Technology Market Scan

INTERNATIONAL

Global nanotechnology market

Research and markets has announced the addition of the "Nanotechnology Market Outlook 2017" report to their offering. In their latest research study, Nanotechnology Market Outlook 2017, analysts have identified that the global nanotechnology industry has been growing at a rapid pace with rising applications in sectors such as electronic, energy, and healthcare sector. In addition, market trends such as nanotechnology-based thin film solar cells with high efficiency; nanomaterials with higher strength; and robust growth in nanofibers and nanomedicine market are booming growth in this industry.

In the report, the analysts have studied the nanotechnology market by application, by component, and by region. On the application front, they have analyzed nanotechnology use in electronics, energy, cosmetics, medical, and defence sector. In addition, they have covered the current nanotechnology market and forecast for each of the above-mentioned segments till 2017. In terms of component, the nanotechnology market can be segregated into nanomaterials, nanotools, and nanodevices. The report covers their present and future shares in the market.

Besides this, the report covers the global research and development (R&D) funding for the nanotechnology industry, including break-ups for corporate, public, and venture capital funding along with their forecasts. The report even covers country-level analysis of R&D funding to provide in-depth understanding about investment related to nanotechnology.

http://efytimes.com

Renewable energy technology transfer agreement

A milestone partnership was forged in Beijing between China, Denmark, Ghana, Zambia, and UNDP with the signing of a project agreement for Renewable Energy Technology Transfer. This project is one of the first examples of triangular South–South cooperation between China and Africa with support from a donor. Its objective is to ensure that Chinese renewable energy technologies are optimally responding to priorities and needs in Ghana and Zambia, and critical skills are also transferred and developed to make the technologies actually work on the ground. This approach will have a tremendous impact on increasing access to energy for the rural poor in the two countries and for other developing countries interested in such cooperation with China in the future. The project is part of the UNDP–China agreement for Strengthened Partnership signed in 2010 to promote South–South cooperation through innovative programs.

The Government of Denmark provided funding for the initial formulation of the project and a contribution of 29.25 million DKK, equivalent to US$ 5.4 million, to UNDP for its implementation in Ghana and Zambia. This implementation will be led by the governments of the two countries with the Ministry of Sciences and Technology as the Chinese counterpart institution, and support from the UNDP offices in Beijing, Accra, and Lusaka.

The project will help with achieving the objective of Sustainable Energy for All (SE4ALL) of the UN Secretary- General Ban Ki-Moon by increasing access to energy through off-grid and community-based electrification. Support will not be in the form of hardware transfer but instead will focus on creating conditions required to make adoption of renewable energy technologies more effective, removing barriers and strengthening local capacities to respond to national priorities and meet local needs.

http://tdworld.com

ASIA-PACIFIC

Cambodia, China to jointly establish technology transfer center

Cambodia and China signed an agreement toward establishing a Cambodia–China Technology Transfer Center, aiming to utilize science and technology for socio-economic development, officials said. The deal was inked by Liu Jianhong, deputy director-general of Science and Technology Department of China's Guangxi province and permanent deputy chief of China-ASEAN Technology Transfer Center, Cao Yun De, president of Cambodia International Cooperation Organization, and Ting Siny, chairman of Cambodia-ASEAN committee on Science and Technology, under the presence of Cham Prasidh, Cambodian Minister of Industry and Handicraft.

Liu said the establishment of the Cambodia–China Technology Transfer Center was made under the cooperation framework in science and technology between China and ASEAN. "It is the first agreement that China signed with ASEAN member states since the establishment of the China-ASEAN Technology Transfer Center in Sept. 2013," he said.

Cham Prasidh expressed his full support for the formation of the center, saying that science and technology are the backbone of national development. "Science and technology can boost national development, create jobs, and support the development of all sectors," he said. Cao Yun De said that the center will be located in Phnom Penh, the capital of Cambodia.

http://english.peopledaily.com.cn

CHINA

Research funding gets budget boost

Chinese science saw some big wins as Premier Li Keqiang delivered his first budget since taking office a year ago. Yet observers have warned that to translate that support into innovation, the country must invest more in basic research and move away from its desire for quick successes.

China's total expenditure on R&D has increased by 23% a year on average over the past decade. But with uncertainties arising from a new government and the effects of the economic slowdown, scientists had feared cutbacks this year.

The central government's expenditure on science and technology this year was set at US$ 43.6 billion (267.4 billion yuan renminbi), an 8.9% rise on last year, which

slightly trails the overall projected budget increase of 9.3%. The biggest winners are 16 "megaprojects" with an emphasis on engineering and applied research in areas such as transgenic crops, nuclear power plants, and lunar exploration, which together will receive a whopping $ 8.1 billion.

