

Education, Research and Innovation News from India

May 2013

Introduction

Welcome to the May 2013 edition of the Education, Research and Innovation news from India. Highlights in this issue include the development of an indigenous rotavirus vaccine and some information on the growth of multinational R&D centres in India. News on health, space, environment and energy are also covered. The range of information and topics covered in this newsletter will be gradually increased. If there are any topics you would particularly like to see covered, please let us know. You will find our contact details at the end of the newsletter. *Happy reading!*

Contents

Education.....	3
India seeks to improve university rankings	3
Ministry of Human Resources Development to spend INR 6,300 crores on teacher training in 2012-2017	3
Japan to support the development of IIT Hyderabad	4
Only 2% of Indian youth have vocational training	4
Research and innovation.....	5
Health	5
Development of an indigenous rotavirus vaccine against diarrhoea.....	5
Scientists a step closer to customised medicines	5
Development of device for painless drug delivery	5
Indo-Swiss body to work to get Ayurveda recognised as full-fledged medical system....	6
Space.....	7
ISRO Navigation Centre Inaugurated	7
Prof. Satish Dhawan Endowed Fellowship Established at California Institute of Technology.....	7
Energy	8

India's fast breeder reactor to attain criticality in 15 months.....	8
Germany and India set up cooperative research in solar energy.....	8
Environment	9
Normal monsoon expected this year.....	9
Successful nesting of Olive Ridley turtles in India this year.....	9
Innovation	10
National Technology Day: Indian President calls for more spending on R&D to spur innovation	10
Indian R&D Centres of High Growth for MNCs	10
Low-cost, high-tech talent lures European companies to set up R&D centres in India ..	11
World's first smartphone for the blind, made in India.....	12
Forthcoming events in India.....	13

Education

India seeks to improve university rankings

In a bid to woo more research, faculty members and foreign students to Indian universities, India is set to engage with international university ranking agencies and seek their expertise on improving the scanty presence of India's higher education institutes in global ranking lists. In the Times Higher Education (THE) World University Rankings of 2012-13, there were only three Indian institutes in the top 400 and the best of them was the Indian Institute of Technology (IIT) at Kharagpur, which was at 226-250. The other two were IIT Bombay and IIT Roorkee. In the Academic Ranking of World Universities conducted by China's Shanghai Jiao Tong University, only the Indian Institute of Science, Bangalore, figured in the top 500.

India is working towards developing a knowledge economy and the absence of Indian institutions in the top 200 in global ranking lists is considered an embarrassment by the Indian authorities. They argue that there is no point in being dismissive about rankings and the need of the hour is to understand why Indian institutions are not there.

THE World University Rankings is one of the agencies engaging with India. It aims to increase awareness about ranking, evaluations and global benchmarking; improve relationships with Indian universities; and help institutes recognize their weaknesses besides assisting them in developing a strategy to overcome this. Currently a dozen Indian institutions participate in the THE rankings and it is expected that this number will increase to 30 in the coming years.

In internationalizing the Indian education system, showcasing Indian institutions through high rankings could attract more students. Currently some 10,000 foreign students pursue higher education in India, of which a quarter study engineering and management and officials hope that this number could be multiplied several fold if the institutions were ranked higher.

Source: LiveMint. For full text please visit

<http://www.livemint.com/Politics/X1xJY3phY6DwwFkWyG3sPO/India-to-lobby-foreign-agencies-for-improving-university-ran.html>

For more on the debate on rankings in India please see

<http://www.thehindu.com/news/national/varsities-should-give-overriding-emphasis-on-quality-pm/article4382306.ece>;

<http://www.thehindu.com/opinion/op-ed/the-overuse-of-rankings/article4488869.ece> and

<http://www.thehindu.com/opinion/op-ed/why-this-global-ranking-process-matters/article4603259.ece>

Already in 2012 India had announced that foreign universities entering into bilateral programme agreements would have to be among the global top 500 in either the THE or SRC ARWU rankings to safeguard the interests of students by ensuring that only high-quality institutions would be involved in offering bilateral programmes. The downside of this policy would be that many good higher education institutions worldwide that will never be eligible for such partnerships because they are more teaching-oriented or concentrate mainly on the arts and humanities

