

## Need to Improve the IITs and IIMs

SANJAY MISHRA

Even though the IITs and IIMs are considered among the best of India's higher education institutions, they compare poorly on global benchmarks. Not only are faculty recruitment insufficient and research output lacking, student intake too is low even for the available teachers and space. All this indicates a poor utilisation of resources and these institutes will themselves need to reform and improve before they can truly become models for others, as envisioned by the Yashpal Committee.

Sanjay Mishra ([sk.mishra@qut.edu.au](mailto:sk.mishra@qut.edu.au)) teaches at the School of Engineering Systems and Institute of Health and Biomedical Innovations of Queensland University of Technology, Australia.

The report on *Renovation and Rejuvenation of Higher Education* by the Yashpal Committee has created an atmosphere for an open dialogue among the stakeholders of higher education in India. For the first time in recent history the Ministry for Human Resources Development (HRD) is sincerely looking to overhaul the system of higher education. Although, the committee has attempted some "out of box" thinking in order to recharge the higher education system, there remain some important issues, particularly related to the Indian Institutes of Technology (IITs) and the Indian Institutes of Management (IIMs), which need further consideration. Since the committee was not exclusively reviewing the IITs and IIMs, it is understandable that it did not touch on them in detail. The report suggests that other institutions should emulate, to a certain extent, the IIT/IIM model of governance and academic standards.

There is no doubt these institutions are well known for their quality of teaching and research, specially compared to other

institutions in India. However, globally, none of the Indian universities including IITs and IIMs are among the world's best, at least in the globally accepted ranking of universities done by China's Shanghai Jiao Tong University (SJTU). The "academic ranking of world universities" compiled by SJTU is the most widely used and accepted annual ranking of the world's universities. Unfortunately, the 2008 ranking has only four institutions from India in the top 500, compared to 57 from China and 21 from a small country like Israel. In another ranking, compiled by the London-based Times Higher Education, only two IITs could find place in the top 200. There may be some arguments on the methodology and ranking used by these two but the message is loud and clear – none of our institutions of higher education are world class, nor have we formulated any strategy to achieve this. I hope the new HRD minister will take the initiative to draw a road map of taking at least five of India's institutions to the top 100 and 50 of them to the top 500 in the coming five years.

### Suboptimal Use of Resources

The Yashpal Committee has noted that "that there are no great universities in the world that do not simultaneously conduct world class programmes in science,

astronomy, management, languages,...” and has, therefore, recommended that IITs and IIMs need to strengthen in other disciplines including, social sciences and humanities to take the character of a world class university in a true sense. The same argument can be extended to increase their student intake from current levels to at least 10,000. A majority of the leading universities of the world have enrolments in the range of 20,000 to 40,000 students. This will not only help IITs and IIMs scale up their research activities but also enable thousands of aspirants to get an education in these prestigious institutes.

If the Massachusetts Institute of Technology (MIT) is able to educate more than 10,000 students with an annual intake of more than 1,000 in the undergraduate programmes alone, then there is no reason why our IITs or IIMs cannot? Presently, all the IITs – including the Institute of Technology at Banaras Hindu University and the Indian School of Mines University, Dhanbad – have together selected only 8,295 students through their Joint Entrance Exam – 2009. With such a low intake, the total number of student on the rolls of all the IITs together is about 25,000. This is the number of students one single world class university normally has. For example, Harvard University and Georgia Institute of Technology (Georgia Tech) have about 20,000 students each; in Asia the University of Tokyo and the National University of Singapore each have more than 30,000 students on their rolls. All these institutions have a much better academic ranking than the IITs and IIMs. The point of this comparison is that there is ample scope for increasing student intake in the existing prestigious institutions without necessarily compromising quality, rather than merely opening a new institution in every state.

