

## S&T Articles from East Asia & Pacific

### NSF Tokyo Regional Office

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#### Japan

1. [Interview with the New MEXT Minister] In a press interview, Tsuneo Suzuki, the new MEXT (Ministry of Education, S&T) Minister expressed his view on S&T as follows: As to the government's implementing a five-year plan through 2010 to strengthen S&T R&D at a cost of Yen 25 trillion (~\$250 billion), he will push hard to secure the funding. The Government needs to work on nurturing and securing talent as well as promoting basic research to win global competition. As the environment is another area he has worked on as a lawmaker, he is interested in providing more opportunities for children to experience nature, and will start discussions on the possibility of introducing environmental studies in the school curriculum. (Summary of an article in Japan Times – 8/8/08)
2. [Double the Investment on iPS Research] To accelerate the research on iPS (induced Pluripotent Stem cell) that was produced for the first time in history by Prof. Shinya Yamanaka of

Kyoto University, MEXT (Ministry of Education, S&T), METI (Ministry of Economy, Trade and Industry), and MHLW (Ministry of Health, Labor, and Welfare) jointly will invest a total of Yen 8 billion (~\$80 million) in JFY2009, which doubles the investment made in JFY2008. Using the technology, MEXT will support research in elucidating the mechanism of Parkinson disease and exploring new drugs. METI will invest Yen 1 billion (~\$10 million) to support commercialization of the iPS technology. MHLW will provide support for clinical application of the technology. (Summary translation of an article in Nihon Keizai Newspaper – 8/25/08)

**3. [Stem Cells from Wisdom Teeth]** A team led by Dr. Hajime Ogushi of the AIST (National Institute of Advanced Industrial S&T) succeeded in creating stem cells of the type found in human embryos, using the removed wisdom teeth of a 10-year-old girl. This is significant in two ways: They can avoid the ethical issues of stem cells as wisdom teeth are destined to be thrown away anyway; and they used teeth that had been extracted three years ago and had been preserved in a freezer. That means that it is easy to stock this source of stem cells. As with last year's skin cell discovery, the Japanese researchers said it would take time to put extracted wisdom teeth to practical use. Dr. Ogushi estimates it would take at least five years to put the method into clinical use. (Summary of an article in Japan Times – 8/23/08)

**4. [\$10 Million for Sequencer]** MEXT (Ministry of Education, S&T) will request a budget of Yen 1 billion (~\$10 million) in JFY2009 to establish centers equipped with high-throughput DNA sequencers. It used to take more than 10 years to elucidate about 3 billion bases of human genome, but now it can be done in one day. The U.S., Europe, and China are actively introducing such high-throughput sequencers and MEXT thought that Japan would lag behind in BIO research, unless Japan has such facilities. The sequencing centers will be established at a number of research institutions, including RIKEN. (Summary translation of an article in Nihon Keizai Newspaper – 8/11/08)

**5. [Antenna Sensor of Rice Grain Size]** Professor Kaoru Shimoyama of the University of Tokyo and Panasonic (formally known as Matsushita Electric Company) have jointly developed an antenna sensor that is as small as a rice grain. It detects the pressure and friction just like human skin. When it is embedded in robot's hands, they can adjust themselves when grabbing fragile objects and touching human bodies. It is expected to be commercialized in a few years and to be used as parts of caregiver robots. Its size is 2 square millimeters. It was made of silicon and rubber, and manufactured using MEMS technology. It can detect an object weighing only one gram. It is projected that mass production will make cost per piece only several tens of yen (~several tens of cents). (Summary translation of an article in Nihon Keizai Newspaper – 8/12/08)

**6. [More than 10,000 Foreign Students Got Jobs in '07]** The Justice Ministry's Immigration Bureau revealed that the number of foreign students who graduated from Japanese colleges and graduate schools and found jobs in Japan came to 10,262 in 2007, up 24 percent from the previous year and exceeding the 10,000 line for the first time. The number stayed below 3,000 until 2000, and a bureau official attributed the increase partly to expansion in employment in information technology-related fields. In 2007, around 30 percent of foreign students who graduated from Japanese universities got jobs in Japan. Students from Asia accounted for 97 percent of them. They were led by 7,539 from China, followed by 1,109 from South Korea, 282 from Taiwan, 138 from Bangladesh and 131 from Vietnam. A total of 1,510 joined IT-related firms, up 32 percent from the previous year. (Summary of an article in Japan Times – 7/31/08)

