Science & Technology News from Japan, August 2012

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ETH Zurich Team Participates In TV Quiz Show

(August 04, 2012)

A team of four ETH Zurich students participated in a quiz show on one of the major Japanese television networks. The team competed against 16 universities from 14 different countries, including the University of Tokyo, Kyoto and Osaka as well as other famous universities such as Harvard, Oxford, Stanford, Ecole Speciale Militaire de Saint-Cyr, Ludwig-Maximilians-Universitaet Muenchen, Indian Institute of Technology and the University of Capetown. A group of ETH alumni in Japan, including Mr. Tilman Troester from the Science & Technology Office Tokyo, Embassy of Switzerland, joined the recording of the program as supporters to cheer for the team from Switzerland.

1. Science and Technology Policy in Japan

Alternative Target Of 2050 For Nuclear-Free Japan

(August 10, 2012)

As the government weighs its long-term energy policy, some officials are thinking about delaying the target year for having the country fully off nuclear power by two decades to 2050 as a compromise to the business community leading the chorus of concern about the risk of going nuclear-free too soon. "Of course, I'd like Japan to be without nuclear power as soon as possible," Yukio Edano, minister of economy, trade and industry, said, later adding "This is not to say I am so obstinate that no other (target year) is acceptable." If Japan is to forgo the atom in 2030 following one of the three options hammered out by the government, the supply of power from renewable sources will have to increase by 250%, while electricity bills will swell by up to 110%.

Japan's Budget Guidelines Focus On Renewable Energy

(August 17, 2012)

The Cabinet of Prime Minister Yoshihiko Noda approved guidelines to create the state budget for 2013, underscoring the need for financing an economic growth strategy, including the development of renewable energy resources. The new budget will focus on financing Japan's growth strategy, allowing ministries and agencies to request a total of 2 trillion to 4 trillion yen in spending in the areas of the environment, medicine and health, as well as agriculture, forestry and fisheries. One of the top priorities under the new budget is to help develop wind, solar and other renewable energy resources to replace nuclear power. The Finance Ministry will assess the requests and finally earmark 1 trillion to 2 trillion yen for the growth strategy.

Increased R&D Tax Breaks For 2013

(August 25, 2012)

Expanding tax breaks for R&D spending to ease the burden on drugmakers and other research-focused firms is among the measures the Ministry of Economy, Trade and Industry plans to propose as part of the 2013 tax reform. Under the current R&D tax incentive program, 8-10% of the cost of research and development in such fields as drugs and materials can be deducted from corporate income taxes, with the figure set at 12% for small and midsize businesses. But the maximum deduction has been set at 20% of corporate income taxes since April, when a two-year-only 30% rate expired. METI wants to revive the 30% limit to spur innovation.

2. Education

Cloud Computing At Universities

(August 07, 2012)

Japanese universities are adopting cloud computing for their courses and administration, expecting Web-based software and information systems to cut systems-development costs and improve services for students. Kyushu University Graduate School of Information Science and Electrical Engineering introduced cloud computing to make a wide range of software available over the Internet to 400 students. Kokushikan University is shifting nearly all of its computer systems to Web-based services provided by Microsoft Corp. The transition covers entrance exams, course registration management, personnel, finance, accounting and library services. Kokushikan is believed to be the first Japanese university to switch entirely to cloud computing.

Universities Organizing Campus Events

(August 09, 2012)

Japanese universities are now offering a broader range of open-campus events than ever before. Post-secondary educational institutions are responding to demographic pressures by courting prospective students through trial lectures, on-campus games and the promise of special discounts on exam fees. Saga University, a national institution, has turned to technology to attract students through a series of promotional posters. Students can scan the posters with their smartphones to download a short film in which Saga University students talk about life on campus. The Osaka Institute of Technology, a private university, offers nearly 100 trial lectures on two of its campuses.

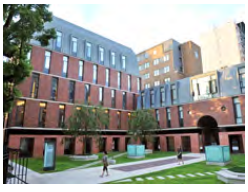
Universities Facilitate Studying Overseas

(August 11, 2012)

Japanese universities are making it easier for students to transfer academic credits they have earned abroad, hoping to stem the decline in the popularity of overseas study. Currently, universities only approve such credit transfers when official student exchange agreements are in place, a practice that makes it difficult for students who have attended unaffiliated overseas schools to graduate in four years. But a number of major universities plan to approve credits from all foreign colleges as long as they meet certain criteria. According to the Education Ministry, the number of Japanese students studying abroad fell from about 82,000 in 2004 to around 59,000 in 2009.

University Of Tokyo Expanding Alumni Network

(August 17, 2012)



The University of Tokyo, Japan's top academic institution popularly known as Todai, is broadening its alumni network. Todai first held a 30-year alumni reunion in 2010. The 30-year reunion this year will be much bigger than before. It will feature a range of events, including lectures by professors who studied at Todai 30 years ago. A 20-year reunion was introduced last year, and the school is now working on plans for a 40-year reunion. Todai is also providing educational opportunities for its graduates. The Todai World Cafe programs were launched in 2010 to facilitate a constructive dialogue between alumni on a range of social concerns, including family and environmental issues. Meanwhile, Todai Venture Square, which was set up last autumn, is designed to encourage the development of an entrepreneurial culture on campus, to promote collaborations between industry and academia.

Japanese Universities Risk Losing Young Talents

(August 21, 2012)

The University of Tokyo's Graduate School of Science, a top-notch research institute in physics and other sciences, is struggling to attract students to its doctoral courses. "We are striving to attract students much harder than before, but in vain," lamented Takeo Kubo the professor in charge of recruiting Ph.D. students. For the 2011 academic year, the school enrolled 180 students, 16% below its capacity. That is a 21% decline compared with the 2005 academic year, and last year was the sixth straight in which student numbers fell short of recruitment targets.

Promoting Multidisciplinary Approach

(August 22, 2012)

Ryoji Noyori, Nobel Laureate and president of Riken, a research institute affiliated with the Education Ministry, is critical of the way graduate schools in Japan tie scientific researchers to particular laboratories without offering them exposure to other fields of study. To foster leaders in science and the humanities, leading scholars such as Noyori argue Japanese universities should eliminate the rigid "apprentice system" and broaden students' horizons by giving them the opportunity to study across academic boundaries. One effort to deal with that problem is the Leading Graduate Schools program, a joint initiative of the Ministry of Education and the Japan Society for the Promotion of Science. The five-year, multidisciplinary doctoral program was initially adopted at 13 universities.

Professional Schools Struggle In Japan

(August 23, 2012)

Graduate level professional schools, founded to create a cadre of well-trained teachers, lawyers and business executives, are in dire straits. Japan's professional schools were set up in 2003 and modeled after those in the U.S. They were expected to draw in many applicants despite a decline in the number of students overall. But enrollments are already dropping. Five law schools have decided to close down and business schools continue to have trouble filling places.

Fewer Business Leaders Have Graduate Degrees

(August 24, 2012)

Few Japanese business leaders have graduate degrees. According to the education ministry, 61% of executives at companies with 500 or more employees are university graduates. But only 6% of these senior executives are graduate degree holders. However, in the U.S., 46% of marketing managers and 62% of personnel managers at major listed companies hold graduate degrees. Since the 1990s, the education ministry has been promoting graduate school education. The number of graduate students throughout the country has increased 2.8 times over the past two decades. This increase has been particularly noticeable in the sciences. Roughly 40% of engineering majors now go to graduate school, for example.

University Program Fostering Future Leaders For Quake Recovery

(August 24, 2012)

In a classroom near Sendai's main train station, about 40 students from nine universities in Miyagi Prefecture learn every Saturday what they can't learn in their classrooms or lecture halls. Fukkou University, launched in May, offers a one-year program aimed at developing young leaders to help rebuild from last year's massive quake and tsunami. "The Miyagi governor says it will take us at least 10 years to fully recover from the disasters, so we definitely need leaders on this long, tough road," says Yasuji Sawada, president of Tohoku Institute of Technology and a key advocate of the new curriculum.

Six Universities To Join Hands For Seafloor Exploration

(August 27, 2012)

Six Japanese universities will pool their undersea exploration technologies in a government funded mission to find out exactly what kind and how many mineral resources Japan has under the seabed in its exclusive economic zone. High-precision exploration technology will need to be deployed. The University of Tokyo has technology that can produce 3-D maps of the seabed by sending out sonic waves that bounce off metal deposits. Kochi University's technology can detect what kinds of resources lie underneath the seabed by analyzing water gushing up from the seafloor. The universities including Tokai University, the University of Toyama, Waseda University and Kyoto University will also jointly develop sensors and software to load their technologies onto unmanned undersea probes.

Over 30,000 New College Graduates Not Working Or Studying

(August 28, 2012)

63.9% of this past spring's university graduates have joined the workforce. For the first time, the ministry probed deeper into the segment of graduates who have neither begun working nor moved on to post-graduate education. Most were preparing to do one or the other, but about 33,000 were not. Some may be involved in activities that fit into neither category, such as volunteering. But most appear to have wound up as NEETs (not in employment, education or training). The NEET population is estimated at around 600,000, mostly dropouts and people who never went beyond high school. The revelation that tens of thousands of them are university graduates shows this phenomenon to be more serious than first thought.

3. Life Science / Health Care

Launch Of 4 New Vaccines In Japan

(August 02, 2012)

French pharmaceuticals giant Sanofi SA will launch four new vaccines in Japan. The Japanese unit of Sanofi Pasteur SA currently offers two in Japan, including a yellow fever vaccine. Sanofi Pasteur will first offer an inactivated polio vaccine, which the Japanese government is scheduled to adopt for infant and child immunizations to replace an existing oral vaccine. The company has tripled its headquarters and marketing workforce. It also has added packaging and final quality control functions to a Saitama Prefecture plant, increasing the workforce there by 60. Sanofi Pasteur is set to launch typhoid fever and meningococcal vaccines in the same year after it obtains approval from the Health and Welfare Ministry.

iPS Cells Stimulates Research On Nervous System Diseases

(August 02, 2012)

Kyoto University professor Shinya Yamanaka's development of induced pluripotent stem cells have stimulated a range of research on nervous system disorders, such as ALS and Alzheimer's disease. A Kyoto University team's discovery of a possible causal mechanism for ALS was made possible by the use of iPS cells. In the most straightforward application of the stem cells, regenerative medicine for growing organs and cells to replace those damaged by disease and injury, Japanese researchers have also made significant progress. A Keio University team has been developing a spinal cord injury treatment that uses neural stem cells made from iPS cells.