European Universities Association Report on Rankings 2013; page 23

http://www.eua.be/Libraries/Publications_homepage_list/EUA_Global_University_Rankings_and_Their_Impact_-_Report_II.sflb.ashx (1.95 MB)

Ministry of Human Resources Development to spend INR 6,300 crores on teacher training in 2012-2017

The Ministry of Human Resources Development has approved the setting up of institutes of teacher training in 196 districts in India (out of some 600) in the current Five Year plan period (2012-2017). INR 6,300 crores (approximately CHF 1.05 Billion) have been earmarked for

the training of untrained teachers. Under the Sarva Shiksha Abhiyan some 600,000 teachers have to be trained.

The Sarva Shiksha Abhiyan (SSA) is Government of India's flagship programme for free and compulsory elementary education for all children in the age group 6 to 14, which has been made a Fundamental Right for all children in India. The programme intends to cover some 192 million children in India. New schools will be opened where there are none and existing school infrastructure will be strengthened by providing additional class rooms, toilets, drinking water, maintenance grant and school improvement grants. The programme will also impart life skills and has a special focus on include girl's education and children with special needs. To bridge the digital divide, it also seeks to provide computer education

For more information on the programme please visit <http://ssa.nic.in/>

Japan to support the development of IIT Hyderabad

During the recent visit of the prime Minister of India to Japan, it was announced that Japan would provide some INR 900 crores (approximately CHF 150 Million) for the campus development project of the Indian Institute of Technology, Hyderabad. The IIT, Hyderabad was set up in 2008 and has been developed in partnership with a consortium of Japanese stakeholders from government, academia and industry.

For more on this collaboration please visit http://www.iith.ac.in/other_links/iith_japan_collab.html

Only 2% of Indian youth have vocational training

A survey carried out by the National Sample Survey Organisation which covered 460,000 persons has revealed that only 2% of India's youth and only about 7% of the whole working age population have received vocational training. The formal vocational training system in India includes 8800 Industrial training institutes and 450 polytechnics.

Hereditary learning, to carry out the family's trade, such as framing or pottery, accounts for the skilling of 1.8% of the population of the age group 15 to 59 years, while on the job learning accounts for 1.7% of this age group, where only 1.6% persons had got formal vocational training.

The survey showed that 65% of rural laborers working at construction sites or agricultural fields had training in mechanical or electrical engineering, or computer skills. Nearly 58% of clerks had got computer related diplomas. 65% of drivers had been trained in driving schools; 64% of building, metal and precision work related workers had training in mechanical, electrical or civil engineering.

About a third of those trained in formal set-ups said that their training was "not helpful", about 44% said that it "helped in getting a job and 16% found it helpful in taking up self employment activity.

The complete survey can be downloaded from http://mospi.nic.in/Mospi_New/Admin/publication.aspx (Report No. 551; 6.44MB)

Research and innovation

Health

Development of an indigenous rotavirus vaccine against diarrhoea

Positive results have been announced for a Phase III clinical trial of a rotavirus vaccine developed and manufactured in India. The rotavirus vaccine ROTAVAC, developed as a public-private partnership which involved the Department of Biotechnology of the government of India, BT, Bharat Biotech, an Indian biotechnology company, the US National Institutes of Health (NIH), the US Centers for Disease Control and Prevention (CDC), Stanford University School of Medicine, and the nongovernmental organization, PATH. The Bill & Melinda Gates Foundation, the Research Council of Norway, and the UK Department for International Development were also involved in the effort.

The trials showed that ROTAVAC significantly reduced severe rotavirus diarrhoea by 56 percent during the first year of life, with protection continuing into the second year of life. Moreover, the vaccine also showed impact against severe diarrhoea of any cause.

Rotavirus infections, the most severe and lethal cause of childhood diarrhoea, are responsible for approximately 100,000 deaths of small children in India each year. Worldwide some 450,000 children die of the infection every year.

