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A PRAYER FOR THE GANGA

Cleaning Ganga: Now, IITs jump to the rescue

ON WORLD ENVIRONMENT DAY, TEAM TOI TAKES A WHIFF OF THE POLLUTION CONTAMINATING THE COUNTRY

TIMES NEWS NETWORK

For the first time, seven Indian Institutes of Technology will prepare a comprehensive river basin management plan for Ganga. The plan is being prepared for the National Ganga River Basin Authority (NGRBA) which is headed by the Prime Minister and includes riparian state chief ministers besides relevant union ministers and officials.

The plan will outline comprehensive measures for restoration of the Ganga, with regard to the issue of competing water uses in the river basin.

The Union environment and forests minister, Jairam Ramesh told TOI, "This is an important early step in our Mission Clean Ganga, which aims to ensure that no untreated sewage enters the river by the year 2020. I am happy that the IIT consortium has been given this task. It is for the first time that a consortium of 7 IITs is coming together for a project of this magnitude and importance. An important co-benefit of this project will be the opportunity it will give young Indian scientists to apply their technical skills to a project of such national importance, while further honing their abilities".

The seven IITs involved comprise Kanpur, Delhi, Madras, Bombay, Kharagpur, Guwahati and Roorkee and the consortium will be lead by IIT Kanpur.

While earlier the Union Ganga River Basin Authority was looking upon international agencies to produce the plan which would include not only a blueprint of the sewage systems along the basin but also the dams that are being planned, the joint bid by IIT swung it in favour of Indian engineers. The river basin plan will aim to have adequate provision for water and energy in the Ganga basin to accommodate the pressures of increased population, urbanization, industrialization and agriculture while ensuring the sanctity of the fundamental aspects of the river system are protected. The twin demands of perennial flow and clean waters would be the two benchmarks to be met.

The plan is to be submitted to the government within a year. For the purpose, the IITs have decided to work along several thematic sections including environmental science and engineering, water resources engineering, fluvial geomorphology, ecology and biodiversity, socio-cultural aspects, legislative aspects, institutional capacity building and public

Indian-origin MIT dean is Obama pick for top science post

Chidanand Rajghatta / TNN

Washington: President Obama on Thursday announced his intention to nominate Indian-American engineering scholar Subra Suresh as director of the US National Science Foundation (NSF) even as his administration cranked up its engagement with India on the science, technology, and education front.

Suresh, till recently dean of engineering at the famed Massachusetts Institute of Technology (MIT), will have to be confirmed by the Senate. The NSF, the science counterpart of the National Institute of Health, is a United States government agency that supports nearly a fifth of all fundamental research and education in America in all the non-medical fields of science and engineering. It has a budget of more than \$7 billion. A 1977 graduate of IIT

Chennai, Suresh received a master's from Iowa State University in 1979 before pursuing doctoral studies at MIT, where he received the ScD in 1981. After two years of postdoctoral research at the University of California at Berkeley, he joined the faculty at Brown University, where he rose to the rank of professor of engineering in 1989 before returning to MIT in 1993.

In an interview to this newspaper when he was appointed dean of MIT engineering in 2007, Suresh acknowledged the rich Indian legacy in science and engineering, which he said shaped his own career, as it is doing for thousands of young Indians. The Indian delegation visiting here for the Indo-US Strategic Dialogue apparently knew of Suresh's impending appointment having been briefed by US officials in this regard.

Exclusive for women engineers

INDIRA Gandhi Institute of Technology (IGIT), the only girls engineering college in Delhi and NCR region is affiliated to Guru Gobind Singh Indraprastha University (GGSIPU). "Many girl students do not prefer to step out of their cities to pursue engineering. We lose good women engineers. Keeping this in mind, the university started the engineering college exclusively for women," says Nupur Prakash, principal, IGIT.