Potential Treatment For ALS Using iPS Cells

(August 02, 2012)

Kyoto University's Center for iPS Cell Research and Application has discovered that amyotrophic lateral sclerosis (ALS or Lou Gehrig's disease), which causes a loss of control over muscle movements and currently has no cure, may be caused by a structural abnormality in nerve cells. The researchers used skin cells to create iPS cells, from which they then produced motor nerve cells. When they compared the motor nerves, the researchers noticed that protrusions that relay signals from the brain to skeletal muscles were shorter for nerve cells made from the ALS patients' cells. And a protein found in most people with ALS was also present at high levels in cells in ALS patients' motor nerves. When the team exposed the cells with abnormally short protrusions to anacardic acid, the level of the protein decreased and the protrusions grew to normal length.

New Technology To Test Cancer-Drug Effectiveness

(August 08, 2012)

Toray Industries Inc. and Kyoto University have jointly developed technology that can determine whether trastuzumab, a drug commonly used to treat breast cancer, will be effective in specific patients before the treatment is administered. The technology, developed by Kyoto University, samples tumor tissue using Toray's microRNA micro array platform and analyzes the HER2 gene that the drug targets. By analyzing the gene, physicians will be able to determine whether the drug will be effective in treating individual patients. That will allow doctors to select other medicines to treat the cancer in those for whom Trastuzumab is likely to be ineffective.

New Drugs For Alzheimer Disease Being Developed

(August 08, 2012)

Eisai Co. and Takeda Pharmaceutical Co. are developing new drugs for Alzheimer's aimed at stopping or reversing the disease's progress. Alzheimer's sufferers are known to have high levels of the beta-amyloid protein in their brains. Eisai's new drug is designed to stop symptoms, such as forgetfulness and other memory disorders, from worsening by employing a compound that holds down the production of beta-amyloids. Researchers also have ob-

served that some Alzheimer's patients' ability to utilize glucose in their brains is impaired. Takeda has begun a clinical trial on a new compound aimed at solving this problem. The company is also working on a diagnostic agent for identifying people at high risk of developing Alzheimer's, as well as a drug for preventing the onset of the disease.

Tech For Car Crashes Applied To Predict Stroke

(August 08, 2012)

Toyota Motor Corp. technology for simulating car crashes is being applied to study a type of hemorrhagic stroke. The University of Tokyo's Institute of Industrial Science is developing a system to predict the danger of subarachnoid hemorrhages through analysis of blood flow and loads on blood vessels via CT (computerized tomography) and other medical imaging. Toyota Communication Systems Co. simulation technologies for crash safety measurement and auto body control will be applied to speed up the analyses. A one-month analysis can be shortened to six days. With faster speeds, the system can also help ascertain the need for surgery.

Production Plant For Antibody Drug Test Agents

(August 11, 2012)

The Eisai Co. group plans to begin production of agents for antibody drug clinical trials in 2013 at a new plant in the U.S. state of Pennsylvania. The 5,600 sq. meter facility is located next to the main office of Eisai R&D unit Morphotek Inc. The plant will start out with two 1,000-liter-class culturing tanks to produce enough testing agents for up to seven clinical trials a year. Currently, the Eisai group has to rely on subcontractors for its entire supply of antibody testing agents.

Focus On Biotech Drug Development

(August 14, 2012)

Takeda Pharmaceutical Co. and others are ramping up development of biotechnology drugs. Takeda and three others have a total of 25 biodrug clinical trials in progress, triple the tally of four years ago. Such candidates now account for nearly 20% of their drugs under development. The drug companies are primarily working on antibody drugs that fight cancer cells and other targets by triggering the immune system. Unlike conventional pharmaceuticals, antibody drugs offer advantages such as fewer side effects. As drug regulators are increasingly rejecting drugs that produce strong side effects, the pharmaceutical firms believe biodrugs will have a better chance of being approved.

Non-Habit-Forming Pain Reliever

(August 15, 2012)

Biotechnology start-up Ribomic Inc. has developed a new drug candidate that relieves pain in cancer patients as effectively as morphine, but is not habit-forming. In testing on animals, the drug candidate exhibited a pain-relieving effect and safety comparable to morphine. While morphine and other medicinal narcotics must be administered daily, the effects of Ribomic's new drug candidate last for one to two weeks per injection. Because it is not habit-forming, it is not expected to be subject to the same strict usage regulations as narcotics. The company plans to license the technology to a major drugmaker with the aim of beginning human clinical trials within one year.

Humans Diverged From Apes Earlier

(August 17, 2012)

It is highly possible that humans and chimpanzees diverged from a common ancestor about 8 million to 7 million years ago, earlier than previously thought, a team of researchers which includes scientists from Kyoto University thinks many believe the two species diverged 6 million to 4 million years ago. But the discovery in 2002 of the oldest human fossil, estimated at 7 million to 6 million years old, caused controversy because of the gap with the previously believed time of divergence. After re-examining the average number of years required for the heterogeny of wild chimpanzees and gorillas, the team calculated the time of divergence based on the pace of DNA mutation in the two species and that of Homo sapiens.

Metabolic Syndrome Inflates Medical Cost Significantly

(August 27, 2012)

The average yearly medical cost for people diagnosed with metabolic syndrome is as much as 120,000 yen higher than for those without the condition, a government survey showed. While the Ministry of Health, Labor and Welfare did not examine specific names of diseases that caused the medical cost rise, lifestyle-related diseases such as high blood pressure were likely to have pushed the cost up. The ministry checked the annual medical costs of 2.69 million people aged from 40 to 74, who went through health checkups on metabolic syndrome in 2009. Metabolic syndrome is a combination of such symptoms as lipid abnormality, high blood pressure and high blood sugar, and it is likely to eventually cause stroke, heart infarction and diabetes.

New Portable Ultrasound Devices

(August 28, 2012)

Fujifilm Holdings Corp. plans to release portable ultrasonic diagnostic equipment as early as 2014, touting their ease of use to widen the technology's application. A high-performance microprocessor developed by the Japanese firm is to be employed in a portable device from SonoSite Inc., a major U.S. manufacturer of ultrasound equipment that Fujifilm acquired this year. The new chip improves image resolution and also leads to smaller, energy-efficient devices. Ultrasonic equipment is commonly used to examine pregnant women and abdominal areas because the impact on patients is smaller than with X-rays and CT (computed tomography) scans, but sufficient experience and skill are needed on the part of doctors. Fujifilm believes that the new machine's clearer image will help inexperienced doctors make accurate diagnoses.

Single Drop Of Blood Sufficient To Detect Multiple Diseases

(August 28, 2012)

A group of university researchers has teamed up with the National Institute of Biomedical Innovation (NIBIO) to develop a technology that can be used to identify early-stage cancer and other diseases in a patient from a single drop of blood. The new method can be used to detect diseases at early stages, allowing doctors to customize treatments for patients in advance. Doctors will also be able to use the technology to select drugs with minimal side effects. Researchers can use the technology to analyze approximately 100 substances in a single drop of blood by disintegrating proteins within each sample. The blood tests that are currently used by doctors can only be used to check for a single substance at a time.

The World's Thinnest Needle

(August 30, 2012)

Terumo Corp. will release a hypodermic needle that at just 0.18mm in diameter is the world's thinnest. To make the new needle, Okano Industrial Corp. rounds stainless steel sheet into a cylinder and Terumo processes the tip, which is narrower than the base to facilitate the flow of medicine. And precision processing technology ensures that the needle retains its strengthen despite its thinness. The product is expected to be used by diabetics who must give themselves insulin injections, as well as patients who inject themselves with vaccines and growth hormones. Needles used for flu shots and other immunization procedures are typically 0.8mm in diameter. The thinner the needle, the less likely it is to hit pain receptors on the skin's surface.

New Cancer Diagnosis Needs Only Small Blood Sample

(August 24, 2012)

A research team from Kobe University has developed a new diagnostic method designed to enable early detection of colorectal cancer using 50 µL of serum. Colorectal cancer mortality rate is considered to be increasing partially because early and accurate diagnosis of this cancer is difficult to achieve with conventional examination methods, such as the fecal occult blood test and the tumor marker test. The team revealed the variations of serum metabolome and established a prediction model for colorectal cancer diagnosis, and confirmed that colorectal cancer at the early stage can be detected with a probability of over 80% using this model. According to the team, this method requires only small blood samples, a tiny amount that reduces the physical burden on the patient.

World's First Disposable Pinhole Contact Lens

(August 31, 2012)

Medical equipment start-up firm Universal View Co. has developed the world's first disposable soft contact lenses based on the same principles as a pinhole camera. Pinhole contact lenses can rectify a wider range of sight-related problems. They can be worn by individuals who are nearsighted, astigmatisms, and presbyopia simultaneously. Conventional contact lenses are generally not effective for dealing with such issues. The new technology that Universal View has developed blocks light with a pigment in the center of the lens that measures 4-6mm in diameter. Light passes through a pinhole, measuring 1-2mm in diameter, in the center of the lenses.

4. Nano / Micro Technology / Material Science

Producing Butadiene From Plant-Derived Ethanol

(August 04, 2012)

Bridgestone Corp. has developed a technology to produce butadiene from plant-derived ethanol, a breakthrough that could allay concerns about shortages of the key synthetic rubber material. Butadiene is produced when ethy-

lene is derived from the petroleum distillate naphtha. But the expanding use of shale gas to make ethylene threatens to reduce the supply of the chemical, which is not a byproduct of this process. Collaborating with Hokkaido University, the tire maker has devised a method to manufacture butadiene through a chemical reaction between plant-based bioethanol and a metal catalyst. So far, the team has used ethanol made from edible plants such as sugar cane, and is working on inedible sources such as wood.

'Invisible Glass' Invented

(August 22, 2012)

Nippon Electric Glass Co. has developed a new "invisible glass" substrate that minimizes reflected light, significantly reducing reflection and glare on the surface. Normal glass substrates reflect about 8% of incoming light, producing a reflection on the surface of the glass. However, the invisible glass substrate only reflects between 0.2% and 0.6% of all incoming light, minimizing reflections on the surface and making the substrate itself almost invisible to the naked eye. The glass is made of highly durable materials that can withstand temperatures of approximately 500 C. The firm also improved the strength of the glass to protect it from wind and rain.

Plant-Based Battery Material Factory

(August 22, 2012)

Kuraray Co. and Kureha Corp. will jointly build a factory in Bizen, Okayama Prefecture, to produce lithium ion battery materials from plant-based raw materials. Most anode materials are made from inexpensive graphite. The new factory will use so-called hard carbon made by carbonizing coconut shells and other plant materials. Hard carbon has a more complex crystal structure than graphite, reducing the chances of deterioration under repeated charging and discharging. Ground will be broken this October, with the facility slated to be operating in the autumn of 2013. The new factory will be able to turn out 1,000 tons a year of anode materials.