China's basic-research spending has historically been extremely low — about 4.8% in 2012 and 2013, compared with 10–25% in developed nations (see "Cash draw"). But this year, the appropriation for basic research will increase by 12.5% to $ 6.6 billion — of which the National Natural Science Foundation of China is slated to get $ 3.1 billion, says its president, Yang Wei. The major areas that the foundation will fund include studies of biodiversity, air pollution, supercomputers, neurodegenerative diseases, and scientific equipment.

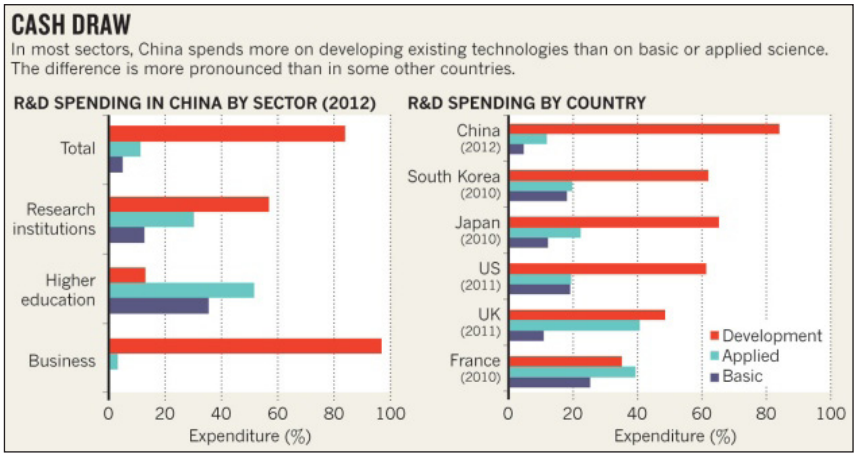
Two of the 16 megaprojects have a substantial basic-research component: these are in the areas of drug discovery and major infectious diseases, including HIV/AIDS and influenza. And with a combined budget of $ 488 million, the two initiatives "will continue to strengthen the capacity for drug screening, rapid detection of pathogens and vaccine development," says Liu Qian, deputy director of the National Health and Family Planning Commission, who oversees the projects.

The Ministry of Science and Technology will spend about 8% of its total budget of $ 8.1 billion on basic research — including $ 211 million on six major science programs in areas such as nanotechnology, quantum physics, stem cells, and protein science — and $ 1.1 billion on developing key technologies.

http://www.nature.com

International patent applications jump

China received 11,243 international patent applications through the Patent Cooperation Treaty (PCT) in the first half of the year, the State Intellectual Property Office said. Thenumber of international patent applications represented an increase of 20.5% from a year earlier according to the office. About 91.5% of the total patent applications came from domestic companies and individuals with 10,283 filings.



Sources: PRC Statistical Yearbook 2013/US NSF Sci. and Eng. Indicators 2014

Information technology giant companies such as telecommunication device and solution providers Huawei and ZTE, and semiconductor supplier BOE Technology Group Co. Ltd. were most active in filing patent applications, the office said. More than half of international patent applications came from southern China's Guangdong Province in the January–June period, according to the office. The PCT provides a unified procedure for filing patent applications to protect inventions in each of its contracting states.

The United States (US) and Japan contributed the top number of foreign international patent applications in China, with 482 and 94 filings, respectively.

http://english.peopledaily.com.cn

INDIA

Skilled professionals for global nanotechnology industry

India is expected to contribute about 1/4th of skilled workforce in global nanotechnology industry during the course of next decade, according to an ASSOCHAM-TechSci Research joint study. "From 2015 onwards, global nanotechnology industry would require about two million professionals and India is expected to contribute about five lakh professionals in the coming years," noted a study titled "Nano India: Policy & Regulation," jointly conducted by ASSOCHAM and TechSci Research.

"India needs to introduce nanotechnology concept at primary school level, besides, there is also the need to introduce nano-clusters/parks in the country," further noted the study. "India's contribution in development and application of nanotechnology is expected to increase significantly due to growing investments, strong funding and increasing government initiatives to encourage growth in nanotechnology market," it added.

In 2011, India's share in global nanotechnology research publications had reached 6% from a mere 2% in the year 2000, noted the study. "With its major contributions in applied physics, material science and macromolecules, India had outpaced several countries like Brazil, Taiwan, the UK and France in terms of research publication."

