

# NATIONAL SCIENCE FOUNDATION TOKYO REGIONAL OFFICE

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Report Memorandum #06-02

## **Japan's Third S&T Basic Plan and its Priority Technologies**

*Following the First and Second S&T Basic Plans, the Japanese Government released its Third S&T Basic Plan on March 22, 2006, to cover S&T policies during JFY 2006-2010. The points are described below. The Plan's primary mission is to complete the items not finished in the first and second plans. The 71-paged full text and a PowerPoint presentation material can be obtained from: <http://www8.cao.go.jp/cstp/english/basic/index.html#third> The 62 priority technologies CSTP has selected to be promoted during the above period are also listed below. This summary was prepared by Ms. Kazuko Shinohara of the National Science Foundation Tokyo Regional Office. She can be reached at [kshinoha@nsf.gov](mailto:kshinoha@nsf.gov)*

### **Science and Technology Basic Plan JFY2006-2010 [POINTS]**

#### **Pillars:**

1. **Science and Technology to be supported by the Society and the People** and the result of which to be returned to the Society and the People

2. Priority on **Personnel Fostering and Competitive Environment**: From Hard to Soft and More Importance on Individuals than Organizations

### **I. Government Investment in R&D:**

The Government will invest **Yen 25 trillion (\$214 billion)** during the five years, which is one percent of GDP, on an assumption that the nominal GDP growth rate is 3.1 percent during the period.

### **II. Strategic Prioritization :**

Priority areas:

**Life Science, Information Technology, Environment, Nanotechnology/materials**

Promotion areas:

**Energy, Manufacturing Technologies, Social Infrastructure, Frontier**

Of the JFY2006 S&T-related budgets of Yen 3.6 trillion (\$31 billion), Yen 1.4 trillion (12 billion) will be used for operational funds at universities and competitive research funds, Yen 1.8 trillion (\$15 billion) for project-oriented R&D, and Yen 365 billion (\$3 billion) for reforming S&T systems. Further, 16 percent of the project-oriented R&D (Yen 287 billion (\$2.5 billion)) will be used for research in priority areas and promotion areas.

### **III. Reform of the Science and Technology System:**

#### **1. Personnel fostering, security, and activation**

More opportunities should be provided for young researchers, women researchers (with target of 25 percent of women researchers), excellent foreign researchers and senior researchers. Also important are strengthening competitive environment, fostering of researchers who can cope with societal needs, and children who will take over S&T in the next generation

#### **2. World-class S&T**

It is expected to establish 30 world-class centers, research centers in frontier and interdisciplinary areas, intelligence centers in local areas as well as to strengthen the activities at public research institutions in local areas. Also, it is necessary to establish database across ministries/agencies, and improve research facilities/equipment.

#### IV. S&T to be Supported by the People

The government's efforts to obtain people's support for S&T activities are essential. The accountability of the S&T activities needs to be made clear. Also, the government is required to establish measures to resolve ethical, legal, or social problems caused by S&T.

#### V. Role of CSTP (Council for S&T Policy)

CSTP is expected to take leadership across the ministries/agencies by making oversight, evaluation, and advice to S&T-related activities. It should establish "living strategies," promote international activities, and reform S&T systems, including establishing countermeasures for abuse of the government funds by researchers.

### 62 Priority Technologies CSTP has selected to be Promoted from JFY2006-2010

**Table 1**

Note: Technologies in red letters in Table 1 are included in the Government-led large-scale projects. Ministries in bold letters are those that invest the most in the technologies.

Priority Areas	Priority Technologies	Ministries/agencies
Life Science	Regeneration of Life programs	<b>MEXT, MHLW, METI, MAFF</b>
	Clinical research/research that can be mediate for clinical	
	Innovative cancer treatment	
	New/recurring infectious diseases	
	Production/supply of safe food that will enhance international competitiveness	
	Improvement of materials production and environment by use of bio functions	
	World-class base (including database) for life science	
Information Technology	<b>World-class next-generation</b>	<b>MIC, METI, MEXT</b>

