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RANKINGS REPORT

IIT as unified entity can break into Top 100

By KIRTHI V. RAO
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NEW DELHI

If the 16 Indian Institutes of Technology (IITs) are ranked as one institution, IIT will be among the top 100 universities in the world, an analysis by *Careers360* magazine claims.

According to an article in the magazine's March issue, to be released on Wednesday, the IIT system as one entity could be ranked 61 in a listing of the world's best universities. The article argues that this could serve as both motivation and pressure for Indian schools to do better.

No Indian school is in the top 200 in any of the world's education rankings.

The authors of "IITs @ 61: System Breaks into Global Ranking" used the methodology of the *Times Higher Education*'s World University Rankings and said IIT does stand a chance to be among the top 100 in the world in the areas of funding, learning or research.

While the article's authors argued for making all IITs one legal unit on the lines of the University of California and its campuses, global rankings do not count the American institution and its various branches as one entity.

"It is by no means the case that entry into the ranking as a single entity would have the effects suggested by this article—most of our indicators are scaled for a university's size, so under our methodology, big does not automatically mean best. Some of the most successful institutions in the rankings are small, dynamic and focused, such as Caltech," said Phil Baty, editor of *Times Higher Education* World University Rankings.

California Institute of Technology (Caltech) retained its number one position in the October 2013 World University Rankings for the third consecutive year.

Careers360 finds international research citations and collaboration in the IIT system to be weak.

To be sure, there is great variation among the IITs and the authors point out that among the 16, the top seven at Bombay, Delhi, Guwahati, Kanpur, Khargpur, Madras and Roorkee, are among the best universities in the world.

For example, in the area of international expertise in faculty, IIT-Bombay's 14% does not help as the entire IIT system's international faculty makes up less than 2% of its teachers.

The analysis also suggests that the IIT system is not as deficient in research output as perceived.

The article said, "While in terms of the number of doctorates, the IIT system would rank near 30-40 in the global order, in terms of the ratio of PhDs to undergraduate plus postgraduate students, IITs are actually comparable to the top 20."

Still, winning a unified ranking could take some doing, said one expert.

The Planning Commission's higher education adviser Pawan Agarwal said it may not even be possible given the IITs are very different from multi-campus institutions. It is, however, heartening to see, in all areas other than international students and faculty, IITs together compare well with the top institutions around the world, he added.

The IITs are supervised by a council that is chaired by the Union minister for human resource development and has the chairmen and directors of all IITs as its members. However, each of the IITs is legally separate and its board is responsible for general superintendence, control and direction of its affairs under the Institutes of Technology law.

"Each one of the IITs has a distinct identity and we should aim to have each one of them in the top 100 universities of the world," Agarwal said.

According to Baty, "the only real way to rise up the rankings is to make real progress in improving research quality and improving the teaching environment—this comes from true reform and improvement, not through manipulating data submissions".

India added three institutions to the top 400 of the global higher education rankings.

Panjab University was the top-ranked Indian institution and was placed between 226 and 250 in the *Times* rankings. IIT-Delhi, IIT-Kanpur, IIT-Kharagpur and IIT-Roorkee, were ranked in the 351-400 range. Panjab University, IIT-Delhi and IIT-Kanpur are the new entrants.

❝ बेंगलूरु को झोपड़ी मुक्त करना सरकार का लक्ष्य है।- सिद्धरामय्या,

पेड़ों की कटाई रोके आईआईटी : एनजीटी

पर्यावरण के नुकसान पर जताई चिंता

चेन्नई

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भारतीय प्रौद्योगिकी संस्थान (आईआईटी) मद्रास परिसर में पर्यावरण के मानकों में निरंतर गिरावट पर चिंता व्यक्त करते हुए राष्ट्रीय हरित प्राधिकरण (एनजीटी) की दक्षिणी शाखा ने मंगलवार को आईआईटी में चल रहे निर्माण कार्यों व वृक्षों की कटाई पर रोक लगा दी। यह रोक आगे आदेश जारी रहने तक प्रभावी होंगे।

