

Speech by The President of India, Shri Pranab Mukherjee at the Conference of Directors of National Institutes of Technology

Rashtrapati Bhavan, New Delhi : 07.11.2013

I extend a warm welcome to all of you to this Conference of Directors of National Institutes of Technology, which is being held for the first time in the Rashtrapati Bhavan.

We gather today just two days after India attained a very significant milestone in the field of space exploration through the launch of the Mangalaayan Mission, which was totally an indigenous effort. Our space scientists and engineers have repeatedly demonstrated that given determination, leadership, hard work and resources, India is fully capable of attaining global excellence in fields of frontier technology. I am confident that the example set by ISRO can be emulated in a large number of other sectors in our country.

Engineers play a very important role in every walk of life. They convert knowledge of basic sciences into products. They are versatile minds who build bridges between sciences, technology and society. Engineers contribute to the nation's technological and industrial progress. Our IITs and NITs play an important role by nurturing world class engineers who are not only professionally competent but also committed to mastering frontier areas of technology, improving the quality of life of our people and taking our nation to new heights of achievement.

India's economy is the third largest in the world in terms of purchasing power parity. The substantial growth rate that our country has achieved over the last few years is second only to China in the world. India's economy has been more resilient than most other economies of the world. If we have to attain a growth rate of 9 per cent per year, as has been envisaged during the Twelfth Five Year Plan period, we must put in place enabling factors, most prominent of which is quality of higher education. Over time, we have created a large network of educational institutions. India has today 659 degree awarding institutions and 33,023 colleges. The number of Indian Institutes of Technology has increased from 7 in 2006-07 to 15 in 2011-12. The number of National Institutes of Technology (NITs) has increased from 20 in 2006-07 to 30 in 2011-12. It must also be noted that six of the ten new NITs are located in the North East India.

Enrolment to higher education institutions in the country has increased, from 1.39 crores in 2006-07 to 2.18 crores in 2011-12. Engineering comprised 13 per cent of the total enrolment in 2006-07. This figure has since increased to around 25 per cent. The growth rate of enrolment in Engineering, which was close to 25 per cent annually during the Eleventh Plan period, is the highest for any field of individual study.

Distinguished Directors, Ladies & Gentlemen,

This conference draws its inspiration from the successful outcome of a Conference of Vice Chancellors of Central Universities, I convened earlier this year in my capacity as Visitor of those Universities. The Conference of Central University Vice Chancellors resulted in a number of important recommendations. These are being vigorously pursued by the Vice Chancellors themselves and the Ministry of Human Resource Development, giving me confidence there would be visible change by the time we meet for the next Conference of Vice Chancellors in February 2014.

I am thankful to the respected Prime Minister, Dr. Manmohan Singh, a celebrated academic himself, for his presence today. Over the last nine years, the Government led by him has prioritised higher education and supported it with increased resources. I also appreciate the inspiring leadership provided to the education sector by Minister of Human Resource Development, Dr. M.M. Pallam Raju.

The NITs of India must play a central role in leading the drive for quality engineering education across the country. Despite significant growth in the number of higher education institutions, we have few institutions of global standards. If we look into our past, we find that India's ancient university system dominated the world for nearly eighteen hundred years beginning from the sixth century BC to 11th Century A.D. with the collapse of Nalanda. Famed seats of higher learning like Takshashila, Nalanda, Vikramashila, Valabhi, Somapura and Odantapuri were a magnet for scholars across the world. We must reclaim the position.

Distinguished Directors, Ladies & Gentlemen,

It is not difficult to see where our institutions stand today vis a vis the best in the world. In two reputed international rankings of universities – The QS Ranking and Times Higher Education Ranking – not a single Indian university or institution finds place in the top 200. Apart from the leading universities of the West, universities in countries like China, Hong Kong, Taiwan, Brazil, Mexico, South Africa and Malaysia are ranked higher than Indian institutions. The highest ranked Indian institution in the QS Ranking is IIT Delhi, at the 222nd position. Only eleven Indian institutions including seven IITs have earned a rank in the QS list of 700. Not a single NIT is amongst these institutions. The rankings process needs to be taken seriously not just for the ranks per se but for the fact that high ranking helps us attract the best faculty from across the world, significantly improve the prospects of good placements for graduating students and provide a benchmark for continuous quality enhancement.

