IIT-Kharagpur emerges on top in ranking


IIT, Kharagpur, has emerged as the top engineering college in EDU-RAND ranking 2014 followed by IITs in Delhi and Kanpur. IITs in Chennai and Mumbai have occupied the fourth and fifth places respectively in the ranking. The EDU-RAND ranking is intended to guide students seeking admission to an engineering college or university, according to a press release.

While EDU is a community platform for academics, administrators and business leaders in Indian higher education, RAND Corporation is a global research house known for its extensive work in education. India is host to more than 3,000 engineering colleges including (private and public institutions) while EDU and RAND have limited this year’s rankings to 850 colleges that were established before and in 2009.
आईआईटी दिल्ली दूसरे पायराइट पर

नई दिल्ली। साल 2014 की एडू-रैंकिंग में भारतीय प्रौद्योगिकी संस्थान (आईआईटी) खड़गपुर शीर्ष इंजीनियरिंग कॉलेज के तौर पर उभरा है। आईआईटी दिल्ली दूसरे पायदान पर है जबकि आईआईटी कानपुर को तीसरा स्थान प्राप्त हुआ है। इस रैंकिंग में आईआईटी चेन्नई को चौथे और आईआईटी मुंबई को पांचवें स्थान पर रखा गया है। एक विज्ञान के मुताबिक, एडू-रैंकिंग का मकसद इंजीनियरिंग कॉलेज या यूनिवर्सिटी में दाखिला चाहने वाले छात्रों का मार्गदर्शन करना है। एडू शिक्षाविदों, प्रशासकों एवं भारतीय उच्च शिक्षा क्षेत्र की कारोबारी शिक्षायतों का एक सामुदायिक मंच है।
**IIT-KHARAGPUR EMERGES ON TOP IN RANKING**

NEW DELHI: IIT, Kharagpur, has emerged as the top engineering college in EDU-RAND ranking 2014 followed by IITs in Delhi and Kanpur. IITs in Chennai and Mumbai have occupied the fourth and fifth places respectively in the ranking. The EDU-RAND ranking is intended to guide students seeking admission to an engineering college or university, according to a release.

**36% teaching slots vacant in 16 IITs**

NEW DELHI, JULY 21

The Central Government on Monday said 36.5% and 40.8% of teaching positions were vacant in the country's 16 IITs and 30 NITs, respectively.

“There are 36.5% and 40.8% vacancy in teaching positions in 16 IITs (Indian Institutes of Technology) and 30 NITs (National Institutes of Technology), respectively,” Human Resource Development Minister Smriti Irani said.

“The reasons for faculty shortage are due to retirement, resignation, increase in students' intake and non-availability of qualified candidates for taking up teaching assignments,” the minister said in a written reply in the Rajya Sabha.

She said the institutes had been taking various initiatives to "attract outstanding candidates for faculty positions". She said NITs were engaging contract and adjunct staff and using the online mode of teaching to overcome these shortages. — IANS
36% of teaching slots in IITs lying vacant, says Irani

NEW DELHI: Giving details about vacancy in teaching position in 16 IITs and 30 NITs, the minister said that there are approximately 36.5 per cent and 40.8 per cent vacancy in teaching positions in these institutes. The reasons for faculty shortage are due to retirement, resignation, increase in students' intake and non-availability of qualified candidates for taking up teaching assignments.

The Institutes have been taking various initiatives to attract outstanding candidates for faculty positions. Some of these measures include year-round open advertisements, holding of selection committee meetings through video conferencing, invitation to alumni, scientists and faculty to reach out to potential candidates, advertisements in international journals, outstanding young faculty awards, etc.

As regards NITs, the Institutions are engaging contract and adjunct staff as well as using the online mode of teaching to overcome these shortages. Moreover, faculty in NITs has now been given pay parity with faculty in IITs with a view to attract quality faculty.