पर्यावरणविद ई. शेषन ने पीठ के प्राधिकरण के समक्ष इस सिलसिले में याचिका दायर की थी। पीठ के सदस्यों सेवानिवृत्त न्यायाधीश एम. चौक्कलिंगम और विशेषज्ञ प्रोफेसर आर. नागेंद्रन ने सुनवाई करते हुए महसूस किया कि उठाया गया मसला काफी गंभीर है तथा इसमें तुरंत दखल की जरूरत है। पीठ ने माना कि अर्जी के आधार पर पर्यावरण को क्षति पहुंचने का प्रारंभिक आधार बनता है इसलिए निर्माण व वृक्षों की कटाई के कार्य को अंतरिम रूप से रोका जाता है।अर्जी के खिलाफ आईआईटी के अधिवक्ता की दलील को भी प्राधिकरण ने खारिज कर दिया। सेवानिवृत्त चौक्कलिंगम ने कहा, आईआईटी कानून के ऊपर नहीं हो सकती। क्या देश के किसी प्राधिकरण या अधिकारी से पेड़ों की कटाई से पहले अनुमति ली गई थी? यह हरित परिसर महानगर का अभिन्न हिस्सा है। हम इस अवैध कृत्य को सहन नहीं कर सकते।

हाईकोर्ट से भी राहत नहीं

आईआईटी को इस मामले में मद्रास हाईकोर्ट से भी राहत नहीं मिली। बचाव पक्ष ने मद्रास हाईकोर्ट में हरित प्राधिकरण के अधिकार क्षेत्र को चुनौती दी थी। हाईकोर्ट ने फिलहाल इस मामले में एनजीटी के दिए फैसले को यथावत रखा है। उच्च न्यायालय ने साफ कहा है कि पेड़ों की कटाई को जारी नहीं रखा जाए।

अब तक कटे आठ हजार वृक्ष

पर्यावरणकर्मी ई. शेषन ने एनजीटी में पेश याचिका में एक रिपोर्ट के हवाले से कहा कि आईआईटी परिसर के पचास एकड़ के क्षेत्र में 2001-13 के बीच करीब 8 हजार पेड़ कटे हैं। इन वृक्षों की कटाई से पहले किसी भी तरह की विधिक अनुमति नहीं ली गई। आईआईटी परिसर के 58 एकड़ वन्यक्षेत्र से दस हजार वृक्षों के काटने का आदेश है जहां कार्यालयी व रिहायशी इमारतें बनेंगी।

कार्यक्रमों से होता प्रदूषण

याची ने आरोप लगाया कि आईआईटी मद्रास में हाई डेसिबल वाले कार्यक्रमों का आयोजन होता है जिनसे अगलनीय जैविक कचरा पैदा हो रहा है। हालिया आयोजित शास्त्रा और सारंग उत्सव में 1.6 करोड़ रुपए से अधिक खर्च किए गए। संगीत उत्सव के नाम पर ध्वनि विस्तारक यंत्रों का भरपूर और शोरप्रद उपयोग हुआ जो यहां बसे वन्य पशु-पक्षियों के लिए खतरनाक है। आयोजनों के दौरान 13 हजार से अधिक वाहनों की आवाजाही हुई जिससे ध्वनि और वायु प्रदूषित हुई। यातायात बढ़ने से वन्य जीवों की जान भी जोखिम में पड़ गई। दृष्टांत के तौर पर 8 जनवरी को परिसर में चार हरिण मृत पाए गए। प्रशासन ने स्वयं स्वीकारा है कि दो हरिण वाहनों की टक्कर से मरे हैं।

क्यों नहीं हुआ आकलन

याची ने सवाल किया आईआईटी मद्रास ने उत्सवों के आयोजन से पहले पर्यावरण पर पड़ने वाले विपरीत असर का आकलन क्यों नहीं कराया? यह आकलन परिसर में बसे वन्य जीवों व सम्पदा की दृष्टि अत्यावश्यक था। परिसर के रिहायशी लोग भी पशुओं और पर्यावरण के प्रति गैर-संवेदनशील हैं। इसका साक्ष्य हर जगह फैला कचरा और धूम-धड़ाके से दीपावली व अन्य उत्सवों का मनाया जाना है।

तेरह तक दें जवाब

सुनवाई के बाद एनजीटी ने आईआईटी, केंद्रीय मानव संसाधन मंत्रालय, पर्यावरण व वन मंत्रालय को हिदायत दी है कि वे 13 मार्च तक जवाब पेश करें।

LOW-COST TABLET

Aakash 4 launch likely to hit election roadblock

BY MOULISHREE SRIVASTAVA
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MUMBAI

The government's plan to commercially launch Aakash 4, the fourth generation of the low-cost computer tablet promoted by minister of communications and information technology Kapil Sibal, this month may be delayed.

