

Kolkata, November 17, 2008

Will the East bounce back?

natureindia.com, November 17, 2008 - Eastern India's romance with basic science research has been historically celebrated. Why's it that Kolkata has not been able to retain the coveted position through the ages? Will the region bounce back with a slew of new measures planned? Nature India investigates.

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In the land of Jagadish Chandra Bose, Meghnad Saha and P. C. Mahalonobis, a disturbing trend has left scientific institutions worried — that of young scientists leaving its shores for greener pastures. It isn't surprising then that one finds Bengali surnames galore while scanning for Indian names in international publications. Neither is it just a coincidence that the scientist with the highest number of publications in this country is a Bengali (Ashoke Sen of the Harishchandra Research Institute of Allahabad).

Why hasn't West Bengal, or more precisely its culturally-throbbing capital Kolkata replete with scientific institutes, been able to hold back this enormous talent pool?

Jayanta Bhattacharya "The primary problem in Kolkata is its inability to retain its undergraduates," says Jayanta Bhattacharya, dean of the academic programme at the S. N. Bose National Centre for Basic Science (SNBNCBS) in Kolkata. "One look at research institutes across India and you find that they are being populated in physics, chemistry and mathematics by predominantly Bengali scientists; there is a large number of them in every leading institute, which is actually quite disproportionate to the size of the state!" he notes.

"...Their gain is our loss. But the difficulty is that we don't know how to address this," Bhattacharya says.

The trend of youngsters leaving Kolkata for other institutes in the country or abroad began in the eighties. The diagnosis then was: the city does not have much to offer in terms of high quality post-doctoral stints or jobs. "But on closer look it seems that the phenomenon might not be unique to Kolkata. No student wants to spend his/her whole life in one place any more. Eighteen years of Kolkata or Mumbai or Delhi is enough for a youngster to look for a change," Bhattacharya points out. The need for change might not be a reflection on the city. At 18 there's a strong outflow, at 21 it's stronger. "It is unfortunate that the research institutes in Kolkata do not get their finest local quota — everyone competes for students from this region. Had all the other regions in this country been sending out good students, some of these students would be forced to remain here," he says.

Traditionally, students opt for a good university after their bachelor degree. In the absence of lucrative options in Kolkata, the choices are limited. "The two universities — Calcutta and Jadavpur — don't offer attractive fronts. Dilapidated labs, non-functioning equipment and roofs

falling off in places – would this attract today's world citizens who have seen better labs on the internet?" asks a researcher in a private R&D firm who opted for a U.S. lab for his masters and post-doc and came back to Kolkata for a job.

Owing to the state's historic divorce from English, many students from the region were apprehensive about an oral examination, which they had to compulsorily take in order to get into an M.Sc course through the joint national examination earlier. The oral examination was recently done away with making the joint examination a written affair. "This has increased the student outflow from the state by the order of ten," notes Anirban Choudhury, a researcher with an eye on education trends in the state.

Realising the crisis about seven years ago, the SNBNCBS decided to go for an integrated programme to pitch for undergraduate students. "We offer them slightly more research-oriented programmes than other institutes. Even then we have had mixed success, we don't get the numbers we would like to," Bhattacharya says.

The recently set up Indian Institute of Science Education and Research (IISER), however, is very optimistic of a turnaround. "There's a large pool of very bright students who may not be articulate, suave, urbane or sophisticated but they are native intelligence, very eager to learn," says Sushanta Duttagupta, director of IISER Kolkata. "We see a large number of our students coming from 'apparently backward' states like Bihar and Orissa also."

IISER's main strength is in the undergraduate programme. "But along with that, the undergraduate students would interact with the older students doing research," he says.

Sushanta DuttaguptaThe institute, which started its academic sessions in 2006 had 40 students in the first year, 70 in the second and 60 in the third year with an integrated 5- year programme. The idea was to integrate education with research so that undergraduate teaching is carried out alongside doctoral and postdoctoral research work. "We call it an MS programme, which is strikingly different from conventional education in our country," Duttagupta says.

The premise is that around the age of 17 and half, students may not know of the various possibilities ahead of them or be sure of their interests. IISER gives them an inter-disciplinary exposure in the first four years after which they chose their area of interest.

The Indian Institute of Chemical Biology (IICB), one of the finest inter-disciplinary research bodies holding aloft the biological sciences flag in the predominantly physical sciences-dominated Bengal research scenario, has similar plans of grooming its own manpower.

"The postdoctoral students are often the best people to have in a research institute. Unfortunately, we don't have a Ph. D. programme. We really plan to develop this in the future and are looking at creating a full fledged Ph. D. programme here," says IICB director Siddhartha Roy.

As of now, IICB is home to a clutch of 'fine quality' researchers by virtue of a programme run on its campus by the National Institute of Pharmaceutical Education and Research (NIPER). "It is wonderful to see brilliant, young people roaming around in the campus busy with a lot of

interesting projects. Makes you feel there's a lot of hope for future," he says.

Swapan BhattacharyaThe NIPER crop has actually impressed the local industry so much so that a whole batch of medicinal chemistry researchers was taken in by Kolkata-based contract research and informatics company TCG Lifesciences. "We have a number of tie-ups with academic institutions such as IICB, IISER, the National Institute of Cholera and Enteric Diseases (NICED) and the Indian Statistical Institute (ISI) in this region. We realise the importance of such industry-academia links," says TCG Lifesciences managing director Swapan Bhattacharya.