Further, the MHA has reduced the salary limit for employment Visa to foreign faculty from US$ 25,000 to US$ 14,000 with a view to make it possible for foreign faculty to join IITs and NITs.
IIT Jodhpur में फैकल्टी को 25 लाख की शुरुआती सैलरी

एजेंसी | जोधपुर

IIT Jodhpur नई फैकल्टी को 25 लाख रुपये सालाना का शुरुआती वेतन देगा। बोर्ड ऑफ गवर्नर के चेयरमैन गोवर्धन मेहता ने कहा कि IIT Jodhpur के लिए फैकल्टी को आकर्षित करने के लिए यह निर्णय लिया गया है। यह सैलरी पैकेज अन्य इंस्टीट्यूट के मुकाबले काफी ज्यादा है। हालांकि, चेयरमैन ने 25 लाख के पैकेज में और क्या होगा, उसकी डिटेल देने से मना कर दिया। IIT Jodhpur में फिलहाल 40 शिक्षकों की कमी है। यहां कुल शिक्षकों के पद संख्या 90 हैं, लेकिन अभी सिर्फ 50 फैकल्टी ही यहां है। पिछले दो वर्षों में लगभग दो दर्जन फैकल्टी यहां से जा चुकी हैं। IIT Jodhpur में एक भी फैकल्टी प्रोफेसर रैंक का नहीं है। मेहता ने स्वीकार किया कि संस्थान से बड़ी संख्या में शिक्षकों ने नौकरी छोड़ी है, जिसकी कई वजहें हैं। मेहता ने कहा कि संस्थान के स्तर से बिना समझौता किए हम खाली पदों पर भरने की कोशिश कर रहे हैं।

IIT के डायरेक्टर सी वी आर मूर्ति ने कहा कि IIT Jodhpur को जल्द प्रोफेसर, एसोसिएट प्रोफेसर और कंप्यूटर साइंस एंड इंजीनियरिंग, इलेक्ट्रॉनिक्स इंजीनियरिंग और मैक्निकल इंजीनियरिंग में असिस्टे�нт प्रोफेसरों की जरूरत है। मेहता ने यह भी कहा कि IIT जोधपुर अब खुद की बिल्डिंग (कैपस) बनाएगा। अगले कुछ हफ्तों में इसके लिए टेंडर भी निकाल दिया जाएगा। मेहता ने कहा कि कार्य के पहले फेज की शुरुआत अक्टूबर के पहले हफ्ते में होने की उम्मीद है। कैपस का कंस्ट्रक्शन पांच फेज में पूरा किया जाएगा। पहले फेज की लागत 350 करोड़ आएगी। इस फेज को 18 महीनों में पूरा करने का लक्ष्य रखा गया है। मेहता के मुताबिक, हम चाहते हैं कि 2016 का एकडिमेकिक सेशन हमारे खुद के कैपस में शुरू हो। अभी IIT Jodhpur, MBM इंजीनियरिंग कॉलेज ऑफ Jodhpur की किराए की बिल्डिंग पर चलाया जा रहा है। IIT Jodhpur के खुद के कैपस की शुरुआत का फैसला पिछले साल 16 अप्रैल को एचआरडी मिनिस्टर एम एम पाल्लव राजू ने किया था।
आकर्षण

19 राज्यों में महाराष्ट्र के 33, राजस्थान के 24 विद्यार्थी शामिल

गुजरातियों को पसंद आने लगी आईआईटी-गांधीनगर

अहमदाबाद, सात वर्ष पहले गुजराती लोगों को गुजरात में ही उच्च स्तरीय प्रौढ़ों की शिक्षा प्रदान करने के उद्देश्य को लेकर वर्ष 2008 में शुरू हुआ भारतीय प्रौढ़ों की संस्थान गांधीनगर (आईआईटीजी) अब गुजरातियों की पसंद आने लगा है। इसका अंदर इस बात के संग संगत है कि संस्थान में प्रवेश लेने वाले गुजराती लोगों की संख्या वर्ष प्रति वर्ष बढ़ रही है। इस शैक्षणिक वर्ष 2014-15 में अब तक के सर्वाधिक 21 गुजराती विद्यार्थियों ने आईआईटी-गांधीनगर में बेंचर ऑफ टेक्नोलॉजी (बीटी) पादयाप्रम में प्रवेश पाया है।

आईआईटी-गांधीनगर में प्रवेश पाने वाले सभी विद्यार्थियों को रिवाज किया गया है। इस शैक्षणिक वर्ष 2004-15 में यहां कुल 142 विद्यार्थियों ने प्रवेश पाया है। इसमें छात्राओं की संख्या 14 जबकि छात्रों की संख्या 128 है। इसमें सर्वाधिक 33 विद्यार्थी महाराष्ट्र के हैं। संख्या के लिए जो 24 विद्यार्थियों के साथ दुसरा स्थान राजस्थान का है। तीसरा स्थान 21 विद्यार्थियों के साथ गुजरात का है।

