule

October 31, 2016	First meeting
March 13 and 14, 2017	“International Forum toward AI Network Society”
Summer 2017	Issue of Report 2017

Contact (secretariat):

Policy Research Department, Institute for Information and Communications Policy, Ministry of Internal Affairs and Communications
Phone: 03-5253-5496
E-mail: ai.network/atmark/soumu.go.jp
(To prevent junk mails, the mark “@” is replaced with “/atmark”)

Technology Assessment in the case of AI Networking



Nature of Assessment

- **Original report focusing on risks**

“Wisdom Network Society (WINS) Produced by the Networking among AIs: Interim Report” (Conference on Networking among AIs in 2016): **risks concerning functions** (security, information and communications network system, opacification and control loss) and **risks concerning legal system, rights** (accidents, crimes, rights and interests of consumers, etc., privacy and personal information, human dignity, democracy and governance mechanisms)

- **Current focus on impacts & risks**

Impacts include various benefits

cf. Existence of items which have both positive and negative implications such as job cut (streamlining)

Nature of Assessment

- **Comparison: How to cut out - Importance of framing for assessment**
 - Scope of technical system and impacts - **AI networking on risks/ impacts**
 - cf. European Parliamentary EPTA: The Future of Labour in the Digital Era
 - UK POST: Automation and the Workforce
 - US OSTP: Future of AI
 - cf. Transparency and accountability, education of ethics, security and military implications
 - Characteristics because of "MIC" - since it is considered that impacts and risks of AI Networking can differ in scale in stages of "Before AI System Collaboration" and "After AI System Collaboration," assessment is made for 2 stages.
 - **Feedback to policy - "appropriate distance" - a certain degree of freedom beyond jurisdiction** in case of Conference toward AI Network Society
- Concrete feedback- OECD development guidelines, and where else?