Science and Technology Policy in Japan

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Science and Technology Policy Bureau,
Ministry of Education, Culture, Sports, Science and Technology (MEXT)

Nov. 1, 2011
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1. Outline of Japan’s S&T Activities

2. Overview of S&T Activities of MEXT and Related Institutions


4. Activities of MEXT for S&T Diplomacy
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4. Activities of MEXT for S&T Diplomacy
## International Comparison of S&T Index

<table>
<thead>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GDP (trillion JPY)</strong></td>
<td>474</td>
<td>1,894</td>
<td>376</td>
<td>295</td>
<td>204</td>
<td>466</td>
<td>1,452</td>
</tr>
<tr>
<td><strong>Population (million people)</strong></td>
<td>127.5</td>
<td>497.7</td>
<td>82.3</td>
<td>62.0</td>
<td>61.6</td>
<td>1,345</td>
<td>311.7</td>
</tr>
<tr>
<td><strong>R&amp;D Expenditures (trillion JPY)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>total</td>
<td>17.2</td>
<td>35.9</td>
<td>10.1</td>
<td>6.2</td>
<td>3.8</td>
<td>7.9</td>
<td>41.2</td>
</tr>
<tr>
<td>Ratio (/GDP)</td>
<td>3.64%</td>
<td>1.89%</td>
<td>2.68%</td>
<td>2.11%</td>
<td>1.85%</td>
<td>1.70%</td>
<td>2.79%</td>
</tr>
<tr>
<td>public sector</td>
<td>3.5</td>
<td>12.4</td>
<td>2.9</td>
<td>2.4</td>
<td>1.2</td>
<td>1.9</td>
<td>11.1</td>
</tr>
<tr>
<td>Ratio (/GDP)</td>
<td>0.74%</td>
<td>0.65%</td>
<td>0.76%</td>
<td>0.82%</td>
<td>0.60%</td>
<td>0.40%</td>
<td>0.75%</td>
</tr>
<tr>
<td>private sector</td>
<td>13.7</td>
<td>20.4</td>
<td>6.8</td>
<td>3.3</td>
<td>1.9</td>
<td>5.7</td>
<td>30.0</td>
</tr>
<tr>
<td>Ratio (/GDP)</td>
<td>2.89%</td>
<td>1.08%</td>
<td>1.81%</td>
<td>1.12%</td>
<td>0.93%</td>
<td>1.22%</td>
<td>2.07%</td>
</tr>
<tr>
<td>Number of Researchers (thousand people)</td>
<td>656</td>
<td>1,516</td>
<td>302</td>
<td>229</td>
<td>256</td>
<td>1,592</td>
<td>1,413 ('07)</td>
</tr>
</tbody>
</table>

(surveyed by MEXT)
Outline of Japan’s Science and Technology Activities

Administrative Structure of S&T Policy

Prime Minister

Cabinet Office
Council for Science and Technology Policy (CSTP)
S&T Basic Plan, Resource Allocation Policy …..

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

Universities

- National: 86 univ.
- Local: 95 univ.
- Private: 597 univ.
- Total: 778 univ.

- Independent Administrative Institutions: 9 inst.
- Inter-University Research Institute Corporation: 4 corporations (15 inst.)

(※FY2010 preliminary figures of School Basic Survey)
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S&T-Related Budget in FY2011

Ministry of Education, Culture, Sports, Science and Technology (MEXT) 67.1%
Ministry of Economy, Trade and Industry (METI) 16.1%
Ministry of Health, Labor and Welfare (MHLW) 4.1%
Ministry of Agriculture, Forestry and Fisheries (MAFF) 3.1%
Ministry of Defense (MOD) 2.7%
Others 6.9%