इस वर्ष कुल 19 राज्यों के विद्यार्थियों ने आईआईटी-जी में बीटी में प्रवेश पिया है। यहां प्रवेश पाने वाले सभी विद्यार्थियों को सीमावर्ती से आईआईटी गांधीनगर के प्रोफेसरों को ओर से पांच प्रतियोगी फाउंडेशन कोर्स कराना जा रहा है जिसमें इन्हें इसमें समय की पहाड़ी के बाद खेलने का कला तथा संस्थान के उच्च-स्तरीय कॉर्सों के समावेश का सामना करना पड़ा है।

आईआईटी-जी में प्रवेश लेने वालों के लिए एक बड़ा खेलकुद व संस्थान के नीतिनियमों में जुड़ी जानकारी प्राप्त हो सकती है।
New Delhi: The University Grants Commission has again issued instructions to Delhi University colleges asking them to “re-engage those ad hoc teachers on the opening day of the academic session who fulfill the conditions laid down by the UGC and who were in place till the last working day of the previous academic session.” The letter was sent on July 21, the day DU colleges reopened.

The Delhi University Teachers’ Association has welcomed the decisions of course. Interestingly, they and a dozen members of DU’s academic council had attempted to table a resolution demanding almost exactly what UGC has instructed but weren’t permitted to.

If ad hoc teachers who were placed in colleges before hadn’t been re-appointed on the date of opening, they would stand to lose their summer salary, though they may have worked on admissions and evaluation during the summer months. Some members demanded that ad hocs be allowed to join now and then replaced later—colleges may have to, as the roll-back has impacted workload distribution across and even within departments.

‘It has been brought to the notice of the...UGC that colleges of the University of Delhi are facing a serious crisis regarding the re-engagement of ad hoc teachers and that too at a time when the colleges have transited from ...FYUP to three year undergraduate programme.” says the letter.
Tech to map life’s imprint on DNA

Can Boost Cancer, Fertility Treatments

London: Wonder how your environment is affecting your DNA? New technique can tell! Researchers have developed a powerful new single-cell technique to help investigate how the environment affects our development and the traits we inherit from our parents. The technique can be used to map all of the ‘epigenetic marks’ on the DNA within a single cell.

This single-cell approach will boost understanding of embryonic development, could enhance clinical applications like cancer therapy and fertility treatments, and has the potential to reduce the number of mice currently needed for this research.

‘Epigenetic marks’ are chemical tags or proteins that mark DNA and act as a kind of cellular memory. They do not change the DNA sequence but record a cell’s experiences onto the DNA, which allows cells to remember an experience long after it has faded. Placing these tags is part of normal development; they tell genes whether to be switched on or off and so can determine how the cell develops. Different sets of active genes make a skin cell different from a brain cell, for example. However, environmental cues such as diet can also alter where epigenetic tags are laid down on DNA and influence an organism’s long-term health. “The ability to capture the full map of these epigenetic marks from individual cells will be critical for a full understanding of early embryonic development, cancer progression and aid the development of stem cell therapies,” Dr Gavin Kelsey, from the Babraham Institute, UK said. “Epigenetics research has mostly been reliant on using the mouse as a model organism to study early development.

“Our new single-cell method gives us an unprecedented ability to study epigenetic processes in human early embryonic development, which has been restricted by the very limited amount of tissue available for analysis,” said Kelsey.

The research, published in journal Nature Methods, offers a new single-cell technique capable of analysing DNA methylation - one of the key epigenetic marks — across the whole genome. The method treats the cellular DNA with a chemical called bisulphite. Treated DNA is then amplified and read on high — throughput sequencing machines to show up the location of methylation marks and the genes being affected. PTI
NASA celebrates 45 years of landing on the lunar surface

INDO-ASIAN NEWS SERVICE
Washington, July 21

On July 20, 1969, Apollo 11 astronauts Neil Armstrong and Buzz Aldrin became the first humans to set foot on the moon. Forty-five years later, NASA celebrated the giant leap by honouring Armstrong, who died in 2012, with a renaming ceremony of the historic “operations and checkout building” at Cape Canaveral in Florida, the launch site. Both Aldrin and Michael Collins, the Apollo 11 command module pilot who orbited the moon, were there.