Green Rubber Resources For Tires

(August 23, 2012)

Bridgestone Corp. is ramping up its drive to develop new raw materials. It wants to ensure stable supplies of raw materials over the long term. Bridgestone acquired a huge research farm in the U.S. state of Arizona to cultivate the guayule plant, as part of efforts to turn it into a new source of natural rubber, as an alternative to the Hevea tree. The company plans to start test production of guayule-derived natural rubber within the next three years. In addition, Bridgestone is working on a project to develop technologies to produce rubber from Russian dandelions. It is also cooperating with Ajinomoto Co. to develop biomass-derived synthetic rubber materials.

5. Information & Communications Technology

Online Retailers Eye 'Big Data' For Success

(August 01, 2012)

Japanese online retailers in fierce competition are stepping up efforts to introduce better recommendation functions targeting individual customers. The success or failure of these individual marketing efforts depends on the companies' abilities to analyze huge amounts of data, called "big data". Nature's Way Co., a cosmetics company, has seen its online sales jump 60% since it began using services provided by NaviPlus Co., a systems developer, for its online shopping recommendation function. The Rakuten Ichiba online mall which boasts more than 76 million members has set up a Big Data division to develop more effective recommendation techniques.

Joint Venture For Smartphone Chip

(August 02, 2012)

Amid a mixture of hope and doubt, three major Japanese technology firms are set to launch a joint venture to develop and sell core semiconductor chips for smartphones. Fujitsu Ltd., NTT DoCoMo Inc. and NEC Corp. announced plans to create Access Network Technology Ltd. Fujitsu will be the largest shareholder, with a 52.8% stake, with DoCoMo owning 19.9% and NEC owning 17.8%. Fujitsu Semiconductor Ltd. will hold the remaining stake. Fujitsu and its partners said the new firm will likely concentrate on developing and selling smartphone chips, and will outsource production.

Cloud-Based Medical Imaging Service

(August 03, 2012)

KDDI Corp. announced the start of a cloud-based medical imaging service in partnership with U.S. medical imaging systems company TeraRecon Inc. The service sends images that medical institutions take on MRI (magnetic resonance imaging) and CT (computerized tomography) systems to KDDI cloud servers. The telecommunications firm analyzes the images and converts them into 3-D. Customers will save 10-20% compared with buying their own server and other hardware, and the burden of system operation and maintenance will be eased. TeraRecon has already installed 3-D medical imaging systems at more than 650 Japanese medical institutions.

E-Money Card Transactions Grow Significantly

(August 04, 2012)

The number of daily purchases made through the Suica and Pasmo e-money cards, both issued by Tokyo railway operators, surpassed the 3 million mark for the first time. The openings of Shibuya Hikarie and DiverCity Tokyo Plaza malls and the Tokyo Skytree likely contributed to the significant growth. The number of transactions reached 71.29 million in May, exceeding 70 million for the first time. Since then, the figure has grown by some 7.5 million purchases to 78.77 million in July. More people are using the e-money at stores and vending machines inside train stations, according to East Japan Railway Co. About 40.2 million Suica cards had been issued as of the end of July, and some 20.57 million Pasmo cards were in circulation at the end of June.

Teaming Up To Develop Next-Gen Semiconductor Stepper

(August 08, 2012)

Nikon Corp. will work with Intel Corp. to develop a next-generation semiconductor stepper that halves chip-making costs. The world's No. 2 stepper manufacturer is looking to commercialize a machine that can handle semiconductor wafers with a diameter of 450mm instead of the currently dominant 300mm. A 450mm semiconductor wafer offers double the chip yield of a 300mm wafer, dramatically lowering production cost per chip. But the massive research and development investment needed to develop the next-generation stepper poses a major hurdle. To help ease the cost burden, Intel has apparently decided to shoulder tens of billions of yen in development costs for Nikon.

3-D Computer-Aided Design For Passenger Cruise Ships

(August 13, 2012)

Mitsubishi Heavy Industries Ltd. will become the first company in the world to use full-scale 3-D computer-aided design for building large passenger ships. Developed in-house, the new system can show both the structure of a ship and its parts in 3-D detail. It can display true-to-life blueprints on tablet computers, making tasks that require years of skill easier for less experienced workers. The system will help the company build two 3,250-passenger cruise ships at its Nagasaki shipyard. Vessels of this size contain some 10 million parts, 40 times as many as standard commercial liners.

K-Compatible Supercomputer In University of Tokyo

(August 16, 2012)

Fujitsu Ltd. has landed a supercomputer order from the University of Tokyo's Institute for Solid State Physics. The FX10 was developed by tapping technologies used in the K supercomputer at the Riken research institute. The university institute's configuration, consisting of four server racks and sporting 384 computing nodes, is expected to come online next spring with 90.8 teraflops of number-crunching power. Researchers from both public institutions and private businesses will have access to the K who has 10’510 teraflops. But as the time for each user will be limited, researchers are developing their programs for the K supercomputer in advance. This has created a boom for the FX10, which offers software compatibility with the K.

Undersea Cable For Global High-Frequency Trading

(August 09, 2012)

NTT Communications Corp. will open a new underwater fiber optic cable linking Japan and Singapore, as part of its efforts to broaden services for financial institutions at a time when high-frequency trading is gaining popularity around the globe. The company built the cable in partnership with three major telecommunications firms. The new cable enables data to make a round trip between Japan and Singapore in just 64- 65 milliseconds, NTT Communications says. It will be capable of transmitting data at speeds of up to 15 terabits per second.

Ultrafast LTE Smartphone

(August 20, 2012)

NTT DoCoMo Inc. plans to launch a smartphone that offers triple the data communications speed of its current offerings. At a maximum data throughput of 112.5 megabits per second, the new handset will transfer data as fast as an ADSL broadband service. The new product will support the LTE (Long Term Evolution) high-speed wireless communications technology. Rivals KDDI Corp. and Softbank Corp. have begun setting up LTE-compatible base stations. KDDI will offer LTE smartphones as early as autumn, while Softbank plans to offer two or three LTE models that use next-generation PHS technology.

Smaller Image Sensors For Smartphones

(August 20, 2012)

Sony Corp. will begin shipments of a small image sensor featuring a unique stacked structure for smartphones and tablet devices. The Exmor RS is a CMOS (complementary metal-oxide semiconductor) sensor created using Sony's proprietary technology for layering the pixel section over the signal processing chip. The image sensor is 30-40% smaller than conventional products. Sony will offer compact imaging modules that include lenses and autofocus mechanisms incorporating the new image sensors. The company's image sensors are used by Apple Inc. and other major smartphone manufacturers.

Android Device Gives TV Internet Access

(August 21, 2012)

Onkyo Corp. subsidiary Onkyo Digital Solutions Corp. has started selling a wireless LAN receiver that turns regular TVs into smart TVs capable of accessing the Internet. The device slots into a TV's HDMI input terminal. Accompanying software enables users to perform Internet searches, stream music and watch online video content. The receiver is equipped with Google Inc.'s Android operating system, a core processor made by U.K.-based ARM Holdings Plc and a 4-gigabyte flash memory. The product is compatible with USB and micro SD cards, so it can also be used to view images taken with digital cameras.

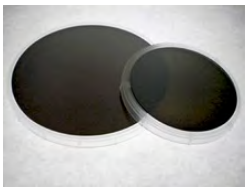
Opportunities In Smart Appliances

(August 22, 2012)

With TV sales in a protracted funk, electronics companies are hoping to find growth in smart home appliances. Panasonic Corp. will begin selling six types of smartphone-compatible home appliances: air conditioners, refrigerators, drum-type washer-dryers, body-composition monitors, calorie meters and blood pressure monitors. All products will come embedded with a special chip and can be operated via smartphone. Mitsubishi Electric Corp. also announced that it will begin selling four types of highly functional refrigerators and 11 types of air conditioners. The new products have enhanced power-saving capabilities. The air conditioners, for example, automatically reduce their output when their sensors detect an empty room.

Advanced Silicon Wafer For Power Chips

(August 23, 2012)



In a joint R&D effort with Showa Denko KK and others, Denso Corp. has developed a next-generation silicon wafer that it hopes will boost the performance of power chips. The 6-inch silicon carbide wafer is said to sport the highest level of purity in the world. Denso aims to use the advanced wafer in inverters, a key component in environmentally friendly vehicles. The wafer's purity makes it possible for inverters to handle a stronger electric current. This will probably lead to vehicles with better fuel efficiency and roomier interiors. Aside from automobiles, power chips based on the high-purity silicon wafer will likely find use in railway and smart-grid systems.

Japanese Technology To Become Global Next-Gen TV Standard

(August 23, 2012)

Technology backed by Japan's public broadcaster and electronics manufacturers will likely be adopted as the worldwide standard for next-generation TV broadcasts. The Ultra High Definition Television format offers a 33-megapixel resolution. With the number of frames per second doubling to 120, image movement will be smoother as well. The International Telecommunication Union, a specialized agency of the United Nations, will likely adopt the UHDTV format as one of its endorsed international technology standards shortly and recommend that countries around the globe embrace it.

4K Technology Screens Announced

(August 22, 2012)

Japan's LCD television manufacturers plan to roll out giant-screen models showcasing their strengths in the ultrahigh-resolution imaging technology known as 4K. Toshiba plans to debut an 84-inch TV equipped with this technology as early as the April-September half of 2013. The 55-inch model it released at the end of last year is the only 4K TV currently available in the market. Sony, which last year launched a home theater system projector offering 4K-level resolution, plans to follow that up with its first jumbo 4K TV. Panasonic said that it used 4K technology to develop a big-screen sign board that shows 3-D images to the naked eye.

Smart Waterworks In Europe

(August 24, 2012)

Toshiba Corp. will participate in European pilot experiments on water supply systems that make use of information technology to track usage and leaks. Starting in October, the European Union will conduct the tests in Milan and in Timisoara, Romania, for a period of three years. Water meters with telecommunications functions are to be installed in more than 100 homes and businesses, and sensors will be attached to water pipes spanning about 1km. This will allow information on water consumption and leaks to be ascertained instantly. The EU intends to evaluate the economic benefits of water-management technologies through the pilot studies. Toshiba will maintain and run the IT system, and report issues that need to be addressed.