<table>
<thead>
<tr>
<th>Ministry</th>
<th>FY2011 S&amp;T-Related Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(billion JPY)</td>
</tr>
<tr>
<td>MEXT</td>
<td>2,449</td>
</tr>
<tr>
<td>METI</td>
<td>586</td>
</tr>
<tr>
<td>MHLW</td>
<td>150</td>
</tr>
<tr>
<td>MAFF</td>
<td>114</td>
</tr>
<tr>
<td>MOD</td>
<td>97</td>
</tr>
<tr>
<td>Others</td>
<td>252</td>
</tr>
<tr>
<td>Total</td>
<td>3,649</td>
</tr>
</tbody>
</table>

NOTE The exchange rate: 1 USD = 80 JPY
Independent Administrative Institutions under MEXT

- RIKEN - The Institute of Physical and Chemical Research
- NIMS - National Institute for Materials Science
- NIRS - National Institute of Radiological Science
- JAMSTEC - Japan Agency for Marine-Earth Science and Technology
- JAEA - Japan Atomic Energy Agency
- JAXA - Japan Aerospace Exploration Agency
- NIED - National Research Institute for Earth Science and Disaster Prevention
- JST - Japan Science and Technology Agency
- JSPS - Japan Society for the Promotion of Science

Please find other institutions at http://www.mext.go.jp/b_menu/link/ken.htm
The Japanese Main Research Funding Agencies and Virtual Institution for Promoting Basic Science, JSPS and JST

- **MEXT**
- **JST**

**Direction**

- Setting the clear goals based on the national strategic goals
  - Prioritization and Concentration

**Virtual research institutes**

- Implementation of policy & mission-oriented R&D by researchers from industry, academia and governmental institutes under the management of JST’s program directors

- Public research institutes
- Private research institutes

- **JSPS**
  - Supports research based on researchers’ free ideas
  - Conducts fair, highly transparent reviews

- **Creating common intellectual assets**

- Support for curiosity-driven research through peer-review screening

- **Various fields covered from humanities and social sciences to natural sciences**

- Universities
  - Cultivating seedbeds of academic diversity

- **Achieving strategic goals**
- **Creating advanced technology as a source of innovation**

- **Supporting universities**
- **Supporting researchers**
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4. Activities of MEXT for S&T Diplomacy
1. Overall Picture of the Science and Technology Budget of the Ministry of Education, Culture, Sports, Science and Technology (MEXT)

**FY2012 Budget Request by MEXT**

970.2 billion yen, 98.1 billion yen down from the previous year

**233.1 billion yen**

for recovery/reconstruction from the Great East Japan Earthquake

**159.6 billion yen**

for priority measures for Japanese recovery

* The figure on the upper line includes 159.6 billion yen for the priority measures. The parenthesis on the lower line also includes 233.1 billion yen for expenses for recovery/reconstruction.

*Requested amount: 1,129.8 billion yen (1,362.9 billion yen)*

**<Key points in the budget request>**

- In consideration of the Great East Japan Earthquake:
  - Enhancement of environmental monitoring for recovery from the nuclear disaster
  - Enhancement of R & D activities for reconstruction of the affected areas and responses to natural disasters, like earthquakes and tsunamis

- Bold challenge to the frontiers of aerospace and ocean

- Innovation in the two major fields of “green” and “life,” promotion of basic research, development of leading figures in science and technology, system reform to create innovations, and improvement of research infrastructures

**Expenses for recovery/reconstruction**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear power plants</td>
<td>20.9 billion yen</td>
</tr>
<tr>
<td>Regional recovery by using academic resources</td>
<td>166.3 billion yen</td>
</tr>
<tr>
<td>Earthquakes/tsunamis</td>
<td>45.4 billion yen</td>
</tr>
</tbody>
</table>