Once the licence to manufacture has been obtained, the vaccine will be made available at a price of INR 54 (approximately CHF0.90) per dose by Bharat Biotech, as against prices of INR 1000 (approximately CHF 17) for products sold by multinational drug companies in India. The firm has the capacity to manufacture 60 million doses per year, sufficient to inoculate 20 million children.

Source: Department of Biotechnology press release. For full text please see http://defeatdd.org/sites/default/files/node-images/ROTAVAC%20press%20release_FINAL_0.pdf

For additional information including factsheets on the Rotavirus Disease Burden in India, the Need for Rotavirus Vaccines in India and the International Social Innovation Partnership which led to the development of the vaccine please visit <http://defeatdd.org/rotavac-clinical-trial-results>

Scientists a step closer to customised medicines

Scientists at the Centre for Cellular and Molecular Biology, Hyderabad have reported definite evidence that the boundary elements in the genome have specific functions, which may be helpful in designing efficient gene therapy applications and help in providing customized medicine. The study has appeared in the scientific journal Nature Communications.

Source: the Times of India. For full text please visit http://articles.timesofindia.indiatimes.com/2013-05-16/science/39309505_1_human-genome-boundary-elements

The Nature Communication article can be accessed at <http://www.nature.com/ncomms/journal/v4/n5/full/ncomms2872.html> (subscription required)

Development of device for painless drug delivery

Researchers at the Department of Aerospace Engineering and the Department of Microbiology and Cell Biology of the Indian Institute of Science (IISc) have developed a pen-shaped device that will help doctors administer drugs, especially vaccines, in a painless and more efficient manner. Instead of a needle, the device uses a shock wave to transfer the drug into the patient. A pen would produce a shock wave that would create a thrust causing

the drug to flow as a very thin jet. The jet would deliver the drug at a depth of just 160-200 microns into the skin as opposed to conventional needles that penetrate to 1 or 2 mm. The device has been successfully tested on mice and will be tried on humans after some more experiments. It will also find applications in the veterinary sciences.

Shock waves are currently used to disintegrate kidney stones. It is also used in angiogenic therapies where it is used to create new blood vessels from pre-existing ones.

Source: the New Indian Express. For full text please visit

<http://newindianexpress.com/cities/bangalore/IISc%E2%80%99s-pen-shaped-device-can-deliver-drugs-painlessly/2013/05/10/article1583312.ece>

Indo-Swiss body to work to get Ayurveda recognised as full-fledged medical system

In an effort aimed at taking Ayurveda to the world by helping it get recognition as a full-fledged medical system, promoting research, clinical practice and teaching, institutions in Switzerland and India have set up the Indo-Swiss Ayurveda Foundation (ISA). With that aim, ISA would promote research, document studies, facilitate dialogues among the International Ayurvedic Community, establish a network, work with law makers, publish major, modern reference books, enable dialogue between Indian Government and the International Ayurveda representatives and do much more. The Ayurveda College and Hospital in Nadiad, Gujarat, and the Arya Vaidya Pharmacy are the two Indian institutions involved in the project.

In Switzerland Ayurveda doctors are recognised as “complementary therapist” and “medical practitioners”. The ISA will help Ayurveda institutions develop protocols that were necessary for international recognition and train Ayurveda practitioners. It would also promote the Indian system of medicine as being complementary to other systems of medicine and not a competitor.

The Hindu. For full text please visit

<http://www.thehindu.com/news/cities/Coimbatore/indoswiss-body-to-work-to-get-ayurveda-recognised-as-fullfledged-medical-system/article4646640.ece>

Space

ISRO Navigation Centre Inaugurated

The ISRO Navigation Centre (INC), established at Indian Deep Space Network (IDSN) complex at Byalalu, about 40 km from Bangalore, was inaugurated recently. The INC is an important element of the Indian Regional Navigation Satellite System (IRNSS), an independent navigation satellite system being developed by India.

The IRNSS will have a constellation of seven satellites, positioned in geostationary and inclined geosynchronous orbits 36,000 km above the earth's surface. IRNSS coverage will extend over India and its neighborhood. It will have a network of twenty one ranging stations geographically distributed primarily across India.