Most companies that bid to manufacture the device failed to meet the technical specifications, because of which the process may be scrapped, according to a senior government official.

Starting a new process will not be possible due to the election code of conduct that will kick in once dates for the Lok Sabha polls are announced; this is expected later this week.

"There were 11 samples sent to us (by companies that bid), but almost all the samples had small or big problems," said Rajat Moona, appellate authority and director general of the Centre for Development of Advanced Computing (CDAC), the Pune-based research and development wing of the IT ministry that was the official testing agency for the tablets. Moona listed software and battery problems and said the companies would "now submit samples by the first week of March after rectifying the shortcomings".

If they still don't meet the specifications, the process will have to be scrapped, he admitted.

Jayanth Kolla, founder of Convergence Catalyst, a research firm, said the real issue is timing. Once the elections are announced, the Election Commission's code of conduct comes into effect, preventing governments from doing anything that could even remotely influence voters. The announcement on election is imminent and given that, "if none of the bidders qualify for the specifications, the government won't be able to refloat the tender," said Kolla.

And if it doesn't happen in March, "the project might get delayed or even shut down," said Mansi Yadav, an analyst from research firm **International Data Corp.** (IDC).

The government had been planning to launch Aakash 4 in the market by the end of March, eyeing a market worth ₹500 crore in a year's time, according to the tender floated by the Directorate General of Supplies and Disposals (DGS&D) in January.

"Earlier it (Aakash 4) was supposed to hit the market by January and then again in February, but because of the shortcomings, the whole process was delayed and now we expect it to be out in market by March-end," said Moona.

Moona confirmed that the ministry is looking at a ₹500 crore market in a year, which translates to about 1.25 million units at a price of ₹4,000.

J. Satyanarayana, secretary, department of IT, sidestepped a question on the delay and said the process "is very much on. There are 10-12 companies which entered bidding process for the tender. Right now we are in procurement and testing stage. We will then be choosing the lowest bid and ask the companies to match it. The (overall) process should be completed by March".

Aakash was developed as part of the country's programme of linking 25,000 colleges and 400 universities in an e-learning programme. The cost of the basic version for a student was only ₹1,500.

The newest version of the Aakash tablet is expected to have inbuilt support for Wi-Fi, bluetooth (also a wireless technology) as well as support for external devices including a storage device, keyboard, mouse, data connectivity (2G and 3G) dongles in India, a scratch and impact-resistant 7-inch LCD (liquid crystal display) screen and extended battery support.

The Aakash project, which started in 2011 with the first version of the low-cost computer tablets being supplied by Canada-based **Datawind Ltd**, was criticized by students and experts for the poor quality and performance of the tablets.

Aakash 2, launched a year later also failed to impress. There was no Aakash 3; the next upgrade, called UbiSlate 7C+, was sold by Datawind.

Datawind's chief executive officer Suneet Singh Tuli said his company hopes to win the order "this time as well".

Analysts remain sceptical about the newest version of the tablet. "On paper, the technical specifications look fine, but the actual product might be different when translated in terms of user experience," said Kolla. The price is low and to meet the specifications, companies "may have to compromise on the quality of hardware", said IDC's Yadav, adding that earlier versions suffered from the same problem.

Learning initiatives: *Aakash was developed as part of the country's programme of linking 25,000 colleges and 400 universities in an e-learning programme. The cost of the basic version for a student was only ₹1,500.*

DISASTER REBORN

30,000-year-old giant virus comes back to life in French lab

Agence France-Presse
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PARIS: French scientists said Monday they had revived a giant but harmless virus that had been locked in the Siberian permafrost for more than 30,000 years.