**Priority measures for Japanese recovery**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Japan’s original” life innovation toward a society with healthy minds and bodies</td>
<td>12.4 billion yen</td>
</tr>
<tr>
<td>Science and technology platforms to support economic growth</td>
<td>75.4 billion yen</td>
</tr>
<tr>
<td>Green innovation that supports people’s life and leads the world</td>
<td>11.1 billion yen</td>
</tr>
<tr>
<td>Challenge to the ocean frontier</td>
<td>8.8 billion yen</td>
</tr>
<tr>
<td>Space development based on Japan’s strengths and specialties</td>
<td>32.4 billion yen</td>
</tr>
<tr>
<td>Science and technology to realize a safe and secure society</td>
<td>4.6 billion yen</td>
</tr>
<tr>
<td>Development of active international citizens (young researchers working on the global stage)</td>
<td>9.9 billion yen</td>
</tr>
</tbody>
</table>

* The figure on the upper line includes 159.6 billion yen for priority measures. The parenthesis on the lower line also includes 233.1 billion yen for expenses for recovery/reconstruction.
2. Expenses for Recovery & Reconstruction from the Great East Japan Earthquake
(Science and Technology)

Requested amount: 233.1 billion yen
Note: 69.2 billion yen to be added as expenses for rehabilitation and earthquake-proof construction of national universities

[Nuclear power plants]
- Enhancement of environmental monitoring
  3.2 billion yen
- Technical support to secure the safety of nuclear facilities and decontamination (JAEA/NIMS)
  8.4 billion yen

[Regional recovery by use of academic resources]
- Science- and technology-driven recovery through R&D base formation
  151.4 billion yen

[Earthquakes/tsunamis]
- Improvement of the Japan Trench marine earthquake and tsunami observation network
  18.8 billion yen
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Activities of MEXT for S&T Diplomacy

(1) Strengthening S&T cooperation with developing countries to solve global issues

a. Science and Technology Research Partnership for Sustainable Development (SATREPS)

- Fields: Environment and Energy, Bioresources, Natural Disaster Prevention, Infectious Disease Control
- Term: 3–5 years

b. Dispatch of Science and Technology Researches

- Fields: All of S&T Fields
- Term: Within 2 years
(2) Strengthening S&T cooperation by using Japan’s advanced S&T

Policy based, top-down type research exchanges and joint research

Strategic International Cooperative Program (SICP)
Term: 3 years
Example of Partner Countries/Field of Cooperation

<table>
<thead>
<tr>
<th></th>
<th>since</th>
<th>Field of Cooperation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>2005</td>
<td>‘Multidisciplinary BIO’</td>
</tr>
<tr>
<td>India</td>
<td>2007</td>
<td>‘Multidisciplinary ICT’</td>
</tr>
<tr>
<td>Finland</td>
<td>2009</td>
<td>‘Functional Materials’</td>
</tr>
<tr>
<td>Australia</td>
<td>2009</td>
<td>‘Marine Science’</td>
</tr>
<tr>
<td>Israel</td>
<td>2009</td>
<td>‘Life Science’</td>
</tr>
</tbody>
</table>

Strategic International Collaborative Research Program (SICORP)
Term: 3–5 years
Example of Partner Countries/Field of Cooperation

<table>
<thead>
<tr>
<th></th>
<th>since</th>
<th>Field of Cooperation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>2009</td>
<td>‘Nanoelectronics’</td>
</tr>
<tr>
<td>France</td>
<td>2010</td>
<td>‘ICT including Computer Science’</td>
</tr>
<tr>
<td>EU</td>
<td>2011</td>
<td>‘Superconductivity’</td>
</tr>
<tr>
<td>USA</td>
<td>2011</td>
<td>‘Metabolomics for a Low Carbon Society’</td>
</tr>
</tbody>
</table>
### 1. Purposes and Aims
Japan accepts outstanding international human resources as Japanese Government Scholarship Student, and aim at globalisation, promotion of mutual understanding and formation of human network with foreign countries, strengthening education and research in Japanese universities, and intellectual contribution to the global society.