Research Spending On Cloud Computing, Displays

(Bloomberg, August 28, 2012)

Sony Corp. plans to boost research and development spending on cloud computing and display panels as it tries to rebound from four straight losses. Sony also won't hesitate to buy outside technologies, including those that could benefit mobile devices. Sony plans to spend $6 billion in research and development in the year ending March 31, an increase of 8.4 percent from one year earlier. The company will spend more money developing components and energy-related products. Sony also started a research unit last year with about 100 workers trying to generate new businesses or a new "ecosystem". The company was Japan's fourth- biggest R&D spender last fiscal year -- trailing Toyota Motor Corp., Panasonic Corp. and Honda Motor Co. -- and 21st among global listed companies.

Energy-Efficient Synthetic Diamond Chip

(August 29, 2012)

A team of researchers from the Tokyo Institute of Technology and the National Institute of Advanced Industrial Science and Technology has jointly developed a new chip that can reduce power loss by approximately 98%. The researchers discovered that synthetic diamond is better for energy-efficient power chips than other materials. Synthetic diamond material can handle more than 10 times the voltage of other state-of-the-art materials to make chips. It is made from methane, a widely available resource. According to some estimates, if all chips in hybrid vehicles, electric power substations and train cars were replaced with synthetic diamond chips, the amount of power that Japan could save would be roughly equal to the amount of power generated by eight 1-million-kilowatt nuclear reactors.

Japan To Participate In Drafting Cloud Computing Guidelines

(August 30, 2012)

Cloud services are growing globally but service providers offer different levels of safety. There has been a string of incidents lately involving the loss of information due to insufficient data management. Users do not know how far their service providers have gone to ensure safety, and experts have noted that the lack of international standards is a pr oblem. The Ministry of Economy, Trade and Industry will join hands with the U.S. and Britain to begin drawing up global standards, including those for the International Organization for Standardization. About 15 countries are expected to participate in the drafting of a final proposal. Separately, the ministry plans to revise domestic safety guidelines for the first time in two years, calling for more secure management of clients' data.

6. Energy / Environment

Newly Introduced Feed-In Tariff System

(August 02, 2012)

The cost to consumers for supporting the recently introduced renewable energy purchase program may grow 12-fold in five years to 1,000 yen a month per household, according to industry estimates. The so-called feed-in tariff

system, which kicked off July 1, requires utilities to purchase electricity from facilities that generate power from renewable energy sources such as solar and wind. The price of solar power is set at 42 yen per kilowatt-hour currently, and the rates differ for each energy source. The utilities will recoup the costs by charging an average of 87 yen a month to each household for the first fiscal year, starting in August.

Various Local Projects Inspired By Feed-In Tariff System

(August 03, 2012)

The July introduction of a feed-in tariff system has inspired a variety of local projects. In Shiga, a small-scale project is under way to set up solar panels on the roofs of public facilities. All generated power will be sold to the power utility servicing the area. Proceeds will be returned to investors in the form of local gift certificates. In Hyogo, a special-purpose company set up by the prefecture, three city governments and local businesses is soliciting investment from citizens and others. The funds will be pooled to set up multiple solar farms. In Toyama, a project led by local businesses has led to the establishment of a roughly 1,000kw hydropower plant.

Japanese Companies Joining Chinese Eco-City Projects

(August 03, 2012)

A consortium of 58 Japanese companies will participate in projects to build environment-friendly model communities in two Chinese cities. The consortium, which includes Toshiba Corp., Hitachi Ltd. and Mitsui Fudosan Residential Co., will handle basic planning of housing, transportation systems and hospitals in Wenzhou, Zhejiang Province, and Dongying, Shandong Province. This will be the first time for a Japanese consortium to take part in a Chinese model-city project from the planning and designing stages. The cities will be built on land designated as "new development areas." China has been trying to create environment-friendly, smart communities to better cope with the country's rapid urbanization.

Wind Power Generator For Factory Exhaust

(August 03, 2012)

Air conditioning design firm IB Technos Co. has developed a small generator that taps the powerful exhaust air from factories. The machine will be installed near a rooftop exhaust outlet at air conditioning ducts of steelmaking works or clean rooms of chip fabrication plants. Normally, air that goes through a wind power generator's turbine is not used as energy. But the new system is highly efficient because it has a specially designed turbine that allows most of wind to be used as power to turn the turbine. With the turbine measuring 60cm in diameter, the 1kw system is also much smaller than counterparts with the same capacity, which normally have a 2-meter turbine.

Japan To Export Clean Energy Technology To Asian Countries

(August 03, 2012)

The Ministry of Economy, Trade and Industry is laying the groundwork for Japanese firms to export clean energy technologies to other parts of Asia, aiming to reach agreements with such emerging economies as Indonesia, Vietnam and India. The ministry has set its sights on bilateral deals through which Japan would receive carbon credits in exchange for the green technology. These arrangements are under consideration in the next international treaty for cutting greenhouse gas emissions, the follow-up to the Kyoto Protocol that expires this year. METI hopes to secure Japan's future carbon credits early through partnerships with emerging nations.

New Metal Technology To Cut Down CO_2 Emissions

(August 03, 2012)

Hitachi Ltd. and Tohoku University have jointly developed an alloy that lets coal-fired power plants run at higher temperatures, slashing carbon dioxide emissions by about 20%. Fuel costs for coal power plants are about half of those fired by liquefied natural gas, the most common fossil fuel used to generate electricity in Japan. But burning coal produces large amounts of CO_2. Burning coal at higher temperatures improves generation efficiency and reduces CO_2 emissions. Existing cutting-edge facilities can handle temperatures of up to 600 C, but Hitachi and the university found a way to raise the maximum temperature to 800 C. They enhanced the heat resistance of an alloy by employing such metals as cobalt.

Home Electricity Consumption Reduced By 88%

(August 04, 2012)

Annual electricity costs at an experimental housing unit were cut 88 percent by using solar panels, a storage battery and a fuel cell, Osaka Gas Co. and Sekisui House Ltd. have reported. From July 2011 to June 2012, the three-member household reduced its power costs to 584 kWh, from 4,830 kWh during the prior 12 months after their

house was refitted with the panels. Automatic regulators to operate fans and power curtains also contributed to cost reduction by bringing cool air into the 138.8m^2 house in the summer, and opening curtains during the day in winter to take advantage of the sunlight.

Geothermal Heat As Low-Cost Energy Source

(August 08, 2012)

Fujitsu Ltd. is using geothermal heat as a low-cost energy source at its printed-circuit-board plant in Nagano. Heat captured by 31 heat-extraction pipes embedded in the ground beneath the facility is compressed in a heat pump/chiller to generate water with a temperature of 44 C, which in turn is used to power air-conditioning equipment for clean rooms. Once it is used for this purpose, the water is cooled and recycled to start the process over again. It will take 14 years to recover the 70 million yen needed to install the system, compared with the 45 years it would have taken with a solar power-based system and 22 years for one using wind power.

Solar Cell Sealing Material Blocks Water Better

(August 08, 2012)

Dai Nippon Printing Co. will mass-produce a solar cell sealing material that blocks water 10 times better than what is now widely used. The sealing material is used as an adhesive on solar cells for attaching a back sheet, which protects the cells from heat and salt. A synthetic resin is now widely used for that purpose, but it lets moisture easily seep inside the cells, potentially causing electrical leakage and lowering power output. Dai Nippon's new material is based on polyolefin resin. The company decided to start mass production at its Izumizaki plant in Fukushima Prefecture after getting a thumbs up from solar cell makers that used the resin on a trial basis.

Construction Of 20 Solar Plants Planned

(August 09, 2012)

Mitsui & Co. and Tokio Marine Asset Management Co. plan to construct 20 megasolar plants, financed by infrastructure funds they will launch. The facilities will be built in two phases and offer a total generation capacity of 60,000kw. They are all scheduled to be in operation by the end of 2013. As part of the first phase, Hokkaido, Yamanashi and Yamaguchi prefectures will get two megasolar plants apiece, while Mie, Wakayama, Tokushima and Kumamoto prefectures will each host one plant, for a total of 10. Each site is poised to offer a capacity of 1,500kw to 5,300kw, for a combined total of roughly 28,000kw. For the second phase, 10 additional megasolar plants are planned.

Construction Of 250 Megasolar Farms Planned

(August 24, 2012)

One of the largest projects to build megasolar power plants in Japan is set to kick off, led by Orix Corp. and West Holdings Corp., which specializes in that field. Under the project, megasolar farms with a total output capacity of 500,000kw will be constructed at 250 locations across the nation. To make it easier to secure land, the project will focus on small- to midsize plants that have an output capacity of about 2,000kw each and require 20,000 to 30,000 m^2 of land on which to build. The feed-in tariff program the government started last month to promote renewable energy has spurred many firms to enter the solar power generation business to tap the high price utilities are required to pay.

Resistance To Geothermal Projects

(August 15, 2012)

A government project to build geothermal power plants has met with opposition from locals concerned about the plan's possible negative effects on hot spring water and tourism. The Environment Ministry in late March relaxed regulations on building geothermal power facilities in national and quasi-national parks, and is working on projects in five sites in these parks. However, the projects have been stalled by opposition from locals near Bandai-Asahi National Park, which stretches over Fukushima and other municipalities, and Hokkaido's Akan National Park, which straddles Kushiro and other municipalities.

Solar Panels On Seven-Eleven Stores

(August 16, 2012)

Maeda Corp. has won a large order to install solar panels at convenience stores operated by Seven-Eleven Japan Co. The contractor will install the panels at 5,000 stores nationwide over the next two months through the subsidiary JM Corp.

Reducing Greenhouse Gases

(August 16, 2012)

Several Japanese companies are stepping up efforts to assist other countries with energy-saving technologies in anticipation of the start of bilateral credit agreements for greenhouse gas reductions. Yokogawa Electric Corp. will install an energy-saving control system as early as next year at a refinery operated by an Indonesian state-run oil company. It is estimated that PT Pertamina will be able to recover the installation cost in about a year. Seabell International Co. will sell small hydropower generation systems in India. As a start, it has received an order for 20 10kw generators supplying power to homes in the north of the country.

"Green Town" In Itakura

(August 16, 2012)

Yamada Denki Co. will develop a smart town in Itakura, Gunma Prefecture, in an effort to turn the housing business into a growth driver as the domestic consumer electronics market shrinks. The consumer electronics retailer has purchased a site from the prefecture. It plans to build smart homes equipped with a 4kw solar power system, a storage battery and a home energy management system. Pricing will start at 29.8 million yen. The average plot size for each home is expected to come to about 220m^2. As a start, about 60 homes will likely be put on the market by the end of the year, with a total of 502 units to be sold over three years.