The launch of the first satellite of the IRNSS, scheduled for 12 June 2013, has been delayed by two weeks due to a fault which was detected on the launch pad. The second satellite will be launched three months after in-orbit test of the first satellite and the remaining five over a 14 month period in 2014-2015.

Source: ISRO Press Releases. For full text please visit

http://www.isro.org/pressrelease/scripts/pressreleasein.aspx?May28_2013 and
http://www.isro.org/pressrelease/scripts/pressreleasein.aspx?Jun01_2013

Prof. Satish Dhawan Endowed Fellowship Established at California Institute of Technology

The Department of Space/Indian Space Research Organisation has established an endowed fellowship at the Graduate Aerospace Laboratories of the California Institute of Technology, California, USA. This fellowship is established in honor of Prof. Satish Dhawan, who was the former Chairman of Indian Space Research Organisation during its formative period 1972-1984.

Prof. Satish Dhawan was an alumnus of the Graduate Aerospace Laboratories at California Institute of Technology (Caltech) and obtained his PhD in aerospace in 1951. The fellowship will enable one graduating student from the Aerospace Department of the Indian Institute of Space Science and Technology, Thiruvananthapuram, to pursue Masters in Aerospace Engineering at Caltech.

Source: ISRO Press Release. For full text please visit

http://www.isro.org/pressrelease/scripts/pressreleasein.aspx?Jun03_2013

Energy

India's fast breeder reactor to attain criticality in 15 months

The first 500 MWe fast breeder reactor in India's nuclear programme, currently under construction at the Kalpakkam nuclear complex, will attain criticality before September 2014. The construction work should be completed in the next few months. With criticality being achieved, India will have achieved the second stage of its three-stage nuclear power programme. The first stage was the construction of pressurised heavy water reactors and the last phase will be the advanced heavy water reactors.

Source: PTI Science Service Full text available on request

Germany and India set up cooperative research in solar energy

India's Ministry of New and Renewable Energy (MNRE) and the Fraunhofer Institute for Solar Energy Systems (ISE) in Freiburg Germany signed a Memorandum of Understanding (MoU) recently for cooperation in research, demonstration and pilot projects in the areas of photovoltaics, solar thermal and hydrogen. On the Indian side, the Solar Energy Centre (SEC) in Gurgaon, which belongs to MNRE, will coordinate the work with Fraunhofer ISE. The pilot projects that are planned include photovoltaic test centres, development of test regulations for concentrating collectors, solar thermal desalination demonstration systems and hydrogen technology for stationary and mobile applications.

Source: German Embassy, New Delhi.

For more on this news item and other indo-German collaboration in energy research see http://www.india.diplo.de/Vertretung/indien/en/_pr/Climate_Sustainability_News/ISE_SEC.html

Environment

Normal monsoon expected this year

The country is expected to have normal monsoon this year with overall rainfall of 98 per cent (of the long period average rainfall). This is good news for millions of farmers who depend on good rains for their livelihood. This is the fourth straight year that the government has forecast normal monsoon. Last year India had received 92 per cent rainfall, seven per cent less than forecast.

Monsoon is crucial for crops such as rice, soyabean, cotton and maize because almost 60 per cent of the farm land in the country is rainfed.

Source: PTI Science Service Full text available on request

Successful nesting of Olive Ridley turtles in India this year

Surfacing of millions of baby Olive Ridley marine turtles along the serene Gahirmatha beach along Odisha coast has cheered conservationists across the globe. Around 426,000 turtles had arrived at the nesting ground to lay eggs earlier this year. About two million hatchlings have emerged. . There had been a considerable delay in the arrival of turtles this year which had led many to speculate that these marine animals may not turn up for the mass nesting.

Source: PTI Science Service Full text available on request

Innovation

National Technology Day: Indian President calls for more spending on R&D to spur innovation

Speaking on the occasion of National Technology Day, the Indian President said that India needs to step up expenditure on research to pursue innovation in a big way. Expressing concern that India's innovation bottom line was "not very encouraging", he urged the private sector to increase their share of spending to the levels prevailing in countries such as South Korea, Japan and USA. India currently spends 0.9 per cent of GDP on research and development, of which the private sector contributes one-fourth.