### 2. Eligibility

#### [Postgraduate Level]
- **Research students**: a college graduate (includes prospective graduates)

#### [Undergraduate Level]
- **Undergraduate University Students**: a high-school graduate
- **Japanese studies students**: a student in a faculty or school which major in Japanese language or culture in a foreign university (undergraduate)
- **College of technology students**: a high-school graduate
- **Special training college students**: a high-school graduate

### 3. Organization
The Ministry of Education, Culture, Sports, Science and Technology - Japan (MEXT)

#### Application and Selection
- **Embassy recommendation**: Scholarship recipients are recruited and initially screened by an Japanese embassy (or consulate general). (all types of students)
- **University recommendation**: Japanese universities recommend the selected students who will be studying in Japan as an exchange student based on inter-university student exchange agreements. (only research students and Japanese studies students)
- **Domestic selection**: Privately financed, full-time postgraduate foreign students, prospective postgraduate students, and full-time prospective fourth-year undergraduate university students (prospective sixth-year students in the case of medical schools etc) are granted domestic selection scholarships. Japanese universities carefully screen and recommend academically and individually excellent students.
- **Others**: MEXT decides scholarship students in a committee of people of learning and experience.

### 4. Amount of Scholarship
- **Doctoral course students**: ¥153,000/month
- **Master course students**: ¥152,000/month
- **Research students**: ¥150,000/month
- **Undergraduate students**: ¥123,000/month
In addition, tuition and travel allowance (roundtrip fair (air ticket)) are provided.
### 1. Purposes and Aims

Japan offers scholarship to privately financed international students studying in a Japanese university, junior college, and other kinds of higher educational institution who are excellent in their studies and characters and have difficulties in studying because of economical reasons, so that they can study effectively.

### 2. Eligibility

**[Postgraduate Level]**
- Full-time student in a Japanese university (postgraduate)
- Research student in a Japanese university who has already graduated from university (undergraduate) and is doing research activities of postgraduate level

**[Undergraduate level]**
- Full-time student in a university (undergraduate), junior college, college of technology (4th grade or upper), or professional training college (advanced course)
- Preparatory Japanese language program student
- University preparatory course (designated by MEXT) student
- Japanese language institutes student

### 3. Organization

**Application and Selection**

Japan Student Services Organization (JASSO)

- The committee in JASSO screens the applicants and decides scholarship students.
- Applicants who has taken the Examination for Japanese University Education (EJU) and gotten an excellent score are awarded as reserved scholarship student. The president of JASSO decides to offer the honors scholarship to them when they enter Japanese universities etc.

### 4. Amount of Scholarship

- **Postgraduate level:** ¥65,000/month
- **Undergraduate level:** ¥48,000/month
## Scholarship for International Students (3):
### Student Exchange Support Program (Scholarships for Short-term Study in Japan)

<table>
<thead>
<tr>
<th>1. Purposes and Aims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan offers for international students who are accepted by a Japanese university, junior college, or college of technology under a student exchange agreement between Japanese host university and their home higher educational institution abroad, in order to promote student exchange with foreign universities and mutual understanding and friendship with foreign countries.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students who belong to foreign universities and <strong>study in Japan for a short time (for 3-12 months) under a student exchange agreement</strong> between the Japanese host university and their home higher educational institution abroad.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application and Selection</strong></td>
</tr>
<tr>
<td>Japan Student Services Organization (JASSO)</td>
</tr>
<tr>
<td>Japanese universities submit their yearly student exchange plans to JASSO. According to the yearly plan, JASSO will allocate the quota of scholarships to each Japanese universities. Within this quota, Japanese universities will recommend their exchange students to JASSO. JASSO will make the final decision after a screening of all documents submitted by the Japanese universities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Amount of Scholarship</th>
</tr>
</thead>
<tbody>
<tr>
<td>¥80,000/month</td>
</tr>
</tbody>
</table>

1. Purposes and Aims

Japan offers for international students who are accepted by a Japanese university, junior college, or college of technology under a student exchange agreement between Japanese host university and their home higher educational institution abroad, in order to promote student exchange with foreign universities and mutual understanding and friendship with foreign countries.

2. Eligibility

The acceptance program for this scholarship must be conducted under each Japanese Universities’ control and responsibility. A student selection process and education system must be established for conducting a short-term stay program and/or a short-term visit program.

