

S&T Highlights from East Asia and Pacific

February 2010

National Science Foundation Tokyo Regional Office

Japan

1. **[GOJ R&D Investment 1% of GDP]**
2. **[S&T Action Plan]**
3. **[Supercomputer Facilities Opened to the Press]**
4. **[Neutrino Detected]**
5. **[Fuel Cell from Apple]**
6. **[Digitization of Official Documents]**
7. **[Three times of Iron]**
8. **[New Funding Opportunities and Awards from MEXT (Ministry of Education, Science and Technology), JSPS (Japan Society for the Promotion of Science), JST (Japan Science and Technology Agency), and NEDO (New Energy and Industrial Technology Development Organization)]**

Taiwan

9. **[Low Carbon Industrial Park]**

Japan

1. **[GOJ R&D Investment 1% of GDP]** According to the first draft of the 4th S&T Basic Plan made public on February 20, Japan plans to raise the Government's investment in R&D to one percent of the GDP by 2020 from the 0.67 percent in 2008. The focus during the 4th Plan period (April 2011-March 2016) will be placed on 'Green (environment and energy)' and 'Life (health)'. The draft will continue to evolve and be readied for approval by the Cabinet in November 2010. The points listed in the draft plan are: Japan to be ranked the 3rd in the world in publication citations; researchers' in-breeding ratio below 20 percent; low-cost preventive medical care for major diseases based on genomic analyses; halving the number of drugs awaiting approval; laws relating to housing insulation and energy efficiency standards; laws on bio fuels introduction rates; and the Japanese Government investment in R&D to be one percent of GDP. (Summary translation of an article in Nihon Keizai Shimbun– 2/21/10)

2. **[S&T Action Plan]** In an effort to avoid duplication of efforts between ministries and agencies, CSTP will establish an S&T Action Plan across the ministries and agencies well in advance (preferably around April-June) of the deadline (August 2010) for the ministries and agencies to individually submit S&T budget requests for JFY2011. (Summary translation of

an article by MEXT Minister Kawabata on the Hatoyama Administration Mail Magazine – 2/25/10)

3. [Supercomputer Facilities Opened to the Press] The supercomputer facilities under construction on the Port Island, Kobe City, were opened to the press. While having their funds 'frozen' according to GRU (Government Revitalization Unit) review in November 2009, the supercomputer project managed by RIKEN was revived on the condition that accountability is made abundantly clear. The construction is 80 percent complete. The facilities consist of a computation building, a power generation building, and a research building where more than 100 researchers will work. The construction cost is ¥19.3 billion (~\$193 million); the total cost is ¥ 100 billion (~\$1 billion), including the software. The facilities will consume a maximum 21,600 megawatt per month. The running costs are expected to be ¥ 10 billion (~\$100 million) per year. (Summary translation of an article in Asahi Newspaper – 2/4/10)

4. [Neutrino Detected] KEK (Higher Energy Accelerator Research Organization) and Tokyo University's Kamioka Observatory announced that they have detected for the first time a neutrino that had traveled all the way under Japan from the neutrino beamline at the J-PARC facility in Tokai village (about an hour north of Tokyo by train) to the gigantic Super-Kamiokande underground detector near the west coast of Japan, 295 Km (185 miles) away from Tokai. This is a big step forward for the researchers' working on the test for more than a decade and is expected to make great contributions to the solution of the birth of universe. (Summary translation of an article in Nihon Keizai Newspaper – 2/26/10)

5. [Fuel Cell from Apple] Professors Kenji Kano and Seiya Tsujimura of Kyoto University succeeded in developing a biofuel cell. Electrons stuck into an apple generate power that is one tenth of the power generated by a solar cell. In other words, an apple can power an LED light overnight, a technology that can be used in case of disasters, if improved. The mechanism is that one electrode has a bacterial enzyme that produces acetic acid from carbohydrate and another electrode has a mushroom enzyme. The bacterial enzyme breaks down the fruit sugars and produce hydrogen ion, which reacts with oxygen with the help of the mushroom enzyme, and generates electric power. (Summary translation of an article in Nihon Keizai Newspaper – 2/15/10)

6. [Digitization of Official Documents] The Japanese Government will digitize all official documents from JFY2011 onward and keep them at the National Archives in their

digitized form, while presently the official documents are produced and kept on paper. The digitized documents will be kept in CD, DVD, and the 'Kasumigaseki WAN (computer network for the government organizations).' The new law for managing official documents established in JFY2009 and to be enacted in JFY2011 unifies the various rules independently followed by each ministry/agency. (Summary translation of an article in Nihon Keizai Newspaper – 2/19/10)