According to Prakash, the demand for women engineers is on the rise. As professionals, they are disciplined. "A woman engineer has the right blend of intelligence and creative sensitivity. The successful track record of women engineers in the IT industry has created a demand for them. Hence, there is a need to promote women engineers in India," she says. In order to cater to the increasing demand, IGIT has decided to offer two new engineering courses from the next academic session. Admission to the new and old BTech courses will be conducted through the Common Admission Test, which will be administered by GGSIPU.

The department of training and technical education, Delhi government, established IGIT as the first girls engineering college in India. Operating from the GGSIPU campus at Kashmere Gate, IGIT made a modest beginning in 1998 by launching three BTech engineering degrees in electronics and communication, mechanical and automation, and computer science. It will now be offering BTech programmes in two areas — electrics and electronic communication, and information technology. "The campus has had a tradition of producing engineers. Delhi Polytechnic, which became the Delhi College of Engineering, started operating from here. We, too, hope to expand once GGSIPU shifts to the new campus in Dwarka," adds Prakash.

"Out of a number of institutions affiliated with the GGSIPU, IGIT was the first institute to become the constituent college of the university," she says. The college currently offers 180 seats in engineering. The two new programmes will have 60 seats each. "There is a special provision for 80% reservation for girls from Delhi," she adds.

ET

SOCIAL ENTREPRENEUR

Engineering a rural change

Mohnish Pabrai's Dakshana Foundation helps poor students crack the IIT-JEE

Ishani Duttagupta

BACK in June 2007, Mohnish Pabrai was a newsmaker when he bid \$650,100, along with a friend, for a charity lunch with legendary investor Warren Buffett. And now, Pabrai's own charity is making an impact in the highly competitive arena of engineering entrance examinations in India. The Indian American investor and managing partner of Pabrai Investment Funds, along with his wife Harina Kapoor, has set up Dakshana Foundation, which is focused on providing resources and support for poor students in rural and semi-urban government schools—under the Jawahar Navodaya Vidyalaya (JNV) system—to help them crack the IIT Joint Entrance Examination and the All-India Engineering Entrance Examination.

Pabrai, who likes to call himself the founder and catalyst of Dakshana, has a vision of 2020 students from the JNV system going to India's premier tech schools by 2020. "They don't all necessarily have to be through Dakshana," he says, and has no issues about acknowledging the Fantastic Forty programme, run by FIITJEE, one

of the largest coaching institutes in India, and the Super 30 programme run by Anand Kumar in Patna. "Other coaching service providers such as Resonance, Career Point and TIME, too, are showing interest in the model of offering free coaching for IIT-JEE to poor students," he says.

Dakshana started operations in 2007 with about half a million dollars in cash and investments and the passion of its founders to make the world a better place. The model is simple—the foundation works with the government-run Jawahar Navodaya Vidyalayas. Gifted students from these schools are funded for intensive coaching for the IIT-JEE examinations through various coaching service providers.

"We ended our first year with 291 Dakshana scholars located in seven states across India. Over the course of 2007, we established a strong relationship with 570 residential JNVs across India through a memorandum of understanding," Pabrai says. Dakshana had spent over \$1 million by the end of 2007, with cash and investments exceeding \$2.8 million. "We have never, and will never, pay a bribe," says Pabrai, who is deeply inspired by Buffett's charitable activities. In fact, during his lunch with Buffett, Pabrai had asked for guidance and direction from him. "I had sent a copy of Dakshana's 2007 annual report to Warren before the lunch. He had read it cover to cover and said that he had even sent copies of it to his partner Charlie Munger and Bill Gates," says Pabrai. The core focus is simple—helping the poorest of poor students get accepted as students at IIT and other top institutions in India—and thus helping families come out of poverty.

The goals are obviously being realised and this year, 90 Dakshana scholars have got through to the IIT merit list. "The success rate is higher than last year when 75 kids had made it through the IIT-JEE. Last year 21% of kids made it. This year it is 31%. And we have three kids in the Top 500 ranks. T Ashok Kumar is our topper with an all-India IIT-JEE rank of 63. His father is a tailor who makes a meagre Rs 2,100 a month in the outskirts of Hyderabad," says Pabrai, who has no reservations in acknowledging that the heavy duty work to execute the Dakshana model in India is being done by the foundation's CEO Colonel Ram Sharma and his team in Pune.