“It was 45 years ago that Neil Armstrong took the small step onto the surface of the moon that changed the course of history. The years that followed saw a space age of scientific, technological and human research on

The iconic image of Edwin Aldrin Jr. walking on the moon AFP

which we have built the modern era,” NASA said in a statement.

Giant leap

The Apollo missions blazed a path for human exploration to the moon and today, we are extending that path to near-Earth asteroids, Mars and beyond, it added. To send humans to deep space, NASA engineers are developing a new space transportation capability destined to travel far beyond Earth.

The Orion spacecraft and Space Launch System (SLS) heavy-lift rocket will be the most advanced space vehicles ever built.

“Around 2019, we will launch a robotic mission to rendezvous with a near-Earth asteroid. The spacecraft will either capture an asteroid or retrieve a boulder off of a much larger asteroid and then redirect the asteroid mass to a stable orbit around the moon,” the US space agency said.

In the mid 2020s, astronauts aboard the Orion spacecraft, launched by SLS, will explore that asteroid and return to Earth with samples. In December 2014, NASA is set to conduct the first test flight of Orion. In 2015, the “New Horizons” mission will fly by Pluto and see the icy world up close for the first time. “In 2020, we will send a new rover to Mars, to follow in the footsteps of Curiosity, search for evidence of life and pave the way for future human explorers,” NASA announced.
**Why This Could Be a Tipping Point for Indian Science**

First there was the drag. Then came the push. And now comes the pull.

If the last decade was about investing big to improve India's science infrastructure and research output, Budget 2014 contains subtle signals that the next decade could be about the evolutionary crossover from labs to markets.

Reports Hari Pulakkat

...
Students in colleges can soon access free WiFi across campus

Vanita Srivastava
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NEW DELHI: Colleges and universities across the country will soon become WiFi enabled, allowing students to get free access to the internet anywhere on the campus.

While most universities abroad are WiFi enabled, most Indian institutions baring a few lag behind in terms of technology percolation to classrooms.

The human resources ministry will be rolling out this facility as an endeavour to help students access the best referential material online.

While the finer details of the plan are being worked out, it is expected to benefit 600 universities and 20,000 colleges.

Universities are likely to receive free WiFi with speeds up to 1 Gbps, while colleges will receive speeds of 10 Mbps, which could be increased depending on usage.

This provision will also help in the development of ‘massive open online courses’ (MOOCS). The BJP had put emphasis on online education and MOOCS in its manifesto.

Some institutions have already started providing free WiFi to its students.

For India to emerge as a global knowledge superpower, it is imperative for students to access WiFi across campus. It is a must for growth and progress

Ansh Goyal, DU student

The Delhi University, for instance, introduced the concept two years ago and in a phased manner has now introduced WiFi to all its colleges.

“For India to emerge as a global knowledge superpower, it is imperative for students to access WiFi across campus. It is a must for growth and progress,” said Ansh Goyal, a student of the Delhi University.

Panjab University vice chancellor, AK Grover told HT: “We started the WiFi facility on our old campus a year ago. It is a real boon for students and researchers. The WiFi facility on our campus is free and has been recently updated with improved technology.”
Computer science branch at IIT-I clicks with top rankers

TNN | Jul 21, 2014, 09.41AM IST

INDORE: Computer science branch at Indian Institute of Technology, Indore (IIT-I) is gradually turning into the most sought after branch. More and more top rank holders in the IIT-JEE, who opt for computer engineering branch, have started preferring IIT-Indore over the new IITs, including those at Mandi, Jodhpur, Bhubaneswar and Gandhinagar.

In the last three years, the opening and closing ranks for computer science branch at IIT-Indore have seen an improvement. While the opening and closing ranks in JEE 2012 counselling were 2,318 and 3,414, it improved to 1,767 and 3,097 in 2013. More fresh talent gained entry into IIT-I computer science branch in 2014 and the opening and closing ranks in 2014 of computer engineering branch remained between 1,388 and 2,573 ranks, after JEE 2014 advance level counselling.

Institute insiders attribute the reason behind rising interest towards computer science branch at IIT-Indore to better placements and career prospects. Students from this branch have been creating ripples at international level competitions and other platforms.