"Incentives for research and development, specifying manufacturing standards, infrastructure, cost and financing, weak industry-academia link and others are certain key barriers in commercialization of nanotechnology in India," said Lt. Gen. Anil Chait, chief of Integrated Defence Staff, Ministry of Defence while inaugurating a national summit on "Nano India: Policy & Regulations," organized by The Associated Chambers of Commerce and Industry of India (ASSOCHAM) in New Delhi.

The future of nanotechnology in India is largely dependent on the scale of investment spending and ability to introduce revolutionary products in the market,

further noted the study. "Channelisation of public-private partnership and strategic partnership with international organizations can also accelerate growth and development of nanotechnology market in India," it added. "Besides, proper policy framework needs to be a key focus point of the government to ensure rapid growth."

http://www.assocham.org

Charge on certifying tech export bills to go

The Software Technology Parks of India (STPI) will not charge any fee for certifying export invoices of information technology (IT) companies from March next year as the entire process would migrate to an online platform making it totally seamless, a top official said. The STPI has however made it clear that there is no going back on the stipulation that IT companies have to get certification for each and every export invoice. The Reserve Bank of India (RBI), in a circular, had said that all export invoices should be certified by STPI.

"There is merit in the RBI instruction. We will be able to capture all the data in a better way," said Omkar Rai, Director General, STPI. "We need data. Without data how can we plan? The industry should see it in a pragmatic manner," he said on the sidelines of "Connect Coimbatore 2014," the annual IT event organized by CII. The export threshold limit was $ 25,000 earlier but exporters of software services/products must now get export invoices certified from STPI even if the value of the transaction is as low as $ 1 raising concerns in the industry that it would affect small and medium IT units adversely. STPI however allayed the apprehensions. "It is a misplaced concern. It (certification) is in the interest of everybody," Rai said.

The enterprise resource planning (ERP) project for ensuring that certification is done in a seamless manner has been awarded to Infosys and would be available from March, he said. "We will not charge anything. IT companies are not required to pay any transaction fee," Rai said.

IT companies would be required to visit the STPI office only for important work such as obtaining the letter of permission and renewals, he said. STPI, which comes under the Ministry of Communication and IT, charges a small fee for certifying export invoices now. The fee, which could be as low as Rs 4, 000 per certification, has not been revised for the past 20 years, a senior STPI official said. The STPI ploughs back the entire money to develop the industry, which includes setting up of incubation centers, he said.

http://timesofindia.indiatimes.com

Government set to revise patent norms for pharma

The government is set to revise the guidelines for evaluating applications seeking intellectual property rights (IPR) for pharmaceuticals. This follows an increasing number of drug patent filings, along with litigation between innovator companies and generic drug producers.

The controller general of patents, designs, and trademarks, under the department of industrial policy and promotion, issued draft guidelines last Tuesday in this regard. "The (aim is) to help examiners and controllers of the patent office consistently achieve uniform standards while examining and granting patents," a senior official said.

The proposed guidelines, he said, would complement the existing norms and procedures. Detailed guidelines on certain provisions of patent law will enable a standard procedure while evaluating and deciding on complex applications. The government feels pharma products require separate guidelines due to the intricacies involved and the implications in the case of medicines.

Uniform evaluation standards are also expected to reduce and bring clarity on patent challenges. According to an IPR lawyer, India granted as many as 970 pharmaceutical product patents between 2007 and 2011, whereas the number has increased to around 1,300 between 2011 and 2013. In 2005, when India changed its patent law and started granting patents in medicines, only three pharma patents were granted. The number rose to 113 in 2006 and 772 in 2007. The trend continued with as many as 1,369 patents being approved in pharma in 2008 and 1,046 in 2009, as per the Indian patent office.

While patent approvals have increased, patent challenges and litigations are also on a rise in the country. Various domestic firms including Natco, Cipla, and Glenmark have locked horns with multinationals such as Novartis, Merck, and others over patent infringement, etc. In some cases, domestic firms have also approached the government and the regulator to issue compulsory license against patented medicines.

According to the official, the draft guidelines aims at bringing in clarity and uniformity in various provisions of the patent law such as section 3(d) which does not allow incremental innovation to be patented. The proposed guidelines also define words such as "invention" and "inventive step" and explains how they need to be interpreted while examination of applications seeking IPR on pharmaceuticals. The draft guidelines, however, clarifies that applications should be examined on a case-to-case basis, without being prejudiced.

http://www.business-standard.com

MALAYSIA

Business expansion fund to help technology-based companies

Prime Minister Datuk Seri Najib Razak announced a RM 200 million Bumiputera Business Expansion Fund to help technology-based Bumiputera companies to expand their business to international level. For a start, RM 25 million allocated to the Bumiputera Agenda Steering Unit (Teraju) in the prime minister's department, will be managed by the Malaysian Technology Development Corporation, he said.