3. Organization

<table>
<thead>
<tr>
<th>Application and Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>JASSO reviews the applications submitted by Japanese Universities, and decides the number of students and supports the adopted program.</td>
</tr>
<tr>
<td>All applications must be processed through Japanese Universities. Direct applications from overseas universities or students will not be accepted.</td>
</tr>
<tr>
<td>Application deadlines for students will differ at each university. The applicant must contact the university to confirm the application schedule and the necessary documents.</td>
</tr>
<tr>
<td>Scholarships are paid to students by prescribed method through Japanese Universities.</td>
</tr>
</tbody>
</table>

4. Amount of Scholarship

¥80,000/month
### Current Situation of International Students

As of May 20, 2011, 86.5% of international students in the Tohoku region were confirmed as able to remain near the campus (commuting distance), while 96.0% of international students nationwide were confirmed. As of July 1, 2011, the percentage of international students confirmed improved to 93.8% in the Tohoku region.

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of international students at national/public/private universities nationwide (135 schools)</th>
<th>Number of international students confirmed as able to remain near the campus (commuting distance)</th>
<th>Percentage of students confirmed (c = b/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hokkaido</td>
<td>2,242</td>
<td>2,227</td>
<td>99.3%</td>
</tr>
<tr>
<td>Tohoku</td>
<td>2,939</td>
<td>2,542</td>
<td>86.5%</td>
</tr>
<tr>
<td>Kanto</td>
<td>9,658</td>
<td>9,186</td>
<td>95.1%</td>
</tr>
<tr>
<td>Chubu</td>
<td>3,781</td>
<td>3,678</td>
<td>97.3%</td>
</tr>
<tr>
<td>Kinki</td>
<td>6,692</td>
<td>6,488</td>
<td>97.0%</td>
</tr>
<tr>
<td>Chugoku</td>
<td>3,166</td>
<td>3,093</td>
<td>97.7%</td>
</tr>
<tr>
<td>Shikoku</td>
<td>1,101</td>
<td>1,054</td>
<td>95.7%</td>
</tr>
<tr>
<td>Kyushu</td>
<td>4,288</td>
<td>4,256</td>
<td>99.3%</td>
</tr>
</tbody>
</table>

**As of July 1, 2011**

<table>
<thead>
<tr>
<th>Number of international students at national/public/private universities in the Tohoku region (135 schools)</th>
<th>Number of international students confirmed as able to remain near the campus (commuting distance)</th>
<th>Percentage of students confirmed (c = b/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,942</td>
<td>2,759</td>
<td>93.8%</td>
</tr>
</tbody>
</table>
(1) Research in Japan implemented by JSPS fellowship programs

Career Stages of Researchers

- Ph.D. Courses
- 6 years after Ph.D.
- Mid career
- Professor

Award for Eminent Scientists

Postdoctoral Fellowships
(Standard)

1 - 2 years
About 420

Invitation fellowships
For Research in Japan

(Long-Term)
2 - 10 months
About 80

(Short-Term)
14-60 days
About 280

Summer Program

Postdoctoral Fellowships
(Short-term)

2 months
About 110

1 – 12 months
About 150

For Networking with/among Former JSPS Fellows...

JSPS Fellow Alumni Associations

- BRIDGE Fellowship Program for revisiting Japan
- Seminars and symposia
- Information on website or by newsletters
- Pre-departure seminar for new fellows

Activities of MEXT for S&T Diplomacy
Support for Dispatch of Young Researchers

- Decreasing in the number of researchers who are full time positions
- Assignment of roles in a organization
- Required the result of research in a short time

To foster excellent researchers through accelerating brain circulation

Organizational Support
Japanese Universities and Research Institutions → Overseas Universities and Research Institutions

Individual Support
Young Researcher → Overseas University and Research Institution

Dispatch of Young Researchers
Abstract
Strengthen R&D capacity within Asian countries by accelerating intercommunication of the people, goods, money and wisdom in the field of Science and Technology in order to solve common issues in Asian region.