During my recent visit to Belgium and Turkey, I had the privilege of being accompanied by a delegation of Vice Chancellors of Central Universities as well as the UGC Chairman. I used the visit to provide impetus to the international collaboration efforts of these Universities. Vice Chancellors held discussions with their counter parts and many were able to conclude MOUs on future cooperation with leading Universities of these two countries. I hope to follow the same practice with NITs in future.

There is need for regular revision and up-gradation of curricula, introduction of choice-based credit system, examination reforms and promotion of a culture of excellence. At least one or two departments in every NIT must be turned into Centres of Excellence. Formal linkages must be

built with the Industry so that there is regular flow of inputs from industry experts on course curricula and research. Engineering programmes must be also periodically evaluated based on industry trends.

Shortage of faculty is a serious problem across all institutions. Filling up of existing vacancies on priority must be ensured. A healthy faculty-student ratio must be maintained so that students are able to receive the kind of attention they require. Quality of instruction must be improved and teaching made an attractive career option for bright students. Teachers must be encouraged and facilitated to participate in international seminars, refresher courses and project work so that they benefit from wider perspectives and knowledge reciprocity.

Distinguished Ladies & Gentlemen,

Technology must be harnessed to deliver education effectively. Expertise in key areas must be leveraged by developing networks. The National Mission on Education through Information and Communication Technology must be used to give impetus to such efforts. NITs, as knowledge generating institutions, must interact closely with one another and other technical and research institutions. The National Knowledge Network envisages optical fibre connectivity between fifteen hundred institutions. I understand 28 out of the 30 NITs are now on this network and two are in the process of being connected. The remaining two must also get connected without any delay. I am told there are some connectivity issues with the NKN. The BSNL has therefore been also asked to send a representative to this Conference. Our NITs must ensure regular interaction and collaboration with their counterparts in India and abroad. Similarly, there must be consistent efforts to build a symbiotic relationship with the industry.

All our institutions have outstanding teachers who can shape the thoughts of young minds. Through words, actions and deeds, such teachers inspire students and elevate them to a higher level of performance and thinking. They instil correct values in their students. Such 'inspired teachers' must be identified and recognised. They must be encouraged to share their knowledge and wisdom with the larger academic community.

There is need to emphasize research and innovation in NITs. Out of the total student strength of 71,000 in NITs, there are only 4000 Ph.D. students. In IITs, there are only around 3000 Ph.D students in the total student strength of 60,000. India ranks 12th amongst top 20 countries, in terms of publications on science and technology. We have 119 researchers in R & D per million people, as compared to 715 of China and 468 of United States. NITs must evolve clear strategies to encourage research and development, which then leads on to innovation and patents.

In a world marked by resource constraints, growth will increasingly depend on technology up-gradation. Governments around the world are making concerted efforts to encourage innovation. India, too, dedicated 2010-20 as a Decade of innovation. A Science, Technology and Innovation (STI) Policy has been formulated for innovation-led development. This policy calls for creation of an eco-system wherein innovation activity can thrive.

Engineering institutions like NITs must work towards making the STI policy a success. They must mentor grassroots innovators to develop their ideas into useful products that benefit the

common man. The Conference of Vice Chancellors of Central Universities recommended the setting up of Innovators Clubs which would act as a platform for faculty and students to interact with grassroots innovators in their vicinity. Many Central Universities – and IITs - have already opened such clubs. I hope NITs will also follow suit.

The Government has appointed a Committee under the Chairmanship of Dr. Kakodkar to recommend comprehensive reforms of NITs. Dr. Kakodkar will make a presentation to the Conference on a roadmap that could be followed in turning NITs into Centres of Excellence. The HRD Minister has informed of acceptance of major recommendations of the Committee by Government. I hope the deliberations over these two days will focus on the strategies necessary for improving quality across all parameters of engineering education and knowledge development.

After two days of discussions, I expect concrete deliverables which we can all take forward. A time bound plan of action should be drawn up for implementation. Progress achieved on implementation will be reviewed when we meet next.

Let me conclude pointing out that India's biggest strength in the coming years is going to be her demographic dividend. More than fifty percent of our population is under 25 and soon one fifth of the world's working age population will be in our country. This dividend is however something we can not take for granted. We must equip our youth with necessary skills and jobs. The Government is investing huge amount of resources in higher education. The effort to increase 'quantity' exponentially must be matched with commensurate efforts to improve 'quality'. We must lead our institutions into the ranks of the best such institutions in the world.

I call upon all of you who are leaders in the field of scientific and technical education in India to address yourself whole heartedly to this task with a sense of urgency. I assure you the full support of the Government in this regard.

Thank you,