"I spend most of the year in Southern California sporting a golf shirt and shorts and get around in my BMW Convertible. The real heroes are Col Sharma and his team, who are doing the work on a voluntary basis," says Pabrai. Besides T Ashok Kumar, Rajiv Krishna Omar from Fatehpur, Uttar Pradesh, scored an IIT-JEE All India Rank of 87 while Shriman Narayan Tiwari, Raipur, Chhattisgarh was at rank 455. "The foundation paid money for my IIT-JEE coaching institution and for buying books. I was inspired by some of my seniors at my school who were also Dakshana scholars. I am from the Ranga Reddy district in Andhra Pradesh but I moved to the JNV Bangalore Urban between 2008 and 2010 to attend the coaching class," says T Ashoke Kumar, who will now join IIT-Mumbai for the computer science course. He says that he studied around 10 hours a day after school and coaching classes to crack the IIT-JEE.

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Why Indian managers succeed overseas

Circumstances conspire to produce highly-competitive, creative and competent students who become supermanagers abroad

AFAMOUS person said that the measure of a society is how it converts its pain and suffering into something meaningful and useful. India has done that through the remarkable success of its overseas managers.

Indians are rightly jubilant with the overseas success of their compatriots, for example, when Nitin Nohria was appointed Dean of Harvard Business School (HBS); or earlier, when Subra Suresh became Dean of MIT or when Arun Sarin and Vikram Pandit rose to the top of their companies. The positive emotion often has a trace of India Rising.

The achievers are humble about their success. Adobe CEO Shantanu Narayen nonchalantly says, "It is not a big deal, because America is an egalitarian and meritocratic environment." HBS' Nitin Nohria gives credit to IIT. Pepsico's Indra Nooyi modestly says, "I am a mother first and then a CEO."

Do India-born managers possess something distinctive? Do they achieve more success abroad than other immigrants? It is tempting to think so and, indeed, there are many views. One view is that Indian managers are no different from similarly-educated managers from elsewhere. Another is that Indians have always done well overseas, but media coverage has brought visibility and celebration. A third view is reflected in a recent book, *The India way: How India's top business leaders are revolutionizing management*, in which Wharton professors Peter Cappelli, Harbir Singh, Jitendra Singh and Michael Useem identify four distinctive Indian practices: holistic engagement with employees, improvisation and adaptability, creative value propositions and broad mission and purpose.

Whichever may be correct, the upbringing of India-born managers quite unintentionally prepares them for a good chance of success overseas. As author Sanjaya Baru wrote in March this year in *Careers 360*, "Stories of extreme hardship, braving impossible odds and innumerable sacrifices, abound in the lives of nearly 90% of the students in the country. But among them, some perform exceptionally well. Their academic laurels are so brilliant, that at times their CV looks intimidating. And each one acknowledges that it's the right education that made them what they are today."

India-born managers are products of four unique circumstances.

Competitive education: IIT/IIM effect:

Thanks to subsidies, higher education is accessible to middle-class people. When viewed with the cultural propensity to acquire degrees, this fact results in an avalanche of several thousand applying for every college seat. Higher education is crushingly competitive. Bright Indian children who do not get into IIT effortlessly secure admission into an Ivy League College! In the US, this has repositioned IIT as a genius factory, and IIT alumni promote this assiduously.

The graduates of India's institutions have been psychologically autoclaved through high-pressure competition. They emerge with insatiable ambition that vastly exceeds their intellectual or financial resources. This stretch between resource and unreasonable ambition is significant: recall the late Prof C K Prahalad, "It is essential for top management to set out an aspiration that creates, by design, a chasm between ambition and resources." The Indian system creates in many graduates a chasm between aspiration and resource, but quite unintentionally.