	<p>supercomputer</p> <p>Next-generation personnel fostering in advanced IT</p> <p>Next-generation integrated circuit: Ultra-microscopic size, low electricity cost and design/manufacturing</p> <p>Display/storage/ultra-high speed device</p> <p>Robotics useful at home/town</p> <p>World-class software</p> <p>Next-generation network</p> <p>Ubiquitous network</p> <p>Contents creation and use of information</p> <p>Security for world-class safe and secure IT society</p>	
Environment	<p>Ocean and Earth Observation/probing System (Relationship between CO2 and global warming observed from satellites)</p> <p>Post Kyoto-Protocol prediction of climate change in the 21st century, using supercomputer</p> <p>Prediction of the risk brought by global warming and design of global warming-free society</p> <p>How to cope with new materials and management of risk evaluation of chemical substances</p> <p>Useful and harmful materials to cope with international distribution of waste materials</p> <p>Use of biomass to effectively obtain energy</p> <p>Healthy water-circulation</p> <p>Maintenance and regeneration of ecology</p>	MOE, MEXT, MAFF, METI, MLIT, MHLW

	<p>Outreach of chemical substance risks to the society</p> <p>Production/consumption system to meet 3R (reduce, reuse and recycle)</p> <p>Personnel fostering in environment research that interacts with human literature/social sciences</p>	
Nanotechnology/Materials	<p>Innovative materials and processing technologies</p> <p>Innovative materials technologies that reduce considerable costs for obtaining clean energy</p> <p>Innovative technologies for alternate materials for rare resources/in-shortage resources</p> <p>Innovative nanotechnology/materials that support people's health and safety/security</p> <p>Frontier electronics that break the limits of device's functions</p> <p>Nano-bio medical technologies to materialize super early-stage diagnosis and minimally invasive treatment of cardio vascular diseases</p> <p>Societal implications of nanotechnology</p> <p>Commercialization of nanotechnology at innovation creation centers</p> <p>Frontier measurement/processing technologies</p> <p>X-ray free electron laser</p>	<b>MEXT, METI, MHLW, MAFF, MOE</b>
Energy	<p>Save-energy urban system</p> <p>Housing/building with state-of-the-art technologies to materialize save-energy life</p>	<b>METI, MEXT, MLIT, MOE</b>

	<p>Frontier and advanced all-purpose devices to materialize save-energy society</p> <p>Innovative material manufacturing process technologies to materialize save-energy-type plants</p> <p>New-generation vehicle without oil</p> <p>GTL (gas to liquid) manufacturing that replaces oil</p> <p>Clean and efficient technologies to produce gas from coal</p> <p>Frontier fuel cell system and safe/innovative hydrogen storage/transportation</p> <p>Innovative highly-efficient and low-cost technology for making worldwide use of solar energy</p> <p>Highly-functional electric energy reserve technology that is free from restrictions for electric energy and its use</p> <p>Next-generation reactor that is safe, economical, and used world-wide</p> <p>Underground processing of High-level nuclear waste</p> <p>FBR (Fast Breeder Reactor) cycle technology</p> <p>ITER</p>	
Manufacturing Technologies	<p>Science-oriented Japanese-type manufacturing technologies</p> <p>Innovation for manufacturing process that can be Japan's flagship</p>	<b>METI, MEXT, MLIT</b>
Social Infrastructure	<p>Monitoring and control of land for disaster mitigation: Ocean and earth observation system (<b>disaster monitoring satellite</b>); highly-functional earthquake</p>	<b>MLIT, MEXT, MIC, PA, METI, MAFF, CS</b>

	observation technology	
	New technologies that support disaster-site activities, including saving life and mitigating disasters	
	Social investment and regeneration of urban cities that meet the society of smaller number of children and larger number of elderly people	
	New transportation system that meets new society	
Frontier	Reliable "transportation system in space" (H-IIA rocket and its derivatives)	MEXT, METI, MIC, MLIT
	Ocean & Earth Observation System (Next-generation Ocean Investigation System, including deep sea science)	
	Highly-reliable and highly-functional satellites (disaster, crisis, remote-sensing)	
	Ocean platform	

Note:

MEXT: Ministry of Education, Culture, Sports, Science and Technology

METI: Ministry of Economy, Trade and Industry

MIC: Ministry of Internal Affairs and Communications

MAFF: Ministry of Agriculture, Forests and Fisheries

MHLW: Ministry of Health, Labor and Welfare

MOE: Ministry of Environment

MLIT: Ministry of Land, Infrastructure and Transportation

CS: Cabinet Secretariat