Wakening the long-dormant virus serves as a warning that unknown pathogens entombed in frozen soil may be roused by global warming, they said. Dubbed Pithovirus sibericum, the virus was found in a 30-metre (98-foot)-deep sample of permanently frozen soil taken from coastal tundra in Chukotka, near the East Siberia Sea, where the average annual temperature is minus 13.4 degrees Celsius.

The team thawed the virus and watched it replicate in a culture in a petri dish, where it infected a simple single-cell organism called an amoeba.

Radiocarbon dating of the soil sample found that vegetation grew there more than 30,000 years ago, a time when mammoths and Neanderthals walked the Earth, according to a paper published in the US journal Proceedings of the Nationa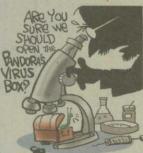l Academy of Sciences (PNAS). P sibericum is, on the scale of viruses, a giant — it has 500 genes, whereas the influenza virus has only eight. It is the first in a new category of viral whoppers, a family known as Megaviridae, for which two other categories already exist.

The virus gets its name from "pithos," the ancient Greek word for a jar, as it comes in an amphora shape. It is so big (1.5 millionths of a metre) that it can be seen through an optical microscope, rather than the more powerful electron microscope.

Unlike the flu virus, though, P sibericum is harmless to humans and animals, for it only infects a type of amoeba called Acanthamoeba, the researchers said. The work shows that viruses can survive being locked up in the permafrost for extremely long periods, France's National Centre for Scientific Research said.

"It has important implications for public-health risks in connection with exploiting mineral or energy resources in Arctic Circle regions that are becoming more and more accessible through global warming," it said. "Revival of viruses that are considered to have been eradicated, such as smallpox virus, whose replication process is similar to that of Pithovirus, is no longer limited to science fiction."

ILLUSTRATION: JAYANTO

Science research takes place in a vacuum

Labs need a strong technology transfer mechanism to commercialise research findings

ANU ACHARYA

Every once in a while, I meet a brilliant scientist who has done some incredible research, but shies away from working with commercial companies. On the other hand are companies that have tried to work with academia but couldn't get past the first few hurdles and decide to stay away. The result is negative energy that prevents the formation of a collaborative scientific ecosystem.

The reasons are rather complex. The scientist loves to work on the problem and the culmination of that is a 'paper' and sometimes a 'patent'. In recent years, there has been an emphasis on patents and creating IPR, but clearly there is something amiss.

While one may argue that we need not replicate a Silicon Valley, we are yet to produce an Indian equivalent of an ecosystem that encourages and sustains science and technology. The missing element is a strong technology transfer de-

partment in each university or central lab.

Indian science lays strong emphasis on a national lab structure like the Council for Scientific and Industrial Research (CSIR) or Department of Biotechnology (DBT) for large-scale projects — as against universities — to fund much of its R&D spend.

But neither CSIR nor DBT has a true tech transfer department with trained staff. So the onus of creating IPR is on the scientist. While we have pushed for more patents and that is a wonderful thing, the reality is that less than 20 per cent of patents secured by government scientists finds a taker. It appears to me that we are pushing the wrong levers.

The job of making a patent work commercially cannot be left to the scientist. Hence, the importance of strong tech transfer system which ensures that patents are transferred to the commercial world.

Tech transfer department

Technology transfer is a time-tested mechanism and has created sustainability and entrepreneurial energy around universities and academic labs, so why shouldn't we go for it? If less than 100 universities in the US can create greater than $36 billion in product sales,

Any takers? Very few patents in India are commercially absorbed
ANGELLODECO/SHUTTERSTOCK.COM

then isn't a systematic approach to technology transfer a good thing?

But naming a department will not suffice. It will need staff that understands technology transfer and its associated legalese. It will need competent personnel that can evaluate technology on its commercialisation merits and a business development staff that can market it to potential suitors. Sometimes, these technologies can be acquired by large and current companies, others may need a brand new team to push this forward.

In recent years, I have seen the rise of a large number of incubators that connect to other forms of in-

vestment vehicles such as venture capital or private equity. If we can get the tech transfer department to work with these incubators, it may be worthwhile for everyone involved.