Accelerated learning:

Life for the student is a struggle in India compared to elsewhere: commuting in chaotic cities, inadequate privacy and lebensraum to study at home, facilities for sports and libraries, and a crushing burden of exams. Almost every student has faced early setbacks: inadequate marks in exams, a lost college admission or a limited job choice. Chance plays too important a role in the Indian student's life, making it quite stressful, hence youngsters just have to learn to face setbacks early on. They learn to be persistent and to fight with a never-say-die attitude.

Research indicates that extraordinary setbacks accelerate personal learning. Duke Corporate Education board member Judy Rosenblum wrote in 2009 in the Financial Times, "In order for people to develop as professionals, they need to be immersed in problems. A problem provides the opportunity to grapple with and test one's ability to adapt."

Although family and peer pressure are high, they also provide the required support to handle the stress. Fortunately, the influence of parents is prolonged and significant. Sir Winston Churchill told the English people, "Never give in, never, never, never, never" for the war years. The Indian student practises this all through life. Success is not just about being ambitious, it is about overcoming adversity.

Hard work plus creativity:

It is not that other nationalities are lazy. It is just that overcoming shortcomings of infrastructure requires Indians to expend energy that could otherwise have been productively deployed. The educated youngster is forced to develop the traits of hard work like East Asians who naturally derive it from their Confucian ethos. But there is a difference: the Indian has a low aptitude for repetitive tasks. The Indian will try to do the repetitive task differently and creatively: in short, he works hard and creatively, a brilliant combination. The serious student works and sweats as if on an academic treadmill and business executives do the same in their workplace.

Indians' propensity for hard work was grudgingly acknowledged by Abraham Pinkusewitz while explaining how the Gujaratis managed to capture 70% of the diamond trade in the Antwerp market, "Indians succeed because business is all they have in their lives. If needed, they will work 24 hours per day."

Young Indians have also to adapt to challenges arising from diversity, which is quite different from, for example, the Chinese: learning several Indian languages, adapting to school systems while transferring with parents, and coping with variable teaching quality. Howard Gardner, Harvard academic on Cognition and Education, points out, "The only reliable way to determine whether understanding has truly been achieved is to pose a new question or puzzle—one in which individuals have not been coached and to see how they fare." Indian students are wired to work very hard, with passion and creatively.

Thinking in English:

Where else in the world would a temple be constructed for Goddess English? On October 25, 2010, the birthday of Babington Macaulay, such a temple will be inaugurated in Uttar Pradesh. English is being installed as a deity there so that those who pray to her can be blessed with progress.

Uniquely, Indian managers think in English, the test being that they use English to express fine points. Many don't comprehend the nuances of a vernacular paper. The manager's professional education has almost certainly been in English, case studies have been Anglo-American, language proficiency has played an important role in success and socialisation, and the language of business is English. As a result, the Indian manager abroad is quite analytical, linear-thinking, and articulate in his intellectual skills. She hits the ground running in any overseas employment.

Unintended consequence:

These four circumstances produce a sufficient number of highly-competitive, creative and competent students!

Followed by a career in a relatively-orderly work environment with process-orientation in the west, the career manager goes Boom, Boom. She becomes productive early on because of lower frictional losses and obstacles.

Many, many Indians are successful abroad, not just the few that the media write about. I know from my Unilever experience that Indians are prized as much in India as in Peru, Poland and the Philippines.

These facts about the Indian manager ignore the harsh reality that many do not make it through the obstacle race. This has unfortunate social consequences. But for those that do, the probability of success abroad improves a lot. A concurrent trend is that foreign business leaders are joining Indian companies: Carl-Peter Forster in Tata Motors, Marten Pieters at Vodafone Essar, Wolfgang Prock-Schauer at Jet Airways and Raymond Bickson at Indian Hotels.