Interestingly, the top engineering institutions in the United States (US), for example, MIT and Georgia Tech have only 168 acres and 400 acres of campus respectively, which is less than the average campus size of an IIT/IIM. The better educational institutions in the US and in Europe manage large lecture classes by proactively deploying modern information technology

tools and engaging PhD students as teaching assistants. Most of the IITs and IIMs have teacher-student ratios of 1:10 where as many of the better universities in the west have a range from 1:10 to 1:15. Unfortunately IITs and IIMs are not optimising their existing resources to maximise students’ enrolment on the pretext of deterioration of quality. Further, in many leading universities of the world, classrooms and laboratories are often run on 12 hour shifts to optimise resources. This enables them to manage relatively larger student population within limited resources. Even the new IITs tend to follow the footprints of old as they start in a thousand acres campus but aim to educate a maximum of 3,000 students at the end of five years as suggested in the new IIT project report submitted to the Planning Commission by the HRD ministry in 2006. These are not only examples of under utilisation of scarce physical resources but they also let down many among the 3,00,000 and more aspirants to the IITs who are denied admission each year, not necessarily due to lack of merit but due to non-availability of seats in these prestigious institutions.

### Upgrading the Faculty

The situation in the IIMs is worse than in the IITs, according to the observations of the recent review committee. The IIMs

...have lagged behind leading global business schools in publishing papers in internationally peer-reviewed management journals. It is apparent that the quantity and quality of research carried out in the IIMs has been inadequate. The system does not encourage, or provide incentives to the faculty, to give greater attention to research and publishing papers. In rankings done by international business journals like the *Financial Times*, London, *Economist and Business Week* (US) IIMs do not figure (Report of IIM review committee 2008, MHRD, page 10).

The committee also pointed out that no IIM ever tried to increase student intake nor did they approach the government for expansion. This seems to indicate a certain irresponsibility of these institutes towards their mandate which is quite deplorable, considering the shortage of management graduates during the last two decades of economic liberalisation. It

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was only last year that the review committee proposed an increase in the student intake to 500 for the postgraduate MBA programme and to 20 for the fellow programme (PhD) in IIM Ahmedabad, Bangalore and Calcutta. Their present research output can be gauged from the fact that this review committee has had to recommend that the combined faculty of the IIMs Ahmedabad, Bangalore and Calcutta should each publish at least 10 articles per year in the top 25 management journals. The faculties at IIM Lucknow and Kozhikode have been asked to publish five articles each per year in the top 25 journals. By international standards, this is clearly too little from an institution which aspires to academic excellence. This confirms the assessment, also made by the Yashpal Committee, of the extremely low level of knowledge creation by our best performing institutions of higher learning.

From the above it appears that instead of creating new IITs and IIMs, if the same money was spent in expanding and

strengthening the existing IITs and IIMs greater benefit would have accrued to the country, as none of these institutions have reached an optimal level compared to existing international standards. The shortage of qualified staff is often cited as a constraint in expansion of programmes in the existing institutions. How can this problem be mitigated by opening new institutions? If there is a shortage of suitable faculty to expand programmes in the existing and well established institutions how can new institutions be expected to recruit good teachers and researchers? As mentioned earlier, the present teacher-student ratio in the IITs and IIMs is close to 1:10 while many globally acknowledged higher education institutions are working well with a ratio of 1:15. This indicates that there is some scope for expansion of student intake even with the same faculty strengths. But for a sustained effort to achieve world standards, serious thought has to be given to the issue of faculty recruitment and, more important, their retention.

The shortage of teachers has been a chronic problem since the starting of IITs and IIMs and innovative ways for their recruitment and retention will have to be explored. Let us return to the example of Israel which has 21 universities in the global top 500 and three Nobel Laureates in the last 10 years. These universities attract the best academic staff not by giving high salaries but by providing generous sabbatical leaves and allowing academic staff to have joint appointments in other universities in the US or Europe. China has proactively recruited high rated American-Chinese researchers and teachers to set up research laboratories and academic programmes in China. The 100-days plan, announced by the HRD minister, Kapil Sibal, includes the formulation of a "brain-gain" policy to attract talent from across the world to the existing and new institutions in India. Hopefully some "out of box" thinking will support this policy and some bold new measures will be taken to solve this problem.

In sum, renovation and rejuvenation is much required in the IITs and IIMs to make them truly world class. There is an urgent need not only to expand and diversify these institutions, on the lines of the Yashpal Committee recommendations to include programmes of humanities and sciences, but more

important is to plan a blueprint to increase their student enrolment, across the board, to match world class universities. This is not to suggest that merely increasing student enrolment to global benchmarks will make these institution world class, but to argue that they need to enlarge their student mass –

which India urgently needs – and yet they can improve their teaching and research levels to world standards. There are ample examples from around the world where higher numbers of students are educated with lesser physical resources and lessons need to be learnt from them.