Anti-Reflective Solar Panels

(August 16, 2012)

Kaneka Corp. plans to begin full-scale sales of a nonglare solar panel as early as next spring. The panel diffuses the reflection of sunlight, thanks to a type of glass covered with micron-level bumps and grooves. Its irregular surface does not alter solar cells' power conversion efficiency because the amount of sunlight passing through is not affected. As more homes install solar panels, the reflected sunlight is increasingly leading to neighborhood disputes. In April, the Yokohama district court ruled in favor of a plaintiff seeking the removal of a neighbor's solar panel, ordering the defendant to also pay damages.

Groundwater Used To Heat And Cool

(August 17, 2012)

Kyocera Corp. has begun introducing an energy-saving system that employs underground water to help heat and cool the firm's Shiga Gamo plant, which makes semiconductor components and ceramic-related parts. It is expected to lower electricity consumption by 15% compared with 2010 and will also reduce carbon dioxide emissions by around 2.7 tons a month. The plant already uses groundwater to clean products, so the new system will take advantage of existing pumping equipment. Kyocera says it will take just over three years to recoup installation costs.

Construction Rubble Converted Into Ecological Roofs

(August 06, 2012)

Kajima Corp. and Chiba University have developed a method for turning ceramic shingles, thatch and concrete waste into ecologically friendly rooftop material. By recycling waste from buildings, the general contractor was able to cut the cost of installing the so-called brown roofing to less than half the cost of a typical green roof. Brown roofing is considered to promote biodiversity by providing a habitat for insects, birds and plants. Furthermore, the process does not require reinforcement of the underlying roof, unlike green roofing that involves the planting of trees. Kajima envisions use by factories, distribution centers and schools. Brown roofing, popular in Europe, has been used in facilities for the London Olympics.

Power Generation From Garbage Gas In China

(August 18, 2012)

Japanese firms are offering biogas-fueled power generation systems in China, as a way to utilize the gas generated from garbage treatment. Mitsui Engineering & Shipbuilding Co. will set up a joint venture with Chongqing Endurance Industry Stock Co., which makes special-purpose automobiles such as garbage collection vehicles. The venture's biogas power generation system will run on the methane gas generated from food waste and other garbage. The system removes water and oil from the waste, crush the waste, and extract methane gas in the process of fermentation. Meanwhile, JFE Engineering Corp. has begun designing a biogas power plant in Shenyang, Liaoning Province. The plant will have the capacity to process 200 tons of food waste daily, and is slated to begin operations in 2013.

Big Companies See Potential Of Green Energy

(August 20, 2012)

More than 30 percent of 109 major Japanese companies polled believe that renewable energy will constitute a viable alternative to nuclear power. According to the results of the poll, only three companies believe there is no alternative, indicating that business circles are becoming increasingly optimistic that Japan will be able to minimize its reliance on nuclear energy in the future. On the three options proposed by the government for atomic power's role in the nation's future energy mix in 2030, 13 companies backed the 15 percent option and 11 chose for 20 percent to 25 percent. One company answered zero percent, while four said nuclear power should account for more than 25 percent.

Wind Power Unit To Add 6 Turbines

(August 15, 2012)

Summit Wind Power Corp. plans to build six wind turbines in Kashima, Ibaraki Prefecture, lifting its total generation capacity by 50% to 54,000kw. After completing environmental assessment studies, the subsidiary of Summit Energy Corp. which is a wholly owned power producer/supplier unit of Sumitomo Corp., will brief local residents. It will seek to begin commercial operation around 2016, with output sold to Tokyo Electric Power Co. and others. Summit decided to expand operations, encouraged by the July start of a feed-in tariff system requiring power utilities to purchase electricity generated from renewable sources.

Subsidies To Promote Energy-Saving Condos

(August 21, 2012)

The government plans to offer subsidies starting next year to encourage large condominium complexes to adopt energy management systems and other initiatives to curb power use. The Ministry of Economy, Trade and Industry plans to request around 30 billion yen for its proposed measures, targeting complexes with around 100 units. Some factories and office buildings have already equipped themselves with power-saving systems that track power use by computer and employ solar energy, storage batteries and hot water pumps. But even simple versions of such systems can cost several million yen, putting them out of reach for households. METI hopes to encourage condo homeowners associations to install such systems to by subsidizing up to half of related installation costs.

Government Joins Efforts To Build Power Grids

(August 22, 2012)

In an unprecedented move, the government plans to join hands with electric utilities and wind power companies to build power grids in some of the far-flung parts of northern Japan best suited for wind farms, according to sources. The Ministry of Economy, Trade and Industry estimates the total cost of installing the grid in six areas of Hokkaido, as well as in Aomori and Akita prefectures, at 300 billion yen. The network of power lines will connect wind farms with cities and industrial parks that consume large amounts of electricity. Coastal areas of Hokkaido and the Tohoku region, where strong winds blow year-round, are considered promising sites for wind power generation.

Feasibility Test For Waste-To-Energy Plant In Myanmar

(August 23, 2012)

JFE Engineering Corp. has started a feasibility study on launching a garbage-based power generation business in Myanmar. The survey will analyze the composition of garbage such as plastics, glass, and metals to determine whether the waste is suitable for fermentation or incineration to generate power. It will also make estimates on revenue from garbage treatment and electricity sales, as well as costs for waste collection and facility operations. The JFE Holdings Inc. unit will put together a proposal by the end of next year, with the aim of winning engineering, procurement and construction orders for the plants. Myanmar currently has no waste treatment plant, and garbage is taken directly to landfills.

Rising Popularity Of 'Smart Cities'

(August 23, 2012)

The power shortages that hit the country following the March 2011 disasters spawned efforts to create efficient “smart cities”. A smart city in Kashiwa, Chiba Prefecture, will serve as a model for Tohoku projects still in the planning stage. The Kashiwa-no-ha campus city project, undertaken by major real estate agency Mitsui Fudosan Co., has introduced solar- and wind-power generators and a 2,000- kw storage battery and secures its water supply by tapping groundwater. The smart city plans to adopt more clean-energy sources in the future, including biogas generated from raw garbage, solar heat and geothermal energy, while promoting energy-saving efforts by installing light-emitting diode bulbs and introducing an electric-vehicle-sharing system.

Solar-Powered Desalination Plants

(August 24, 2012)

Hitachi Plant Technologies Ltd. will market overseas systems that use solar power to produce drinking water. The company will sell systems that use electricity generated by solar panels to pump groundwater or seawater. Methods such as a reverse osmosis process for desalinating the water to make it suitable for human consumption will be employed. Demand will be cultivated primarily among Asia-Pacific island nations, which tend to lack both electricity and drinking water. The first such systems will be delivered to the small Pacific nations of Tuvalu and Nauru in January. Hitachi Plant will also provide management guidance and operational support.

Renewables To Account For 10% Of Electricity Generation

(August 31, 2012)

About 10% of the nation's electric generating capacity would run on offshore wind, geothermal, biomass and ocean power by 2030, up from 1% in 2010, based on new Environment Ministry targets. This would mean a sixfold rise in potential power output from these four sources, to 19.41 million kilowatts, the equivalent of 19 nuclear reactors. Offshore wind power would make up the biggest chunk of the expanded capacity -- 8.03 million kilowatts, 270 times more than in 2010. Biomass would come next with 6 million kilowatts, up from 2.4 million. Geothermal capacity would grow sevenfold to 3.88 million kilowatts. This will depend on perfecting new technology, as will the rise of ocean power, an area where Japan currently has no generating capacity.

7. Space Development

Contribution To Mars Probe Acknowledged

(August 15, 2012)

U.S. President Barack Obama gave special thanks to Japan and seven other countries for their contribution to the successful landing of an unmanned probe on Mars. "I'd like to congratulate and thank all of our international partners--Spain, Russia, Germany, France, Canada, Italy, Japan, Australia--all of them contributed, I know, to the instrumentation 'Curiosity' landed on Martian surface," Obama said in a phone conversation with members of the Joint Propulsion Laboratory of NASA.

Advanced Fiber Used In Mars Mission Produced In Japan

(August 29, 2012)

Teijin Ltd. said its aramid fiber was used in suspension cords for the parachute that safely landed the U.S. Mars rover Curiosity on the red planet. Teijin Techno Products Ltd.'s Technora is stronger than steel but lighter. Carbon fiber has similar characteristics, but Technora is more resistant to bending. In addition to offering high tensile strength, the aramid fiber is also resistant to heat and flexible. A total of 80 suspension cords were used to connect the National Aeronautics and Space Administration rover with the parachute. Weighing about 60kg and with a roughly 15-meter diameter, the parachute set the rover down on the planet's surface without damage by slowing its descent through the atmosphere to 290 km/h from 1,450 km/h.

Japan – U.S. Cooperation To Monitor Space Debris

(August 23, 2012)

Japan and the U.S. have agreed to share data and strengthen the monitoring of space debris to avoid collisions with satellites and other objects in space. The agreement comes as the amount of space debris, including unused satellites and their fragments, is believed to total more than 500,000 items. The debris poses a danger to working satellites and the safety of astronauts at the International Space Station. Orbiting the Earth at speeds of up to 8 km per second, the space junk could hit communications, broadcasting and GPS satellites at any time. The two countries also agreed to work together in securing ground safety by quickly detecting the landing points of retired satellites set to fall to Earth.

Satellite Data Shows Arctic Sea Ice Shrank To Smallest Ever

(August 26, 2012)

Sea ice coverage in the Arctic region shrank to a record low 4.21 million km^2, declining below the previous record low of 4.25 million km^2 marked in 2007, the Japan Aerospace Exploration Agency said, citing satellite data. The agency said Arctic sea ice coverage typically contracts in mid to late September every year, suggesting the ice

pack could melt even further. The agency said rising temperatures in the region may be thinning the ice shelf. "I didn't expect the sea ice coverage to decline at this fast a pace. It is about half the size of ice coverage seen in the 1980s," said Masahiro Hori, a researcher at the agency, noting that it is a sign of global warming. Since the start of August, the shrinking of ice coverage has accelerated, melting at a pace of 0.1 km^2 per day, the agency said.

Experiment To Capture Microbes In Space

(August 27, 2012)

Cosmic experiments to capture microbes floating through the void of space at an altitude of around 400 km where the International Space Station orbits are set to begin in 2013. Called the Tanpopo (Dandelion) Plan, the project seeks to learn about the relationship between space and life, such as looking into whether microbes can cross space, much like how dandelion seeds are scattered by the wind. Participants include Tokyo University of Pharmacy and Life Sciences, JAXA, Yokohama National University and Chiba University. The group developed a silicon dioxide-based material called aerogel that is extremely low-density and soft. With a density of only 0.01 gram per cm^3, it looks like smoke, but is still a solid and becomes a cushion that can stop and capture micro-particles.