In short, Indian managers are rapidly globalising, and that must be a good thing for the future.

(The author is executive director at Tata Sons.

Views are personal.)



All IIT takes is hard work

Amit Kumar's article *The Super 30+* (*Variety*, May 30) made for interesting reading. Not only did Kumar recount the success story of the world-renowned coaching centre in Patna, Bihar, that helps poor children get through the prestigious Indian Institute of Technology (IIT), but he also talked to some of its alumni. It is heartening that the centre is helping many deserving and diligent youngsters realise their dreams. The interviews of the alumni prove that a strong will to succeed is all that an individual needs to overcome all problems. Not many know that students

from the remotest parts of Bihar constitute a large percentage of IIT graduates and civil servants in India.

Deepjot Singh Thukral, via email

PM to visit IIT-K on July 3

KANPUR: Prime Minister Manmohan Singh will visit IIT-Kanpur on July 3 to participate in the ongoing golden jubilee celebrations of the premier institute. "Prime Minister will visit the institute on July 3," said Sanjeev Kasalkar, Registrar, IIT Kanpur. The Prime Minister has been invited as the chief guest for the annual convocation, he said. On March 6, President Pratibha Patil had inaugurated the golden jubilee celebrations of the institute.

They quit jobs abroad to return to teach at IIT

30 of the 45-member faculty at IIT-Ropar are 30-somethings with foreign degrees

DINKER VASHISHT
ROPAR | JUNE 5

- Himanshu Tyagi, 32, an IIT-Delhi graduate who earlier worked for Intel in the US, is an assistant professor at IIT-Ropar.
- Ashish Ahuja, 31, also from IIT-Delhi, who was earlier working in Paris, is a visiting faculty at IIT-Ropar.
- Sanjiv Gupta, 35, a Yale University alumnus, teaches Mathematics at IIT-Ropar.

THESE are just a few of the many young professionals who have quit successful corporate jobs and research careers abroad to return to India and teach at the Indian Institute of Technology-Ropar, the first of the eight new IITs to start classes on its own campus.

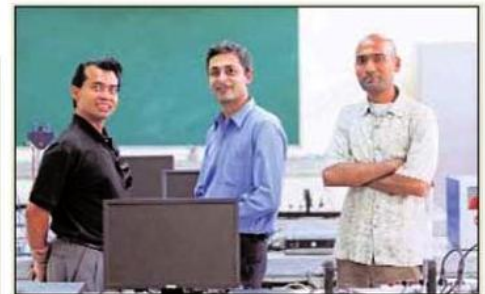
"We have a faculty strength of 45. Of these, over 30 are in their early and mid-thirties who did their masters from

abroad and were pursuing their careers in foreign countries. In fact, every single faculty member in our computer engineering department has a PhD from a foreign university," says Professor M K Surappa, director of IIT-Ropar.

The trend has been noticed in IIT-Mandi too, which will be starting classes in its campus from this session. While its director, Professor Timothy Gonsalves, is busy conducting inter-

views for faculty recruitment, the institute's Registrar, A K Srivastava, says: "Majority of the applicants are in their early thirties who are working in well-known firms."

Many feel that the new improved teaching pool will allay fears that the increase in the number of IITs would affect the quality. Besides Ropar and Mandi, the other new IITs are at Gandhinagar, Ludhiana, Bana-



From left: Sanjiv Gupta, Ashish Ahuja and Ravi Kanth Devarapalli at the IIT-Ropar campus.

KAMLESHWAR SINGH

Young professionals who quit foreign jobs

Bhubaneswar, Hyderabad and Indore. "The new IITs may end up doing better than the existing ones simply because the young talent and opportunities available now weren't there in the 1960s," says Dr Prem Kalra, director of IIT-Jodhpur.

The sentiment is echoed by Ashish Ahuja, a visiting scientist at the Department of Computer Science in IIT-Ropar. "Intellectually, this is one of the most stimulating environments I have ever come across in my career. It is heartening to see the new IITs come up," he says.