And then marketing

Each time I dare to open a website somewhat related to science and technology that is run by the Government of India, I shudder. It appears like they were created decades ago and exist to remind us of an era when websites were static.

And then comes the step where one actually searches for information. In the age of social media and

massively improved web tools, a massive makeover is possible in the land of IT services companies.

I often wonder why government sites look the way they do, while their Western counterparts are simple, appeal directly to the audience and social media, and are designed to engage better. Why is it that our scientists don't tweet, blog or post what they do? Doesn't that contribute to the perception problem that haunts our scientific community and the quality of inventions and discoveries they make? In the last few years of working as an entrepreneur in genomics (Ocimum Biosolutions and Mapmygenome) and recently also as a governing board member of the CSIR, I came across several brilliant scientists. But, close though I was with the community, there were things I did not know of.

So if we are to inspire an entire generation of scientists and technologists and create a sustainable ecosystem to develop, nurture and create science-based businesses out of India, there is a strong role that a technology transfer department can play. And yes, don't forget the marketing.

The writer is the CEO of Mapmygenome

Indore technology geeks excel at IIT-Delhi festival, win 'Tryst 14'

Niyati Sauriyal,TNN | Mar 5, 2014, 11.42 AM IST

INDORE: "Unity is strength and working in a team gives courage to fight every battle," said Mufaddal Bagwala.

22-years-old, Mufaddal and Milin Jain, both final year technocrats of Shri Vaishnav Institute of Technology and Science, Indore won three events at national level techfest 'Tryst 14' organized by IIT, Delhi from February 26 to March 3.

15,000 students from all over the world attended the event, where out of total 61 teams; Indore was the only one to win prizes. "We won the first prize in paper presentation competition, second in green dream and third in treasure hunt event," said Jain. In the treasure hunt event out of 150 teams, Indore was the third fastest team to complete the hunt. "It took more than a year's duration to complete the model while facing the 25-minute rapid-fire question round was an amazing challenge," he added.

Bagwala, the team leader said, "We presented research paper on 'light weight glass reinforced concrete' which bagged first prize." The students made biodegradable gloves from jute and PVA (polyvinyl alcohol). "India is the largest manufacturer of jute in the world, and jute is easily biodegradable, natural, organic, safe and low cost material. Jute is even most resistant to micro-organisms," added Bagwala.

The model testing was done at Raja Ramanna Centre for Advanced Technology (RRCAT), Institute of Chemical Technology, Mumbai and Indian Institute of Technology, Delhi. The award consisted of a cheque of Rs 10,500 and certificates.

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UGC appointment sparks row

Akshaya Mukul | TNN

New Delhi: Appointment of Jaspal Singh Sandhu, professor of sports medicine in Guru Nanak Dev University, as the secretary of University Grants Commission (UGC) less than 24 hours before announcement of the election schedule has created a furore.

Many UGC members point out that the appointment has been done in violation of the UGC Act that says the appointment has to be done by the full commission. In case of Sandhu, the interview took place last Sunday and he was asked

J S Sandhu was made secretary less than 24 hours before the announcement of the poll schedule and without the full commission's consent

to join on Wednesday without taking the full commission's consent. The commission is to meet on March 11 and appointment, if approved, will be retrospective. It remains to be seen what action the HRD ministry takes. Under Section 20 of the UGC Act, the ministry

can give directive to the commission on policy matters and the view of the HRD ministry will prevail.

UGC members also point out flaws with the selection committee. One, it was done without the consent of the department of personnel & training. Two, the selection committee did not have members from the minority community. One member said: "When Akhilesh Gupta was selected as secretary of UGC two years ago, the same commission admitted that there was a flaw with the selection committee and refused to even

endorse Gupta's name. Only after the selection committee was reconstituted by including a member from the minority community that Gupta was re-selected."

On its part, UGC sources say the selection panel consisted of education secretary Ashok Thakur and moreover, the commission in one of its meetings had empowered the chairperson to make appointments. But a UGC member said, "The commission misled the ministry. How can the chairperson be empowered to make appointments? It has been misunderstood and violated."