The fund will provide flexible loans without any collateral and the repayment period is 6 years starting from the second year after the loan has been disbursed. "However, every project proposed must have profit prospects. The proposal paper

must focus on business expansion," said Najib, who is also the Finance Minister, after chairing the Bumiputera Economic Council meeting at Parliament House. The prime minister said the business sectors eligible to receive the financing are technology-based in the biotechnology field, green technology, oil and gas, electrical and electronics, information and communications technology, nanotechnology, and food technology.

Najib also announced another seven Bumiputera companies that would receive the Facilitation Fund Grant totaling close to RM 20 million to implement various projects. The companies are Grand Ten Holdings, PEPS-JV (M), Dimension Bid, Faiza Marketing, Mansalin Education, Al Ameen Development, and Majpadu Bricks.

The Facilitation Fund was introduced in August 2012 with a whopping RM 2 billion, comprising 15% grant from the overall project cost valued at RM 5 million at the least and has infrastructure, machinery, and equipment components.

http://www.themalaysianinsider.com

REPUBLIC OF KOREA

Government grants based on quality of patents

The Republic of Korean government announced a new technology evaluation system that will consider the quality of a company's patents, rather than its number of patents when selecting projects to receive government grants. With the new system, which will be implemented over the next 2 years, the Ministry of Trade, Industry, and Energy aims to have more research results that are applicable to real life and patents that will profit from licensing deals with local and international companies. The ministry said in a statement that "it hopes to enhance productivity of government-led R&D projects to prevent wasting the budget."

When evaluating each project, the government will focus on the quality of patents involved and each institute or company's capability to manage the patents. In the evaluation, the ministry will give extra points to projects that have already patented one idea simultaneously in the US, Japan, and European Union, because those areas have high standards and only grant patents to ideas that have the highest chances of being licensed. Extra points will also be given to holders of standard patents, which are more profitable and are recognized by the World Intellectual Property Organization.

According to the Korea Institute of Intellectual Property, a standard patent generates an average of 3.5 billion won ($ 3.4 million) per year, which is triple that of regular patent, which produces about 1 billion won a year.

Applicants for government grants will also be evaluated on their patent database, a history of their profits from giving licensing, and how many times their patents have been referenced in another person's research. Research institutes and private companies that have a patent management team will receive extra points.

The ministry added that it will be more involved in applicants' project planning so it can be sure that the grant is being used to develop technology that is in high demand.

http://koreajoongangdaily.joins.com

R&D-spending-to-GDP ratio

Republic of Korea has topped another OECD ranking, this time in R&D funds. A report by the Korea Institute of Science and Technology Evaluation and Planning says Korea's R&D budget made up the highest percentage of GDP in 2013 among advanced nations.

The numbers indicate the country's R&D intensity, or R&D expenditure as a percentage of GDP, came to 1.1–4%, beating Iceland and Finland for the top spot. Korea spent 13.7 billion dollars last year for governmental R&D projects, the sixth-largest among the countries tallied. The US spent the most, followed by Japan, Germany, France, and Britain.

http://www.arirang.co.kr

SRI LANKA

Carbon nano-tube factory to be set up

Sri Lanka is to change the age-old practice of exporting raw graphite with the innovation of a value added graphite product using nanotechnology, a senior government minister disclosed. Senior Minister for Scientific Affairs Prof. Tissa Vitharana told Business Times that the Sri Lanka Institute of Nano Technology (SLINTEC) has carried out extensive research relating to carbon nano-tubes composed of carbon atoms built at nano-scales. He said that these nano-tubes have the strength approximately 100 times that of steel while the weight is one sixth of the weight of steel.

It is used for computer components, electronics and space technology, he said, adding that such high-tech products made of Sri Lanka's graphite is worth around Rs. 150,000 per gram. He revealed that a Sri Lankan company is to set up a carbon nano-tube factory with foreign assistance to meet the high demand of such material made of Sri Lanka's graphite and highly priced.

"Currently, Sri Lanka exports raw graphite at a price of around Rs. 200 per kilogram and we should make value added graphite," he said, noting that the time has come to develop high-tech material instead of exporting it in raw form. He expressed the belief that all large and small graphite mines could be operated like in the colonial days following the commencement of production at the proposed factory.

http://www.sundaytimes.lk

VIET NAM

New regulations on import of used machines and equipment

The Ministry of Science and Technology has promulgated Circular No. 20/2014/TT-BKHCN (hereinafter referred to as "Circular 20") — effective from September 1, 2014 — in order to ensure the quality, safety, energy efficiency and

environmental protection of used machines, and equipment and technology chains imported into Viet Nam.