Ahuja, 31, who studied computer engineering from IIT-Delhi, took up a job in Paris before pursuing his MS from the University of Texas.

Another IIT-Delhi graduate, Himanshu Tyagi, 32, is now an assistant professor in the Department of Mechanical Engineering at IIT-Ropar. Tyagi worked for Siemens in Germany and Intel in the US before pursuing his PhD from Arizona.

"There are many things I can do here. It is a thrill to see the institute grow from its incipient stage. There is no dearth of facilities. I can work independently. Shortly after joining I was given the seed money to pursue research. I also head the sports department in this campus. For someone with a passion for sports, this is the best possible recreation. All these responsibilities wouldn't have come my way if I was teaching at an already well-established institution," says Tyagi. His wife, a software engineer in Bangalore, is now planning to join him soon.

It is not just a longing to return to India that is behind these decisions. Saniiv Gupta, 35,

versity before working as a research scientist at Los Alamos Laboratory, says the offer to teach Mathematics at IIT-Ropar was exciting because it gave him an opportunity to set up a high-performance computer laboratory, which, when completed, "would be something like the CERN lab in Europe and would be a part of India-based Neutrino Observatory."

Another example is Ravi Kanth Devarapalli, 30, who, after pursuing his doctorate from the University of New Mexico, chose to return to India to teach Electromagnetics at IIT-Ropar primarily because it gave him an opportunity to pursue teaching and research. "I have been associated with the project of setting up an advanced computer laboratory here and it is very exciting," he says.

"They work with us for monthly salaries of around Rs 60,000. They were making much more in their earlier careers. Even if they wanted to pursue teaching in India, they would have got far better remuneration in the private colleges here. But they choose to come to IIT, because of the assurance of standards," says Professor B D Gupta, formerly head of department of Chemistry at IIT-Kanpur who is now teaching at IIT-Ropar.

Others say the infusion of young talent with international perspectives could provide the push that the IITs need to pursue further innovation. "Young talent and opportunities allow us to explore new areas. For example, at Jodhpur we teach mechanical, electrical and computers but we are now working in the field of solar energy since geographically, Jodhpur is ide-

Centre notifies 8 cities in state as highly polluted No Industrial Development To Be Allowed; State May Ask IIT To Suggest Corrective Steps

THE Union environment ministry has notified eight cities in Maharashtra as "highly polluted". This means that there will be no or very little industrial development henceforth in these cities.

These cities are: Chembur and Tarapur in Mumbai, Navi Mumbai, Dombivli, Nashik, Pimpri Chinchwad, Chandrapur and Aurangabad. The state government was informed about the ministry's decision last week.

The ministry has asked the state to take immediate measures to clear the mess. As part of this exercise, the state government has decided to rope in the Indian Institute of Technology (IIT) to recommend corrective steps. The government will soon appoint local committees that will be consulted before deciding on allowing new industry or mines, a state government spokesperson said.

Tarapur houses the country's first atomic plant, Bhabha Atomic Research Centre, besides a number of small pharma and bulk drug processing companies. People from Tarapur have time and again raised the issue of unchecked pollution. The state government, however, kept looking the other way.

Plight of the people living in Chembur is no different. Air quality in this Mumbai's crowded suburb was so bad that it earned a moniker "Gas Chembur". Thanks to a unit of the Rashtriya Chemicals and Fertilisers (RCF) and other chemical factories, the living standards continued to deteriorate in the region, a fact that failed to stop the state government from encouraging real estate development in the area.

Same is a situation in the neighbouring Navi Mumbai and Dombivli. Uncontrolled industrial growth and gross violation of all environmental norms have made parts of these suburbs not conducive to living. These adjacent towns house the country's first industrial corridor between Thane and Belapur.

Pimpri Chinchwad and Nashik have seen spectacular industrial growth in the past decade with many global players setting up shops there. Aurangabad too has of late been an attractive destination for industries.