900 Megapixel Camera To Aid In Search For Dark Matter

(August 27, 2012)

The Subaru telescope has begun testing a new eye, so to speak. Developed over 10 years, the new Hyper Suprime-Cam digital still camera is 3m tall and weighs 3.2 metric tons. The camera has a resolution of 900 megapixels. The focusing, or the adjustment for optical aberrations, is the job of the Wide Field Corrector, a system made by Canon Inc. that is an assembly of seven optical lenses, the largest nearly 1m in diameter. The capturing of images is the job of an array of 116 special charge coupled device image sensor elements developed by Hamamatsu Photonics KK. What sets the Hyper Suprime-Cam apart is its wide field of view, which can capture images of the sky equal to three times the width the moon takes up in our view of the sky. This is 10 times wider than with Subaru's previous camera.

8. Engineering / Robotics

Fuel-Efficient Engine For Passenger Jet

(August 10, 2012)

Mitsubishi Heavy Industries Ltd. announced that it has reached an agreement with Pratt & Whitney to develop and manufacture a new engine for the Mitsubishi Regional Jet, the first Japanese-made small passenger jet. The PurePower PW1200G, the U.S. aircraft engine maker's new engine, is expected to be highly fuel-efficient. Mitsubishi will undertake the development and manufacturing of the engine's combustors, high-pressure turbine disks and diffuser cases. The company will also perform final engine assembly and operational testing of delivered products.

R&D Subsidies To Reduce Rare-Earth Demand

(August 10, 2012)

The Ministry of Economy, Trade and Industry is planning R&D subsidies meant to reduce the need for imported rare-earth elements, reckoning aid could halve demand for a magnet-making metal supplied almost exclusively by China. A major priority is dysprosium, an ingredient in the powerful magnets found in motors for hybrid cars and energy-efficient appliances. China accounts for more than the 90% of dysprosium production. Jtekt Corp., a machine tool maker affiliated with Toyota Motor Corp., will use the METI subsidies to design a new type of motor that does not need dysprosium magnets.

New Lawn Mowing Robot For Europe

(August 21, 2012)

Honda Motor Co. has developed a robot that mows lawns completely on its own, and will launch it in France and other European markets early next year. Shaped like a vacuuming robot, the Honda Miimo moves in a random pattern and uses a blade on its bottom to cut 2-3mm of grass. Clippings are dispersed on the ground as mulch. The device features an incline detector so it can maintain the proper position. European sales of conventional push mowers for home use have been steady at around 1.7 million units a year. But consumers in the region are rapidly embracing robotic mowers, with the market growing 20% annually to 90,000 units at present.

New Magnet Free Of Dysprosium

(August 16, 2012)

Toshiba Corp. has developed a powerful motor magnet that does not contain dysprosium, a rare-earth metal that comes mostly from China. The magnet instead uses samarium, a rare-earth metal abundant in Australia and the U.S. Powerful magnets typically used in motors are made by adding dysprosium to another rare earth, neodymium. Toshiba successfully developed technology for boosting the magnetic force of samarium-cobalt magnets to a level on a par with that of neodymium magnets. It increased the amount of iron, which makes magnets more powerful, to 20-25% in weight terms from 15%. The firm also reduced undesirable oxides by adjusting the temperature, time, pressure and other variables for sintering. The magnetic force did not decline at temperatures above 100 C in tests, making the magnet suitable for use in motors that propel cars and trains as well as industrial machinery.

Chargers For Electronic Vehicles To Be Tested

(August 21, 2012)

Toyota Motor Corp. will conduct feasibility tests on the use of chargers for both plug-in hybrid and electric vehicles. The tests, to be conducted from November to March 2013 in Aichi Prefecture, will examine optimal locations to install the chargers and billing methods, the automaker said. In Japan, chargers are installed at the discretion of commercial and non-commercial facilities, and currently there is no established method of recuperating installation costs. The upcoming field tests include developing coin-operated chargers and installing about 20 chargers at commercial hubs and other locations for analysis of usage patterns and operation methods. The municipalities of Gamagori and Toyota as well as 10 businesses will participate in the tests.

New Sedan With 10% Better Fuel Economy

(August 22, 2012)

Honda Motor Co. took the wraps off its all-new Accord sedan, which hits the U.S. market next month. As part of its first full redesign in five years, it will offer higher fuel economy, new 2.4- and 3.5-liter engines, and a new transmission. More light, high-tensile aluminum panels were used in the chassis to save weight. Fuel economy will be about 10% better than the current model. In addition to the gasoline-powered Accord, the company also plans to release a plug-in hybrid version at the start of next year.

Broader Disclosure Of EV Charging Technology Standards

(August 23, 2012)

The government will broaden its disclosure of quick-charging technology standards for electric vehicles, currently known by only a few automakers. The Ministry of Economy, Trade and Industry aims to accelerate the development of charging infrastructure, which is still not widespread. Details of the CHAdeMo charging technology, developed by Nissan Motor Co., Toyota Motor Corp. and others, will be made available at a meeting of the Japanese industrial standards committee, an advisory panel to the industry minister. The standard is currently available to some automakers and power companies. Details to be disclosed about the technology include the shape of the plug that connects the car to the charger, and how to prevent electrocutions.

Joint Venture In China To Build R&D Base

(August 28, 2012)

Mazda Motor Corp. will launch R&D operations with a Chinese partner in 2013, eyeing development of fuel-efficient vehicles for the local market. Mazda will set up a 50-50 joint venture with Changan Automobile Co. to manufacture subcompacts. As a condition for approving the joint venture, Chinese authorities required Mazda to have the new firm operate an R&D base, as well as manufacture and sell original-brand vehicles. The new company was also tasked with offering electric vehicles and other alternative-energy models. Mazda and Changan Automobile will jointly establish an R&D base in Nanjing. They plan to install a research center, a prototype plant and a testing center, with some portions to be up-and-running around 2013. The R&D base is expected to be completed by 2016.

Batteries For Electronic Vehicles Oversupplied

(August 28, 2012)

Nissan Motor Co. will adopt lithium-ion batteries produced by Hitachi, Ltd., a non-affiliated company, for its model to be marketed in the United States. Although Nissan has a lithium-ion battery company jointly with the NEC Group, it intends to obtain batteries at lower prices from Hitachi. So far, auto makers have chosen joint development for core battery components. However, the situation may change as lithium-ion batteries are now oversupplied due to sluggish sales of electric vehicles. Hitachi does not have partnerships with specific car companies and has supplied lithium-ion batteries to General Motors. Mitsubishi Motors Corp. obtains batteries for low-priced models from Toshiba Corp., not from a joint venture with GS Yuasa Corp. Honda Motor Co. also adopted Toshiba's batteries.

N700A, The 'Advanced' Shinkansen

(August 23, 2012)

Central Japan Railway Co. (JR Tokai) has unveiled a new Shinkansen that has enhanced braking systems and environment-friendly features. The train is scheduled to make its commercial debut in February. The new train sports energy-saving LED lights in the toilet and powder cabins and fully recyclable polyester in the seat material. The interior designs of both the regular cars and first-class Green Cars are based on the N700 series, with some variations in the seat covers.

Prototype Order For U.K. Train Management System

(August 30, 2012)

Network Rail Ltd., which manages all of the U.K.'s train stations and lines, placed orders with Hitachi Rail Europe Ltd. and two European firms for prototypes of a system it plans to introduce starting in 2014. It will test and evaluate each of the products before selecting a company to make its new system. Hitachi has previously filled orders for rolling stock in the U.K., but this is its first order for a system of this type. It provides traffic management systems for major rail lines in Japan yet has never received a foreign order for one. In overseas rail markets, companies that can offer not just cars but also maintenance services and traffic management systems are the most competitive.

Order For Subway Cars From Singapore

(August 30, 2012)

Kawasaki Heavy Industries Ltd. and a Chinese firm have jointly received an order for 132 subway cars from Singapore's Land Transport Authority, the Japanese company said. Kawasaki Heavy will oversee the entire project, design the cars and supply the key components, including the motors and control systems. These components will be shipped to China for assembly by local firm CSR Qingdao Sifang Locomotive and Rolling Stock Co. Kawasaki Heavy's Singaporean unit will handle such tasks as delivery and on-site testing. The cars are expected to be delivered in 2015/2016. This marks the second time that this team has received an order for subway cars from Singapore's public subway operator, following one in 2009.

9. Nuclear Development

Reactors To Halt Operations If Fault Found Underneath

(August 01, 2012)

The government's candidate to head Japan's new nuclear regulatory authority said he expects the two reactors at the Oi nuclear plant in western Japan to halt operations should there be any active fault found underneath them. Shunichi Tanaka, former vice chairman of the Japan Atomic Energy Commission, made the remark about the Nos. 3 and 4 reactors of the Kansai Electric Power Co. plant after they were restarted last month despite lingering public concerns. It is a sensitive issue in Japan whether to reactivate idled reactors, as many people have become anxious about the safety of nuclear power in the wake of the crisis at the Fukushima Daiichi complex, leading all of Japan's 50 commercial reactors to go offline temporarily.

Fault Surveys For All Nuclear Plants

(August 07, 2012)

The Nuclear and Industrial Safety Agency will recheck nuclear power plants for underground faults that may have been overlooked during planning, responding to criticism of the original assessments. Using geological survey results, photographs, and other information from power companies, experts will judge the likelihood of movement along any faults, based on current science. Power plants suspected of sitting atop active faults will be subject to further inspections. Departing from an earlier policy of case-by-case examinations, the agency will reassess all of the nation's commercial nuclear power plants and t he Japan Atomic Energy Agency's experimental Monju fast breeder reactor.

Breeder Reactor To Be Resilient To Huge Quake

(August 02, 2012)

The Japan Atomic Energy Agency believes its Monju fast breeder reactor would be safe even if peak ground acceleration amid a huge quake exceeded original estimates by more than 1.86 times. The unit, if not idled, would use highly enriched plutonium-uranium mixed oxide (MOX) fuel. The agency assumed that the unit's cooling functions would be maintained and that its liquid sodium would continue to circulate normally even if all alternating current power sources were knocked out. The agency concluded that it could maintain the reactor core in a cool and stable state if the facility is rocked far more violently than the maximum of 760 gals estimated during design.