Recently, a team of the institute comprising a trio from computer engineering branch, was the only team after IIT-B to secure place in ACM International Collegiate Programming Contest held in Russia. Highest pay package has also been received by a computer science branch student of IIT-I this year. While the highest pay package offered during recent on-campus placement was Rs 21 LPA a student grabbed 1 lakh dollar job on his own.

However, unlike computer science branch, other branches including mechanical and electrical engineering branches have failed to elicit the same response. Opening and closing ranks have improved in electrical engineering branch at IIT-I in comparison to last year but the overall scene since inception is discouraging. Interest in mechanical branch at IIT-I has also seen a decline in the past three years.

Orientation for new batch on July 22

The new batch students reported to the hostel on Sunday. On Monday too, candidates from different cities are expected to join the institute. A total of 119 BTech students from 17 states will be part of the new batch. This includes one each from Arunachal Pradesh, Kerala and West Bengal. On July 22, the new batch will be taking part in orientation and registration programme and later visit campus. Classes for the 2014 batch will start from July 23 as scheduled.
Washington and Bombay join hands to educate international executives

Tuesday, 22 July 2014 - 6:35am IST | Place: Mumbai | Agency: DNA


IIT Bombay and Washington University in St. Louis (WUSTL) recently announced a joint Executive MBA (EMBA) programme for international executives. Gauri Rane finds out more

Despite the fact that only 10 per cent of the over 3.5 lakh Indian management students graduating every year are employable, it is quite surprising that the MBA degree has not lost its sheen. Not even the sluggish economic growth of the past decade could deter aspirants from going in for the degree, which they thought was a sure shot passport to plum posts and mega bucks. It is probably this spirited pursuit of management industry aspirants that has led institutions to introduce varied modules in the popular post grad programmes.

According to Jill Friedman, vice chancellor, Public Affairs, Washington University in St. Louis (WUSTL), the recently introduced EMBA programme offered in collaboration with IIT-Bombay, is designed to give students broad management and leadership training. "The partnership creates a programme that combines US and Indian management perspectives. In addition, students will get opportunities to gain depth in areas in which IIT has strength, such as technology, energy, and so on," he says.

S Bhargava, head, Shailesh J Mehta School of Management (SJMSOM), IIT Bombay, adds, "The programme will prepare the mid-level executives to face the contemporary and emerging challenges in a global economy, as well as enable them to undertake leadership roles in their respective organisations."

The Executive MBA programme is meant for professionals with a minimum of seven years work experience. Apart from teaching business fundamentals, it will address leadership, strategic management themes, growth
and innovation. "The pedagogy employed will encourage peer group learning through case discussions, group projects and other interactive methods, besides classroom instructions, simulations and guest lectures," informs Bhargava.

The programme is of 18 months duration, where classes will be offered four days per month in Mumbai and it will end with a two-week capstone experience at Washington University. The programme will be jointly delivered by the faculty of SJMSOM, IIT-B and the faculty of Olin Business School, WUSTL. WUSTL faculty members will visit IIT-B campus every month for lectures.

The programme includes real time applications students can use to enhance their development and that can drive results for their organisation. Post course completion, students will graduate from the programme with an Executive MBA degree from Washington University in St. Louis and from IIT Bombay. "To our knowledge, this is the only programme that offers an MBA degree from a US and an Indian university," informs Friedman.

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**IITs now hotbed for start-ups**

Tuesday, 22 July 2014 - 6:20am IST | Place: Mumbai | Agency: DNA
IITs have become a hub for entrepreneurs. Gauri Rane finds out why the coveted technology institute has been a breeding ground for start-ups

- From guarantying a plum job with a fat dollar package to creating entrepreneurs, the premium institutes of technology in the country are fast emerging as a breeding ground for start-ups. As the country witnesses a rising trend of entrepreneurship, an increasing number of IITians dare to tread a different and sometimes difficult path and reap rich dividend. "It is a good thing that IITians are taking up entrepreneurship and creating jobs," says Professor Devang Khakkar, director, IIT-Bombay. "A good percentage of students are making this a career choice right in the fourth year of college," he adds.

Take for instance Deepinder Goyal, CEO, Zomato. A graduate of math and computer science from IIT Delhi, Goyal conceptualized Zomato while he was still employed with Bain & Company. "We started uploading scanned restaurant menus on an office intranet to facilitate eating out. Based on the encouraging response we got, we kickstarted Zomato with a database of 1200 restaurants in Delhi NCR."