Accordingly, enterprises planning to import the above-mentioned goods should give heed to:

First, in regards of general import conditions:

(i) In order to be imported into Viet Nam, used machines and equipment:

a) Must not be on the list of used machines, equipment, and technology chains banned from import, enacted by competent authorities;

b) Must have usage time (which is calculated from the year they were produced to the year they were imported) not exceeding 5 years and remaining quality of 80% or more in comparison to their original quality.

(ii) Apart from the conditions stated at points (a) and (b) in section (i), used technology chains must also meet the following conditions to be permitted for importation:

c) The utilization of used technology chains is specified in the investment project dossier submitted to investment managing body or approved by competent authorities;

d) Used technology chains must satisfy the requirements under sectoral management enforced by Ministries and their regulatory bodies; and

e) The quality of used technology chains must be assessed at exporting countries before being dismantled and/or packaged for importation.

Furthermore, Circular 20 also has other regulations on import conditions applied to special cases.

In case where used machines, equipment, and technology chains do not meet the condition on usage time but have been repaired, refurbished, and satisfy the requirement on remaining quality in certain circumstances as well as the requirements on safety, energy efficiency, and environmental protection, the Ministry of Science and Technology will chair and cooperate with related Ministries and their regulatory bodies in making consideration and settlement.

Second, in regards of import dossiers and procedures, enterprises conduct import procedures at the customs authority where goods are imported.

Apart from the required import dossier, enterprises must also file with the customs authority technical documents stating the year in which the imported machines, equipment, and technology chains were produced and certificate of quality assessment issued by a qualified inspection organization.

As for the import dossier of technology chains, enterprises must also include a copy of investment project's demonstration — in which the used technology chains expected to be imported are clearly stated and a written import permit issued by the sectorial managing body is included — filed with the investment managing authorities or approved by competent authorities.

http://english.vietnamnet.vn

R&D spending and human resources

A report of the Ministry of Science and Technology (MST) showed that about 2,000 organizations in Viet Nam have R&D activities. By the end of 2011, Viet Nam had 134,780 R&D workers, accounting for 0.15% of the total population of 87.84 million. Of these, 105,230 do scientific research, while the others are technicians and support staff. Over 50% of the scientific researchers, or 52,997 people, now work for universities.

Under the current regulations, university lecturers have to spend 400–600 hours out of the total 1,760 working hours a year on scientific research. This means that lecturers spend 22-34% of their time only on scientific research. As such, Viet Nam only has 15,000 people as full-time equivalent (FTE) scientific researchers at universities. Meanwhile, the real figure is below 15,000, because university lecturers, instead of spending the required time on doing scientific research, tend to spend time on giving private tutoring lessons, which can bring them extra money.

Viet Nam has 67,223 real full-time scientific researchers (15,000 at universities and about 53,000 at enterprises, administration units, and other organizations). It appears that 67,223 Vietnamese researchers is not a small number. However, the ratio of researchers per one million people in Viet Nam is small — 0.0007 — if noting that the ratio is 4,650 in the US (in 2007), 936 in China (2011), 5,451 in Republic of Korea (2010), Singapore 6,307 (2010), and Malaysia 1,643 (2011). This means that the US had 1.4 million researchers by 2007, China 1.25 million by 2011, and Republic of Korea 265,809 by 2010, four times higher than Viet Nam.

As for technicians, according to MST, Viet Nam had 9,781 technique workers by 2011, which means that there are 0.0001 technicians for every one million people. The figure is dramatically low if compared with Republic of Korea (981 technicians per 1 million people in 2010), and Malaysia (158/1 million). The statistics showed that the number of researchers and technicians in Viet Nam is too low.

According to MST, Viet Nam spends much lower on R&D than other countries. A report of the ministry showed that in 2011, Viet Nam's GERD (Gross domestic expenditure on research and development) was VND 5.293 trillion, or $ 0.25 billion. This meant that the ratio of the expenditure on GDP was 0.21%.

Meanwhile, the GERD index of the US was 2.77% in 2011, or 13 times higher than Viet Nam's. The total sum of money the US spent on R&D activities was $ 450 billion, or 1,785 times higher than Viet Nam.

China also spends much more money than Viet Nam on R&D activities. Chinese GERD was 1.84% in 2011, or 8.7 times higher than Viet Nam's. The country spent $ 250 billion on R&D, or 992 times higher than Viet Nam.

http://english.vietnamnet.vn