On the occasion, he presented the National Technology Award for 2013 to Messrs Biovet Private Limited for the successful commercialisation of vaccines for two important diseases that afflict animals (Bluetongue and Johne's disease). The technology was provided by the Indian Veterinary Research Institute at Izzatnagar, Uttar Pradesh.

The National Award for best technology commercialisation by a small scale unit went to Pyrodynamics of Bangalore (indigenization of a strain measurement system) A second award in the category went to Messrs Accurate Gauging and Instruments Private Limited of Pune.

The Department of Biotechnology's for biotech product and process development and commercialisation went to scientists working in the areas of using biomaterials f in the treatment of orthopaedic surgical challenges, development of diagnostic kits for white spot virus in shrimps, development of parentage verification kits for buffalo, cattle, sheep. Goats, camels, yak and mithun and for the development of PCR-based diagnostic kit for neisseria and chlamydia.

On the occasion, the Union Science and Technology Minister Jaipal Reddy launched a blood chemistry analyser, developed with the help of the Technology Development Board under the Department of Science and Technology, and a hand-held device that detects various infectious diseases developed with support from the New Millennium Indian Technology Leadership Initiative Scheme of the Council of Scientific and Industrial Research.

For full text of the President's speech see <http://www.presidentofindia.nic.in/sp110513.html>

Indian R&D Centres of High Growth for MNCs

IT consulting firm Zinnov has released its first-ever "Maturity Benchmarking Study", based on a recent study of 220 product teams across 30+ MNC R&D centers in India. It shows that the R&D story in India has evolved, from doing any kind of work at the beginning to where the focus is on doing high quality work right from the start. It shows that most of the teams assessed are in the middle of the maturity curve, with close to a tenth at the highest level of maturity. The teams that have been set up in the past three years are at a higher level of maturity than those which are older. Part of the reason for more R&D centres being set up is also that India is increasing seen as an important market for products, and not just access to the talent pool. Companies with global operations are leveraging R&D talent in India for global growth.

Another interesting finding from the study was that Pune has surpassed Bangalore as a hub for high-end engineering design and product development work done out of MNC firms' R&D outposts. Some 12% of product teams based in Pune are doing high value product development work (product leadership) compared to 8% in Bangalore. This is attributed to the younger average age of product development teams in Pune and that new R&D centres

are bringing products at mature stages of development from the very beginning. In the recent past, many companies have set up their R&D centres in Pune. These include PTC, Pitney Bowes, Emerson, Allscripts, Faurecia, Tomtom, Fiat, and Fairchild Semiconductor.

The software sector accounts for the highest proportion of teams in the Product Leadership stage. However, a recent entrant in higher maturity is healthcare. This has been attributed to the fact that healthcare markets in emerging economies have witnessed significant growth in recent times, which is driving higher value work to be delivered from the India center which has the advantage of local market access.

Proximity to the customer has also played a role in development of more mature products in India. 56 per cent of companies with product development teams in India also have a sales presence here. 60 per cent of them develop products with a focus on the emerging economies.

Source: various newspaper articles, e.g.

http://www.informationweek.in/software/13-05-03/indian_r_d_centers_of_high-growth_mncs_demonstrate_greater_value_zinnov_report.aspx

http://articles.timesofindia.indiatimes.com/2013-05-10/software-services/39168080_1_zinnov-rd-centre-core-product-development

Low-cost, high-tech talent lures European companies to set up R&D centres in India

European corporations are making a beeline to establish engineering research outfits in India, mirroring a practice pioneered by American companies such as Texas Instruments and General Electric. Texas Instruments was the first to set up a R&D centre in Bangalore in 1985. The availability of high-tech talent at low cost is one of the key drivers for this setting up these captive centres.

Zurich Insurance, French carmaker Peugeot, German sealing technology provider EagleBurgmann, Numeca of Belgium and Dutch conglomerate Royal DSM are amongst some 20 European companies which have set up engineering R&D centres in the past year in cities such as Bangalore and Pune. These firms have created some 3000 new jobs. Many have started with 100 to 500 persons but have plans to increase this to say 2000 persons.