Prospective R&D areas
Genetic Resources Innovation, Measures against Infectious Disease, Heavy Charged Particle Therapy for Cancer Treatment, Space, Environment and Energy, Atomic Energy, New City system, Nanotechnology Area, ICT, etc.

Action
Consider formation of Asia researcher community by such as building a joint fund program.
Promotion of “The e-ASIA Joint Research Program”

Objectives

Solve common issues to realize innovative and robust economy and society in the region through international joint research and capacity building under the “East Asia Science & Innovation Area Initiative”

Program Overview

< Joint Research by Matching Fund>
Participating Organizations in particular projects provide the same amount of financial support from their respective countries.

< Research Fields >
Common issues within the region.
(The fields related to Renewable Energy, Materials Science, Plant (Crop) Science and Infectious Diseases are desirable)

< Operation >
Joint operation.
(call for proposals, review, management, evaluation)
Reference
The five technologies below have been selected as Strategically selected S&T which are to be advanced with clear national goals and long-term strategies so as to strengthen Japan’s fundamental technology base.

- **Space Transportation Systems**
- **Fast-Breeder Reactor Cycle Technology**
- **Next-Generation Supercomputer**
- **Earth Observation and Ocean Exploration System**
- **X-Ray Free Electron Laser (SACLA)**
3. Overview of Major Items in the Budget Request for FY 2012 (Science & Technology) (1)

1. Recovery from nuclear disasters
   ★ Acceleration of recovery from the damage caused by the disaster of Tokyo Electric Power's Fukushima No. 1 Nuclear Power Plant
   ○ Enhancement of environmental monitoring in Fukushima and all other prefectures 8.7 billion yen (new)
   ○ Promotion of radiation exposure protection for children 1.5 billion yen (new)
   ○ Enhancement of R&D and human development for recovery from nuclear disasters 12.4 billion yen (new)
   ○ Facilitation of smooth compensation for nuclear damage 1.9 billion yen (new)

2. Frontier development for mankind and enhancement of national security and critical technologies
   ★ Promotion of project-based researches focusing on aerospace, nuclear power, the Antarctic region, oceans, and earthquakes
   (1) Aerospace 205.2 billion yen (173.5 billion yen)
   (2) Oceans/Antarctic 45.4 billion yen (40.7 billion yen)
   (3) Earthquakes/tsunamis 13.4 billion yen (12 billion yen)
   (4) Nuclear power 175.7 billion yen (194.8 billion yen)

3. Promotion of green innovation
   ★ Dealing with climate change as a global issue and promoting R&D to solve our energy problems
   ○ R&D project for next-generation energy for recovery of the Tohoku area * 70.6 billion yen (new)
   ○ Implementation of the ITER plan 29.3 billion yen (11.4 billion yen)
   ○ New element strategy project 3 billion yen (new)

4. Promotion of life innovation
   ★ Focusing on the activities to create life innovation to overcome incurable diseases and realizing a society with healthy bodies and minds through effective use of our leading research areas and unique methodologies
   ○ Project to achieve regenerative medicines 5.3 billion yen (3.8 billion yen)
   ○ Project to promote the next-generation cancer research strategy 4.5 billion yen (3.6 billion yen)
   ○ Program to bridge research acceleration networks 3.7 billion yen (3 billion yen)
   ○ Tohoku medical mega-bank plan * 49.3 billion yen (new)
5. System reform to promote science & technology innovation

★ Rebuilding regional economies and the whole of Japan with science & technology as driving forces, by establishing a new Japanese system with the cooperation of industry, government, academia, and the financial sector

○ Establishment of a Japanese model for Japanese recovery through science and technology innovation (new “Bridge over Tomorrow”) 21.9 billion yen (19.3 billion yen)

○ Program to support regional innovation strategies 10.9 billion yen (11.1 billion yen)