Majority Against Nuclear Power

(August 04, 2012)

About 70 percent of the Japanese citizens who expressed a desire to speak at government hearings on the future of nuclear power supported the so-called zero option. A series of 11 hearings in as many cities were held to sample public opinion on the three options fixed by the government for nuclear power's role in Japan's future national energy plan in the wake of the Fukushima nuclear disaster. The three options for nuclear energy's share of total power generation in 2030 were 0%, 15% or 20-25%.

Poll Shows About 50% Want To End Japan's Nuclear Reliance

(August 22, 2012)

A government opinion poll on Japan's future energy policy showed that nearly 50 percent of respondents want to end Japan's atomic power generation by 2030, a far larger portion than those supporting more gradual reductions of nuclear reliance. The outcome of the survey showed that the more participants were informed on energy issues, the greater their support for reducing Japan's nuclear reliance to zero by 2030. Keio University professor Yasunori Sone, who headed the committee organizing the survey, said that a large portion of participants hoped the country would withdraw from nuclear power generation despite "knowing that they (would) have to confront a rise in (electricity) costs as a result of an increase in reliance on renewable energies, and a change in lifestyle."

Nation Split Abolishing Nuclear Energy

(August 28, 2012)

Nuclear power and its role in Japan's future is a divisive issue, a new poll by Nikkei Inc. and TV Tokyo Corp. shows. The survey asked about the government scenarios on reliance on the atom for electricity in 2030. "Zero reliance" drew 43% support. But 50% supported some use, with 19% saying "20-25%" and 31% saying "15%." Differences also emerged based on political party affiliation. Among supporters of the ruling Democratic Party of Japan, 44% urged "zero reliance," while those calling for "20-25%" and "15%" came to 19% and 33%. But among supporters of the opposition Liberal Democratic Party, 61% backed the continued use of nuclear energy to some extent. While 34% of this group called for "15%" reliance, 27% supported "20-25%."

High Energy Costs Without Nuclear Power

(August 06, 2012)

Masakazu Toyoda, chairman of the Institute of Energy Economics, Japan, warns that electricity costs will rise by about 3.4 yen per kilowatt-hour from 2010, if the Japanese nuclear reactors remain offline and the situation is addressed by increasing imports of crude oil and natural gas. As the power rate for industrial users is about 10 yen per kilowatt-hour, charges will increase more than 30% if higher import costs are passed on. To generate 1 million kilowatts of electricity, equivalent to a nuclear reactor, with solar light, the amount of land required equals the area covered by Tokyo's Yanamote loop train line. In addition, solar power generation is costly, he said.

Business Lobby Takes Pro-Nuclear Stance

(August 08, 2012)

The Japan Association of Corporate Executives said that while the nation may have to reduce its reliance on nuclear energy somewhat, it should not abandon the atom altogether. The business lobby said in its recommendations: "Japan should contribute to the world in nuclear safety, and it shouldn't allow related technologies and talent to die out." The organization did not recommend a specific weight for nuclear power, saying only that it would be desirable to reduce the figure from the 26% of 2010.

Prime Minister Considers Zero Nuclear Dependency

(August 06, 2012)

Prime Minister Yoshihiko Noda said he will instruct his Cabinet members to consider what kind of challenges the government could face if it decided to reduce Japan's dependency on nuclear power to zero. It is the first time that Noda has referred to the possibility of eventually abolishing all nuclear power plants in the country in the future. Opposition to nuclear energy is increasing especially after Noda's government decided in June to reactivate two nuclear reactors at the Oi power plant in Fukui. He also reiterated that the resumption of power plants is necessary for the time being to avoid power shortages.

Controversy In Cabinet On Nuclear-Free Japan

(August 22, 2012)

Cabinet members are beginning to voice support for moving the country away from nuclear power under a new national energy policy, but some appear to be more enthusiastic than others. "We need to build a society that does not depend on nuclear power," National Policy Minister Motohisa Furukawa said. Environment Minister Goshi Ho-

sono echoed the view, saying he wishes for "a world without nuclear power." But his was not an unalloyed endorsement. Hosono also acknowledged that nuclear technology will remain important to both Japan and the world.

Nuclear Power Joint Ventures

(August 11, 2012)

Hitachi Ltd. and General Electric Co. are considering consolidating their two nuclear power joint ventures as they struggle to win orders in Japan and the U.S. following the Fukushima accident and America's shale gas boom. When the pair combined their nuclear operations in 2007, it was decided that a J apanese joint venture would be in charge of marketing, building and maintaining nuclear plants in Japan. The U.S. joint venture was to be responsible for the global market outside Japan. To increase business efficiency, "we're talking with GE about improving our relationship, including consolidating the joint ventures," Hitachi president Hiroaki Nakanishi said.

Damage To Onagawa Nuclear Plant Evaluated

(August 11, 2012)

The U.N. atomic agency said that Japan's Onagawa nuclear power plant, despite having been closest to the epicenter of the March 2011 earthquake and tsunami, was in surprisingly good shape. The structural elements of the plant were "remarkably undamaged given the magnitude of ground motion experienced and the duration and size of this great earthquake," the International Atomic Energy Agency said in an initial report. Onagawa "experienced very high levels of ground shaking—among the strongest of any plant affected by the earthquake—and some flooding from the tsunami that followed, but was able to shut down safely," the Vienna-based IAEA said.

Butterflies Affected By Radiation

(August 13, 2012)

Radioactive materials released by Tokyo Electric Power Co.'s Fukushima No. 1 nuclear power plant have caused abnormalities in butterflies, a team of researchers has said. "We conclude that artificial radionuclides from the Fukushima nuclear power plant caused physiological and genetic damage" to pale grass blue butterflies, according to an article published in the British journal Nature. Radiation exposure damaged butterfly genes, and this damage has been inherited by later generations, the article stated. However, Humans are completely different from butterflies and they should be far more resistant.

Decontamination In Fukushima

(August 16, 2012)

Companies participating in the Environment Ministry's technology verification project for the decontamination of radioactive substances in Fukushima Prefecture are currently testing their cleanup solutions to determine whether they can be used widely. The ministry chose 22 technology verification projects out of 295 proposed by the private sector, and is promoting the development of their respective technologies. Shimizu Corp. has been cleaning contaminated soil by exploiting radioactive cesium's tendency to adhere to small particles. Specific agents are mixed with soil particles under two millimeters in diameter to absorb the cesium. The resulting substance is then sifted by a machine to remove the soil so it can be reused. About 80 percent of the soil is salvageable.

Record High Cesium Detected In Fish Near Fukushima Plant

(August 22, 2012)

Tokyo Electric Power Co. said that it has detected a record high 25,800 Bq/kg of radioactive cesium in fish sampled within a 20-kilometer range of the crippled Fukushima Daiichi nuclear power plant. The level of cesium found in greenling is 258 times that deemed safe for consumption by the Japanese government, suggesting that radioactive contamination remains serious more than a year after the nuclear crisis. Fishing in the sea off Fukushima Prefecture is voluntarily restricted except for trial fishing of certain octopuses, so such contaminated fish would not be distributed in markets. According to the Fisheries Agency, the previous record of radioactive contamination in fish was 18,700 Bq/kg detected in cherry salmon.

Plutonium Traces 1.4 Times That of Nuclear Weapons Tests

(August 23, 2012)

Plutonium has been detected at 10 l ocations in four municipalities in Fukushima Prefecture, the science ministry said. The highest reading was 11 becquerels of plutonium-238 per square meter, detected in the town of Namie, the ministry said. That is about 1.4 times higher than the level that originated from fallout from nuclear weapons tests abroad. The findings were from a survey in which samples were taken at 62 locations within 100 km of the stricken plant. No plutonium was found in samples from areas 45 km or farther from the plant. Plutonium-238 was detected in 10 of 62 locations. The farthest point was in Iitate, some 32 km from the plant.

Grooming Engineers For Fukushima Cleanup

(August 24, 2012)

The Ministry of Economy, Trade and Industry will help build a corps of specialists capable of dismantling the ruined nuclear reactors at the Fukushima Daiichi power plant and helping develop the necessary technology. The financial aid will come from the national budget starting in 2013. The ministry believes the decommissioning process -- some parts of which, like removing melted fuel rods, will require starting from R&D -- will be too much for Tokyo Electric Power Co. to handle on its own. METI will support basic research into reactor dismantlement, with aid going to universities, corporations and public institutions. The researchers involved would eventually take the lead in the clean-up at Fukushima Daiichi.

Thyroids Checkup For Children Outside Fukushima

(August 27, 2012)

The government will check the thyroids of 4,500 children at three locations in Japan to determine whether the diagnoses of about 36 percent of Fukushima children with thyroid growths are attributable to last year's nuclear disaster, officials said. Medical experts will conduct similar ultrasonic thyroid examinations on children aged 18 or younger outside Fukushima Prefecture. The exams will be conducted as far away from the Fukushima Daiichi plant as possible as Japan lacks epidemiological data related to a nuclear accident. Currently, about 360,000 children in Fukushima Prefecture are subject to the medical exams, as the number of children with thyroid cancers increased several years after the 1986 Chernobyl nuclear accident.

10. Physics

Ultraprecise Optical Clock

(August 27, 2012)

Called an optical lattice clock, a device first conceptualized in Japan promises to be 1,000 times more precise than today's high precision clocks. A cesium-based atomic clock can keep track of time down to a precision of 15 decimal places. Time has already been read out to 17 digits with an optical lattice clock. Current atomic clocks use the frequency of the microwaves absorbed by cesium atoms as the time reference. Optical lattice clocks are also a type of atomic clock, but the time reference is obtained using lasers and atoms of strontium and other elements. Eventually, optical lattice clocks could even become the instrument for defining the international standard for the definition of a second. It could give scientists the means for studying relativistic effects of everyday situations.

11. Intellectual Property Rights / Technology Transfer / Alliances

U.S. Firm Obtains License To Use iPS Cells

(August 02, 2012)

Kyoto-based iPS Academia Japan Inc. has agreed to license the use of its patents for induced pluripotent stem cells to a U.S. firm. The company manages Kyoto University Prof. Shinya Yamanaka's patents related to iPS cells. It provided patent licenses to Lonza Walkerville Inc., a group firm under Swiss pharmaceutical supplier Lonza Group Ltd. The licenses will permit Lonza Walkerville to manufacture and sell iPS cells and iPS-derived cells. The granting of the license to Lonza Walkerville is expected to facilitate the use of iPS cells in reagents for drug production.

