# DITORIAL PAGE

# The great IIT disconnect

## From the selection process to curriculum, faculty and government have let IITs become ivory towers

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IN A RECENT interview to *The Indian Express* K Kamakoti, director of IIT-Madras, gave candid answers to important questions. On being asked about IIT graduates choosing non-engineering careers, Kamakoti expressed his deep concern about the situation, especially in areas of civil and aerospace engineering. According to him, this was largely due to non-engineering jobs offering better pay and work conditions.

The IITs are an important national asset. In fact, the conduct of science in the country is shaped in a manner so that they get to measure and identify the top one per cent by a selection process of their choice. That this process severely mutilates the remaining 99 per cent is collateral damage. Hence, the allocation of jobs to this one per cent is of great concern not only to the directors of the IITs, but to us all.

First, the problem of poor allocations has been longstanding and broad. A study in the 1970s revealed that about a quarter of IIT graduates left for work or study abroad soon after graduation, largely never to return. Another recent study of graduates from 2010 revealed the same situation. That trend has now given way to MNC jobs in the service sector, with "analytics" in international finance leading the pack. The next option is to work as technical staff for global technology companies at their offices in India. As a result, no more than a quarter of IIT graduates work in Indian companies for Indian customers.

The second claim that student choice is about job conditions is also not accurate. The mandate of the IITs is to contribute to national development through research and teaching. This requires them to pick concrete problems of interest to society at large — say pollution, the Railways or drinking water — engage with the agencies in these sectors, and work out solutions. The next task is to transmit these as new processes, products and job descriptions, either in the public sector or as companies in the corporate sector. It is this combina-

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tion of analysis, synthesis and interdisciplinary innovation that describes the exciting and deeply intellectual role of the technologist. Repeated surveys have shown that this role as a change-agent has great appeal for students worldwide.

The obvious question, then, is: Does the training and pedagogy at the IITs match the above expectations? Do we immerse our students into the broader reality with all its nuances, conflicts and variety of actors? Do we teach them how to structure and formalise the problems that they see? Do we provide them with the sectoral knowledge and data that is needed to solve these?

The answer is a resounding no. Most of the IIT course material is taught in the classroom or laboratory. Students rarely have to go outside the campus. Most faculty members have neither engaged with any state agency or company nor have they undertaken the journey as a change agent on a problem that we face as a society. And as we have seen, they have little to write or profess about most topics on which the people long for a factual analysis: For example, the recent railway accident or the groundwater situation in their state. If they had this experience, it would be easy to design jobs in any development sector with salaries that match the MNCs. In its absence, the IIT graduate is only fit for a comfortable MNC job in Bengaluru, Pune or Gurgaon.

The second point Kamakoti mentioned is the reduced attention span of students. The COVID pandemic is only partly to blame. Student attendance in classes, when not made compulsory, has been down at 50 per cent for at least a decade. They simply have little interest in the material. But there is another aspect to this. Most conceptual tasks, from designing a bridge or an economic analysis of a small factory, need many different skills, foremost, an ability to structure a problem, reason about it and write a document. These are capabilities which should be tested at the point of entry. Western universities spend an enormous

amount of energy screening and testing applicants, a process in which the standardised test score is only one input. On the other hand, the IITs base their admissions on the JEE followed by the JEE advanced, both of which are objective-type questions that test a very limited and different set of skills.

Perhaps it is time for the IITs to adopt a different selection procedure for the 1.5 lakh students who write the JEE Advanced. It is here that each IIT can check if the student is interested in its institutional mandate and is suitable for it. This is certainly feasible for a combined IIT faculty body of over 5,000.

Thus, we see that student choice is a very small part of why IIT graduates do not work in engineering jobs. The conduct of the IITs themselves is also an important factor.

The key question is: Why is this misallocation allowed to continue? The naive answer is that IIT faculty have chosen it to be so. It is their own incentive structures of promotions, the preponderance of journal-based research and the general ivory-tower disconnect between them and the society outside their campus.

But that begs another question: Why has the government not guided the IITs about addressing this gap? That requires us to understand what the IITs actually manage to accomplish. These institutions also squat on the meaning of science, its subjects and its methods. They deflect the role of science in addressing the problems of the common people and reduce their comprehension and participation in the solution. They propagate the belief that Big Science will work in the common people's interests and that Big Business will deliver. They serve as the excuse for an examination system which injures and subjugates our youth more than it nurtures and builds.

Perhaps this is why the status quo is allowed to continue. That is something we should ponder.

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