○ Project to create science and technology innovation in the Tohoku area with the cooperation of industry, academia and government (tentative title) 6.4 billion yen (new) (Partly duplicated)

6. Promotion of basic research

★ Continuing the promotion of original and diverse researches and enhancing efforts to transform research seeds into solutions, as well as to promoting the formation of bases to produce researchers working on the global stage

○ Government-subsidized projects for science and technology (scientific research funds) * 256.8 billion yen

○ Projects to promote strategic creative researches (creation of new technological seeds) 53.2 billion yen (51 billion yen)

○ World Premier International Research Center Initiative (WPI) 10.1 billion yen (8.1 billion yen)

7. Development of human resources playing leading roles in future science and technology

★ Systematic development of human resources, mainly by enhancing support for young researchers

(1) Enhancement of support for young researchers and promotion of active performance of female researchers 34.4 billion yen (30.7 billion yen)

(2) Development of human resources leading the next generation 6 billion yen (5.6 billion yen)

(3) Strategic improvement of university facilities to develop excellent human resources and create innovations 55 billion yen (43.7 billion yen) (with another 69.2 billion yen for recovery/reconstruction of academic facilities)
8. Strategic development of global activities in unison with the world

★ Strategic promotion of global science activities by enhancing global human and research networks in the science and technology fields

- Strategic overseas assignment of young researchers to accelerate brain circulation: 2.5 billion yen (1.8 billion yen)
- Overseas fellowship program: 2.5 billion yen (1.9 billion yen)
- Non-Japanese fellowship program: 3.8 billion yen (3.8 billion yen)
- Program to promote global joint researches in science and technology: 3.6 billion yen (2.9 billion yen)

9. Improvement and enhancement of world-level research environments and infrastructures

★ Improving and sharing world-level advanced research bases and promoting improvement of research infrastructures and networking for advanced researches

- Improvement and sharing of the most advanced large-scale particle beam facility: 37.3 billion yen (29.8 billion yen)
- Establishment of an innovative high performance computing infrastructure (HPCI): 21.7 billion yen (21.1 billion yen)
- Establishment of a nanotechnology platform: 3.6 billion yen (1.3 billion yen)
- Development of advanced measurement and analytical technologies and instruments: 7.5 billion yen (4.2 billion yen)

10. Science and technology innovation policies to be developed and implemented with society

★ Implementation of actions to gain understanding, trust, and support from the general public by promoting communication activities in relevant fields

- Promotion of “science for policies” in the science and technology innovation policy: 1.2 billion yen (0.8 billion yen)
- Program to promote strategic creative researches (sociotechnical R&D): 2.2 billion yen (1.5 billion yen)
- Promotion of various communication activities in science and technology: 1 billion yen (1 billion yen)
- Expenses for science and technology strategy promotion: 7.2 billion yen (8 billion yen)
The ITER Project & the Broader Approach Activities

To realize the fusion energy:

- **ITER**: a joint international research and development project;
  - to demonstrate the scientific and technical feasibility of fusion power,
  - through the construction and operation of fusion experimental reactor.

- **BA**: a joint JA-EU advanced research and development project;
  - toward the future demonstration power reactor (DEMO),
  - complementing the ITER Project

**The ITER Project**

- Parties: JA, EU, US, RF, CN, KO, IN
- Site: Cadarache, France
- Fusion power: 500MW
  - (No electric generation is required.)
- Director-General: Mr. O. MOTOJIMA
- JA’s contribution:
  - Construction: 9.1%
  - Operation: 13%
- Schedule: Total of 35 years

**The BA Activities**

- Parties: JA, EU
- Site: Rokkasho and Naka, Japan
- Plan: 10 years
- Projects
  - IFERC (International Nuclear Fusion Energy Research Centre)
  - IFMIF/EVEDA (Engineering Validation and Engineering Design Activities for International Fusion Materials Irradiation Facility)
  - Satellite Tokamak Programme
1. Outline
The ISS is the international program for the peaceful purposes in which 15 countries (U.S., Russia, 11 European countries, Canada and Japan) are participating.