Goyal's is just one example in the sea of entrepreneurial ventures that have sprung up at different IIT campuses. So what is it that lures an IITian to entrepreneurship? Beas Dev Ralhan, CEO, Next Education, says, "For IITians it is the simple understanding of the risk/ reward ratio in life. When you are young, you have nothing to lose. If you fail you can always start from bottom at corporations even after three years of graduation." An alumnus of IIT Mumbai, Ralhan points out that entrepreneurs are not really affected with lifestyle, perks and money that come along with jobs in the established firms. "Working on a startup is a lifestyle choice. Only thing that seems to work is hard work," he says. Adds Goyal, "A corporate job might offer you a cushy role with perks, but eventually what matters is that you're doing whatever you are most passionate about."
Both Zomato and Next Education have been successful in establishing themselves in the market. The annual turnover of both the ventures is about 11.37 crore and Rs 150 crore respectively. The calling however, has seen many more IITians cross boundaries of the technology institute and venture out in businesses like retail, education, travel, technology, etc. Flipkart, Snapdeal, Travel Triangle and Knowlarity are some examples. A wide spectrum of opportunities however, still remains unexplored.

Does the IIT training have some ingredient that triggers their graduates to pick entrepreneurship as a career choice? Ralhan explains, "IIT taught me one thing and one thing well—'don't ever do anything which you are not passionate about because it will be passion of some other 1000 people on earth so you don't stand a chance."

Goyal reveals. "My biggest takeaways were focus, persistence and follow-through. Focusing on the goal, persistence in getting things done, and the drive to put the best product out there has helped tremendously," he says. Both Goyal and Ralhan agree that what differentiates IITpreneurs from other entrepreneurs is the strong foundation in technology and urge to go beyond just technical education. "It cultivates in you the killer instinct to succeed at all cost," points out Ralhan.

Most IITpreneurs have a combination of BTech/ MTech and MBA (or equivalent qualification) from an 'A' listed institution. Is this the formula to become a successful entrepreneur? "I don't think there is any such formula. To be a successful entrepreneur, you need to have a strong resolve and strength to put in hard work. But then in the end, you will have "lived" your life," explains Ralhan. According to Goyal learning is most important and it happens beyond formal education as well. "Studying at an institution like an IIT or getting an MBA arms you with the right skill set and attitude and helps you in moving closer towards your entrepreneurial goals," he says.

IITpreneurs advise aspiring entrepreneurs to do "what you feel most passionately about, and until you do that, keep learning and working towards it". "Although campus placements offer students great work opportunities, at the end of the day it depends on the person whether they'd like to work in a corporate set-up or start something of their own," concludes Goyal.
IIT-M'S brainchild purifies water for a lakh people

CHENNAI: It has been just a year from its launch and it has already got over one lakh users. This is the story of IIT Madras’s arsenic water purifier that caught the eyes of governments in several States of the country.

The nanotechnology-based low cost purifier was first introduced in villages in Murshidabad district, West Bengal, last year after the Arsenic Task Force of the government of West Bengal certified and approved the purifier. Over the course of the year, the community-level unit of the water purifier has been installed in 100 villages in the State, each providing arsenic free water to 100 families.

The research team at IIT Madras has developed two more variants of the water purifier — a larger unit that can provide 18,000 litres per hour and cater to 50,000 people, and a smaller household level variety. Both have found takers. The larger one has been installed at the Nadiya District in West Bengal and the household level purifiers has been installed in 200 households. While the community level purifier provides purified water at the cost of `2 paise per litre, the smaller version costs about `5 paise per litre.

“The government departments and agencies in Bihar, Assam, Uttar Pradesh and Karnataka have expressed interest in the project. Some of these have already kickstarted while the others are in the discussion stage,” said T Pradeep, faculty at the IIT Madras who heads the project.

Meanwhile, there are orders for 1,000 more community level units from West Bengal government. Around 400 of these will be installed in the next three months. The government has asked for two more of the larger 18,000 litre per hour purifiers. The household level purifiers, meanwhile, are being distributed in Bihar through NGOs.

The water purifier works on a black granular looking nano-structured material. The black sand like purifier, which is the key purifier, can filter out water without pumps or solvents. The research wing which has incubated a company, Innonano Pvt Ltd, at the IIT Madras for the purifier, is now working on filters for Fluoride, Lead and Mercury.