Takeover Of LCD Production

(August 11, 2012)

Citizen Holdings Co. purchased the LCD operations of U.S. chipmaker Micron Technology Inc. The deal covers Micron's operations to make parts and chips used in ferroelectric LCDs. Ferroelectric LCDs are used in digital camera electronic viewfinders. Thanks to their high resolution, these LCDs are seeing wider use, including in mirrorless cameras. Citizen Holdings has been receiving materials for the LCDs from Micron to date.

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Japanese Firms Score High In U.S. Patent Assets Rankings

(August 07, 2012)

Japanese companies occupied half of the top 10 spots in U.S. patent asset rankings for 2011. Panasonic was the highest-ranked Japanese company at the third place. Canon fell one place to fourth. Toshiba ranked fifth. Seiko Epson came in 10th. The rankings take into account the number of valid patents and the amount of attention individual patents draw. IBM made first place, Microsoft sixth and General Electric ninth. South Korean firms Samsung Electronics and LG Electronics were in second and eighth place.

Expiration Of Hybrid Patents

(August 16, 2012)

With shale gas production poised to kick off a new energy revolution in the U.S., the approaching expiration of Toyota Motor Corp.'s hybrid patents could potentially alter the world's reliance on energy resources in the Middle East. Toyota holds dozens of patents for its proprietary hybrid vehicle technologies. Hybrid cars offer greater fuel efficiency, but the market has thus far been limited to Japan and the U.S. One key reason for this is the difficulty in developing technologies that combine gasoline powered engines with electric motors. Toyota's complicated hybrid patents also discourage other automakers from building hybrid cars on their own. However, one patent that forms the basis of Toyota's hybrid vehicle operations is set to expire next year.

U.S. To Probe Alleged Patent Violations

(August 22, 2012)

The U.S. International Trade Commission said it has decided to launch a probe into 24 manufacturers, including Nintendo Co. and Kyocera Corp., for alleged patent violations in connection with wireless consumer electronics devices and components. The investigation is based on a complaint filed by three California-based manufacturers, the semi-judiciary trade body said in a statement. The wireless devices and components are used for such products as smartphones and electronic tablets. The 24 manufacturers also include companies in Canada, China, the Switzerland, South Korea and Taiwan.

12. General Interest

Japan Fifth Healthiest County

(August 15, 2012)

Japan was placed fifth in its ranking of the world's healthiest countries, measured by average life expectancy, cigarette smoking rates, mortality and other factors. Singapore placed first, followed by Italy, Australia and Switzerland. The survey placed the United States 33rd, the lowest rank among developed countries. South Korea was in 29th place, with China placing 55th. Swaziland was last, in 145th place. The survey examined such aspects of life as the percentage of drinkers, blood cholesterol values as well as air pollution levels, based on data released as of May by the United Nations, the World Health Organization and the World Bank.

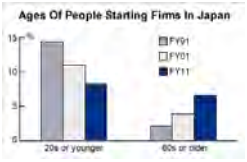
Female Entrepreneurs In IT Sector

(August 06, 2012)

A growing number of women in Japan are starting to play a more prominent role in the male-dominated information technology industry. In June, 120 Softbank stores and electronics appliance retailers throughout the country began selling a unique, ribbon-shaped accessory for smartphones. The product was jointly developed by Softbank BB Corp. and Ageha Corp., an IT marketing venture firm based in Tokyo's Minato Ward. For the smartphone accessory Ageha founder Yuko Kinoshita combed through user comments to determine which shapes and colors women like. Kahoko Tsunezawa started Trenders Inc., a web marketing firm with offices in Tokyo's Shibuya Ward, in 2000. "I want to harness the power of women to communicate in order to influence consumption," Tsunezawa said. The company's clients include leading transport firms and manufacturers.

Senior Citizen Entrepreneurs Increasing

(August 06, 2012)



Senior citizens are increasingly setting up their own companies by leveraging their experience and extensive personal connections. According to the state-affiliated Development Bank of Japan, the percentage of people above the age of 60 who have established their own companies rose to 4.3% in 2007, up from 3.9% in fiscal 2001. This figure jumped after the 2008 collapse of U.S. investment bank Lehman Brothers Holdings Inc., surging roughly 1.5-fold to 6.6% in 2011. The figure for 2011 indicates that people above the age of 60 founded approximately 2,200 new companies in the last year.

Paid Lounges To Smokers Newly Open

(August 03, 2012)

Called Ippuku, three well-ventilated, paid lounges for smokers have opened in Tokyo's Chuo Ward. The lounges are run by General Fundex Inc. and have proved resounding successes, as office manner-conscious workers from the many nearby towers, not allowed to smoke on the street by ward ordinance or in their offices, flock to these Ippukus. The lounges are designed to be bright and inviting, with strong lighting and light-toned walls that have photocatalystic paint, which reduces odors and tobacco stains. The lounges are air-conditioned and have soothing music pumped through speakers. All three lounges are open from 6 a.m. to midnight, seven days a week. Entry costs 50 yen, but unlimited weekly (500 yen) and monthly passes (1,800 yen), are also available.

R&D Growth

(August 12, 2012)

Japanese corporate R&D spending is set to rise at a moderate pace in the current year, led by the machinery and auto industries, an annual survey showed. The machinery industry is forecast to increase R&D spending by 16.9% on the year, while big auto and autoparts companies are expected to boost such spending by 6.5%. Makers of basic materials and related firms are likely to raise spending by 5.1%. These sectors are increasing R&D spending, focusing especially on businesses related to alternative energy, an area expected to drive future growth. The survey also shows R&D spending by the electronics and IT industries will remain flat.

106-Year-Old Academic Named Oldest To Circle Globe

(August 18, 2012)

An academic was recognized by Guinness World Records as the oldest person to have completed a round-the-world trip using public transportation. Saburo Shochi, an educator and professor emeritus, arrived at Fukuoka airport the same day from a month-long round-the-world lecture tour. Shochi, who began making lecture tours when he was 100, traveled some 56,700 km this time. After departing from Fukuoka airport, he visited six countries including Canada and Bulgaria as well as South Africa, where he spoke at the International Congress of Psychology in Cape Town. The latest trip was Shochi's seventh lecture tour.

'Toilet Bike Neo' Advertising Ecologic Toilet Models

(August 23, 2012)

Japanese toilet maker Toto Ltd. has come up with a particularly unique campaign to promote its new environmentally friendly models, by developing a three-wheeled motorbike with a seat that is shaped like a toilet. The Toilet Bike Neo was spotted in downtown Yokohama, south of Tokyo. It generated a significant amount of buzz, in line with Toto's efforts to promote its new Neorest line of water-efficient toilets. Toilet Bike Neo, which features a giant, novelty toilet roll on the back, runs on biofuel made from raw materials such as manure and wastewater. It can run for about 300km on a full tank, according to the company.

China Overtakes Japan In Output Of Scientific Papers

(August 28, 2012)

China has emerged as the fourth-most-influential country in scientific and technological research, while Japan has slipped to seventh place. Data on the top 10% most-cited papers worldwide in 2010 was compiled by country or region in a recent report by the National Institute of Science and Technology Policy. The U.S. led the list with an overwhelming number of top publications, or 41%. China came in fourth to lead Asia with a 10.4% share, while Japan accounted for just 5.8% of quality papers. The report also lists the ranking for 2000. Japan was then No. 4, behind the U.S., the U.K. and Germany, which stayed in the same spots in 2010. China trailed at No. 13 in 2000.

Nobel Laureate And Musician Set Up Antinuclear Network

(August 22, 2012)

A group led by Nobel literature laureate Kenzaburo Oe and academy award-winning musician Ryuichi Sakamoto among others announced that they have launched a nationwide network seeking passage of a bill to abolish all nuclear power plants in Japan. Serving as a representative of the network, Oe said, "We must bring an end to nuclear power plants if humankind is to continue living in the next century. By speaking out loud, we can have the bill passed." Group members said they want to see the bill that they have compiled passed as soon as possible before 2025. Oe and Sakamoto have been leading antinuclear power rallies, with the most recent protest on drawing around 170,000 people at Tokyo's Yoyogi Park.

Students Call For Abolition Of Nuclear Weapons In Geneva

(August 23, 2012)

A group of 18 Japanese and Brazilian high school students presented the secretariat of the U.N. Conference on Disarmament in Geneva with nearly 155,000 signatures they collected from across the globe that seek the abolition of nuclear weapons. It is the 15th time that high school students selected by a civic organization in Nagasaki have visited the U.N. office in Switzerland since 1998. This year, the number of signatures the group collected was a record high, amounting to around double the average figure in the past. Each member of the group called for the elimination of nuclear weapons in English speeches at the U.N. European headquarters in Geneva.

Nankai Quake May Kill 320,000 In Japan

(August 30, 2012)

Up to 323,000 people could be killed in Japan in the event of a powerful earthquake with its epicenter in the Nankai Trough off central and western parts of the country, the government said. The figure is far larger than the about 19,000 people who died or went missing in the wake of the catastrophic earthquake and tsunami that struck northeastern Japan on March 11, 2011. It also surpasses the government's previous estimated death toll of 24,700 in 2003. To prepare for the worst-case scenario, the Cabinet Office will create new countermeasures against natural calamities by the end of March, while the government will consider formulating special laws by cooperating with the private sector.

Calls

> **CONCERT- Japan Pilot Joint Call on Research and Innovation**
Research projects in the area of Efficient Energy Storage and Distribution or Resilience against Disasters.
http://www.concertjapan.eu/node/22

> **EU Seventh Framework Programme (FP7)**
The seventh EU Framework Programme on Science Research and Innovation
http://cordis.europa.eu/fetch?CALLER=FP7_NEWS&ACTION=D&RCN=34831

> **Japan-EU Funding Opportunities** [Exchange Promotion]
Latest funding and research calls between Europe and Japan
Newsletter: http://ec.europa.eu/euraxess/links/japan/docs/Newsletter_June_2012.pdf

Upcoming Science and Technology Related Events in Japan

> **Swiss Solar Pavilion @ PV EXPO 2013** [Photovoltaics], Feb 27 – March 1, 2013
Organized by the Swiss Science & Technology Office
➥ If you wish to participate in the Swiss Solar Pavilion, please contact tok.science@eda.admin.ch

> **150 Years Anniversary: Switzerland-Japan Friendship Year 2014**
The year 2014 will mark a milestone in the friendly relations between Switzerland and Japan which will celebrate the establishment of diplomatic relations 150 years ago.
http://www.eda.admin.ch/eda/en/home/reps/asia/vjpn/embjpn/anchjp.html

>> More events on the Japan Science and Technology Office homepage:
http://tinyurl.com/News-Events-in-Japan