**7. [Risky Research]** Countries that promote scientific research as a key policy priority are well aware of the importance of “high-risk” research. Japan's new law to enhance the nation's R&D capability, which enacted last month, also reflects this international trend [See <http://www.nsfokyo.org/rm08-06.pdf>]. In reality, however, there has been a growing tendency for the Japanese government to narrow down priority research areas for the allocation of state funding and demand quick results. This policy could discourage researchers from embarking on pioneering research in unknown fields or basic research that is unlikely to produce useful results any time soon. Also important is the development of infrastructure to underpin research. Yamanaka's achievement (discovery of Induced Pluripotent Stem cell) would have been impossible had it not been for the gene database developed by RIKEN, a government-backed research institute. The government has been increasing its spending on promoting science and technology despite its fiscal distress. Naturally, it must do its best to ensure that the massive outlays will lead to tangible results to meet the expectations of taxpayers. But promoting true scientific innovation and breakthroughs requires a solid, long-term policy commitment to fostering science. (Summary of Editorial on The Asahi Shimbun – 7/29/08)

**8. [New Funding Opportunities and New Awards from MEXT (Ministry of Education, Science and Technology), JSPS (Japan Society for the Promotion of Science) and JST (Japan S&T Agency)]**

- MEXT has selected 68 Centers of Excellence under its Global COE (Center of Excellence) Program for its 2008 cycle. The fields of focus in 2008 are Medicine, Math/Physics/Earth Sciences, Machine/Civil/Architecture Engineering, Social Sciences, and Interdisciplinary/New areas. Each center will receive about Yen 250 million (~\$2.5 million) per year for five years. 2008 is the second year of the program. It selected 63 centers in 2007 in the fields of Life Science, Chemistry/Materials

Sciences, Information/Electrics/Electronics, Human Science, and Interdisciplinary/New areas.

- JSPS announced the application period, from September 1 through 4, 2008, for the “Grants-in-Aid for Scientific Research for those who receives Foreign Postdoc fellowship during August 1-September 30, 2008.”

- JST has selected 30 projects for the 2008 cycle for its CREST (Core Research for Evolutional S&T) program and 42 projects for its PRESTO (Precursory Research for Embryonic S&T) program. One CREST project receives about Yen 85 million (~\$850,000) per year for up to five years; one PRESTO project receives Yen 10 million (~\$100,000) per year for up to three or five years. Both CREST and PRESTO are theme-oriented programs.

## **Korea**

**9. [First Rocket Launch]** Korea’ Ministry of Education, S&T said that they would be able to launch a rocket KSLV-I (Korea Space Launch Vehicle-I) in the second quarter of 2009. A delay in procuring the rocket parts from China due to the Sichuan Earthquake, establishing the launching equipment, and testing the whole system, necessitated the change of schedule. (Summary translation of an article in JST’s Watcher – 8/11/08)

**10. [New S&T Plan]** The Korean National S&T Committee established the country’s new S&T Plan for the next five years. The main points are: (1) Increase in the government R&D budget from the present 40 trillion Won (~36 billion) to 66.5 trillion Won (~\$60 billion) in five years; (2) Focus on seven technology activities: main key industrial technologies (auto, shipbuilding, machine manufacturing processing, semiconductor), new industry creation (next-generation system software, cancer diagnosis/treatment, brain science), new knowledge-based service (next-generation system software, cancer diagnosis/treatment, brain science), technologies led by the government (satellite development, next-generation weapon, next-generation nuclear reactor), special fields of concern (food safety evaluation, IT nano element), global issues (new and regenerated energy, prediction and adaptation to climate change), basic/interdisciplinary technologies (bio-chip sensor, intelligent robots); (3) Expansion of basic research funds from the present 25 percent of the government R&D budget to 50 percent; and (4) Revision of research management procedures. (Summary translation of an article in JST’s Watcher – 8/13/08)

**11. [R&D Budget for 2009]** The key points of the Korean Government’s 2009 R&D budget are: expansion of investment in basic research; inter-ministerial coordination of projects in IT-related interdisciplinary fields, BIO, and disaster prevention; energy technology development to cope with the

skyrocketing oil price and climate change. (Summary translation of an article in JST's Watcher – 8/13/08)

**12. [Dispatching S&T Support Team]** Korea's Ministry of Education, S&T has selected 27 team members for the Third Techno Peace Corps that will be sent to 10 developing countries, including Saudi Arabia, Tunisia, Qazaq, and Micronesia. 85 percent of them hold Masters or Ph.D. degrees in geology, electronic engineering, precision machinery, marine biology, agriculture, physics, life science, and IT. They will be involved in technology education, consulting, and cooperative research. (Summary translation of an article in JST's Watcher – 8/18/08)

### **Singapore**

**13. [A\*STAR Scholarships and Awards]** More than 300 young people received A\*STAR Scholarships and Awards at A\*STAR Scholarship Award Ceremony 2008. 101 scholars received scholarships for BS and Ph.D. studies at top universities; 203 junior college students and upper secondary school students received A\*STAR awards to further develop their deep interest in scientific research. Additionally, two new programs were announced at the ceremony. One is A\*STAR Science Award (Upper Secondary) for upper secondary students that is an extension of the A\*STAR JC Science Award for students at the junior college and the upper secondary school levels. Another is A\*STAR International Fellowship that enables those who have obtained Ph.D. in Singapore to have Postdoc training overseas. (Summary from A\*STAR Press Release – 7/25/08)