2. The role of Japan
- Development/operation of Japanese experiment module “Kibo” and unmanned cargo spacecraft “HTV”.
- “HTV1”(Sep.11 2009) and “HTV2”(Jan.22 2011) were launched to the ISS by H-IIB rocket, and completed its logistic mission.

3. Japanese (JAXA’s) Astronauts’ flight schedule
- Spring 2011: Satoshi Furukawa will be launched as a expedition crew for six months stay (until Nov.22 2011)
- Early Summer 2012: Akihiko Hoshide will be launched as a expedition crew for six months stay.
- Early Winter 2013: Koichi Wakata will be launched for six months stay. He is the first person in Japan to be assigned as a commander.

4. Continuation of the ISS operation beyond 2016
- In Feb. 2010, the U.S. Government announced the continuation of the ISS operation until at least 2020.
- In Aug. 2010, Government of Japan decided the continuation of the ISS operation beyond 2016, development of advanced HTV, and so on.
Activities of MEXT for S&T Diplomacy

The Integrated Ocean Drilling Program (IODP)

1. Outline
   The IODP, an international drilling research program supported by 24 countries, advances scientific understanding on the Earth such as global environmental changes, geohazards, deep-earth biosphere and etc.

2. The role of Japan
   - Japan is leading the IODP through providing the deep sea drilling vessel "CHIKYU" as the main platform together with "Joides Resolution" (U.S.) and Mission Specific Platform (Europe).
   - The "Chikyu" has conducted the Nankai Trough Seismogenic Zone Experiment (Nantro-SEIZE) since 2007 in order to find out mechanism of trench-type earthquake by sampling cores and monitoring boreholes.

3. CHIKYU expedition schedule in FY2012
   - Rapid Response Drilling (Apr ~ May)
     Objective: to understand mechanism that caused the Great East Japan Earthquake and Huge Tsunami.
   - Deep Coalbed Biosphere off Shimokita (Jun ~ Jul)
     Objective: to understand marine hydrocarbon systems including methane hydrates and to assess the possibility of CO2 sequestration into the deep subseafloor.
   - Deep Riser Drilling in Nantro-SEIZE (Aug ~ Dec)

4. Future plan of IODP
   - The new framework for ocean drilling research collaboration begins from mid 2013.
   - The "Chikyu" aims to drill through the Mantle where no one has ever explored before. [Nankai Trough Seismogenic Zone Experiment]
“Integrated Support Center for Nuclear Non-Proliferation and Nuclear Security” (ISCN)

At the Nuclear Security Summit on April 12th and 13th 2010, Japanese Prime Minister committed that Japan will establish the Integrated Support Center for Strengthening of Nuclear Non-Proliferation and Nuclear Security in Asia.

The Center conduct the technologies related to Measurement and Detection of Nuclear Material, Nuclear Forensics and other two efforts in order to contribute to strengthening of Nuclear Security, especially, Human resource Development and promotion of Cooperation on Technology Development.

Main Activities

1. Capacity building assistance through human resources development including training and education
2. Assistance for infrastructure development
3. Developing technologies and providing support

Seminar in Kazakhstan, Mongol

Training Course on the Physical Protection and SSAC in 2011

“Regional Training Course on the Physical Protection of Nuclear Material and Nuclear Facilities (RTC)” in collaboration with U.S. DOE, NNSA and SNL.

“Training Course on the State Systems of Accounting for and Control of Nuclear Material” in cooperation with IAEA.

Technology Development on Nuclear Forensics

Technology Development Programs of Measurement and Detection of Nuclear Material

- Dissolution
- Chemical separation
- Isotope ratio analysis
- TIMS
- ICP-MS
- Energy-Recovery Linac (350 MeV)
- γ-ray generation
- γ-ray detectors
- spent fuel assembly
- γ-ray beam pipe

Ministry of Education, Culture, Sports, Science and Technology - Japan

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Thank you for your attention.