7. [Three times of Iron] A research team comprising of Japanese, Korean and Danish scientists has succeeded in developing rice that contains three times the level of iron than ordinary rice through genetic engineering. Half of the world population has health problems associated with iron deficiency. The technology is expected to be used primarily in developing countries. Dr. Naoko Nishizawa, Ishikawa Prefectural University (also a project-based professor at the University of Tokyo) and the team introduced nicotinamide synthase obtained from barley to rice or activated the native nicotianamine synthase of rice. The rice developed by the team was found to contain 2-3 times of iron than non-genetically modified rice. (Summary translation of an article in Asahi Newspaper – 2/16/10)

8. [New Funding Opportunities and Awards from MEXT (Ministry of Education, Science and Technology), JSPS (Japan Society for the Promotion of Science), JST (Japan Science and Technology Agency), and NEDO (New Energy and Industrial Technology Development Organization)]

- JSPS program to send young Japanese researchers abroad (institutional applications) received 184 applications and 96 of them received grants. Of the 96 grantees, 81 were from national university corporations. Each grantee receives ¥30-100 million (~\$0.3-1 million) in JFY2009. This is one-time solicitation.
- JSPS is accepting applications for the BRIDGE Fellowship program. It is a program for the JSPS Fellowship alumni members to re-visit Japan from 2-8 weeks during December 1, 2009 through March 31, 2010. Only registered JSPS fellowship alumni members are eligible to apply. Details can be obtained at: http://www.jsps.go.jp/english/e-plaza/21_invitation.html
- MEXT solicits proposals for the World Premier International (WPI) program (deadline for pre-proposal is March 23, 2010; full-proposal is due April 27, 2010). The program is designed to establish a globally recognizable research institution in Japan with a 10-year

(with a possible 5-year extension) grant with ¥ 0.5-1.4 billion (~\$5-14 million) per year. Only one project will be selected, and it will join the five current WPIs. The successful center is required to have 30 percent of the total number of researchers be filled by foreign researchers, and the center should be staffed with a minimum of 200 people. Details can be obtained at: <http://www.jsps.go.jp/english/e-toplevel/index.html>

- The duration of the JSPS Summer Program-2010 was announced: June 15-August 25, 2010. It is a summer program for graduate students and postdocs from the US, UK, Canada, France and Germany to conduct research in Japan. NSF is the nominating agency for the US and only graduate students can apply to NSF's EAPSI (East Asia and Pacific Summer Institute) program (deadline: the second Tuesday in December every year) at <http://nsfsi.org/>

- JSPS' Japanese-American Frontiers of Science Symposium-2010 (JA FoS) will accept proposals for the period of 5 days from March 15 through 19, 2010. Up to 10 Japanese young researchers under 45 years of age in almost all science disciplines will be selected to participate in the JAFoS along with US participants to be selected by the US National Academy of Sciences. They will spend three days in Japan in December 2010, participating in science discussions across disciplines. US researchers should apply to the US National Academy of Sciences at http://www.nasonline.org/site/PageServer?pagename=FRONTIERS_jafos

- CSTP made public three awardees for the Transformative Technology program-2009: Brain Machine Interface - Dr. Meigen Liu, Keio University; Spintronics - Dr. Kouji Ando, AIST (National Institute of Advanced S&T); and Highly Efficient Solar Energy Generation - Dr. Yoshiaki Nakano, University of Tokyo. The value of the award for the Brain Machine Interface project is up to ¥ 800 million (~\$8 million) per year for five years and that for each of the other two is up to ¥ 1 billion (~\$10 million) per year for five years. The details of the selection process and the value were not made public. [NSF Tokyo Office will soon produce a separate report on this.](#)

Taiwan

9. [Low Carbon Industrial Park] Kaohsiung County will build a low carbon industrial R&D park in Guanyin Mountain area. This project was not only supported by E United Group, which has promised to contribute an R&D building for the low carbon industrial park, but also integrated with the resources of the universities in South Taiwan, including National Sun

Yat-sen University, I-Shou University. It is estimated to bring 160 billion NT dollars (~\$5 billion) of carbon income for Kaohsiung County per year, and the estimated revenue of the whole green industry in the future may reach more than 220 billion (~\$6.87 billion) per year. (Summary of an article on the National Science Council, Taiwan-2/2/10)