UK based automotive components maker TT Electronics, whose clients include BMW and Mercedes-Benz started operations in Bangalore in February 2013 with 20 people but plans to ramp this up five fold in the coming year.

India currently has some 750 captive centres of foreign multinationals, of which around 350 are engaged in engineering R&D. The value of engineering R&D work being done from India is estimated to be around \$10 billion (54,000 crore) and forecast to rise to \$45 billion by 2020.

In parallel, Indian companies are increasing their technology presence in Europe. Companies such as Infosys and Tata Consultancy Services find the Europe is opening up while their main market, the USA is softening. Indian companies are also acquiring European companies, thereby gaining access to technologies as well as new markets. Wipro's customers, particularly in Germany and France are becoming more open to sourcing services globally.

Source: *The Economic Times*

For full text please visit: http://articles.economicstimes.indiatimes.com/2013-05-02/news/38983955_1_tata-consultancy-services-centres-kelly-services

World's first smartphone for the blind, made in India

The world's first smartphone for blind people is here. Soon, they will be able to read SMSes and emails on this phone, which converts all text into Braille patterns. An innovative touch screen capable of elevating and depressing will transform received content into touchable patterns. It has been created by Sumit Dagar, whose company is being incubated at the Indian Institute of Management, Ahmedabad. The prototype has being developed with the Indian Institute of technology, New Delhi and is being tested at the L V Prasad Eye Institute in Hyderabad. The venture is funded by the Rolex awards, under its Young Laureates Programme.

The smartphone uses Shape Memory Alloy technology, based on the concept that metals remember their original shapes. The screen has a grid of pins, which move up and down as required. The grid has a Braille display, where pins come up to represent a character or letter. All other elements are like any other smartphone

Source: The Times of India. For full text please visit

http://articles.timesofindia.indiatimes.com/2013-04-19/gadgets-special/38673838_1_braille-smartphone-innovation-incubation

Forthcoming events in India

Brain Storming Conference on Dengue Scenario in India: Disease burden, surveillance and control

25-26 July 2013
Madurai

For more information:

<http://www.icmr.nic.in/icmrnews/crme/Brainstorm%20conference%20on%20dengue.pdf>

4th World Renewable Energy Technology Congress and Expo-2013

25-27 September 2013
New Delhi

For more information: <http://www.wretc.in/>

International Conference On Green Computing and Technology

5-6 September 2013
Mumbai

For more information: <http://www.icgct-siesgst.org/>

Genomics and Proteomics Research

27-28 September 2013
Bangalore

For more information: <http://selectbiosciences.com/conferences/index.aspx?conf=GPR2013>

2nd World Summit on Echocardiography

25-27 October 2013
New Delhi

For more information: <http://www.wsecho.org/>

XXVth. Annual Conference of The Physiological Society of India

9-11 December 2013
Chennai

For more information: <http://physicon2013kamineni.webs.com/>

101th Indian Science Congress

Focal theme - Innovations in Science & Technology for Inclusive Development
3-7 January 2014
Jammu

Disclaimer

The information in this newsletter is an opinion excerpt of news material from India and gathered to the best knowledge of the writers. The newsletter tries to provide information without any news preferences, and takes no claims, promises or guarantees about the accuracy, completeness, or adequacy of the information. No legal liability or responsibility can be taken. The information is provided for informational purposes only. No part of the newsletter may be used for any commercial or public use. Open disclosure of this newsletter is not permitted.

Contact

Indraneel Ghose

Senior Thematic Advisor for Education,
Research and Innovation

Embassy of Switzerland in India

Email: indraneel.ghose@eda.admin.ch
<http://www.eda.admin.ch/newdelhi>

Anju Edgar

Communications & Community Manager

swissnex India

anju.edgar@swissnexindia.org
www.swissnexindia.org

Please follow the Swiss Embassy on Facebook:

www.facebook.com/Swissembassyindia

Please follow Swissnex India on Facebook:

www.facebook.com/swissnexIndia