

## **ANNEXURE-IX**

### **Full Text of Speech by Hon'ble Prime Minister of India and President, CSIR Society, Dr. Manmohan Singh during Shanti Swarup Bhatnagar Prize Award Ceremony held on 28<sup>th</sup> September, 2005 at Vigyan Bhawan, New Delhi**

1. I am delighted to be here today as I find myself in the company of scientists. You are the creators of a new India; an India that is free from the shackles of ignorance. It is an India imbued with scientific temper and a liberal outlook. I am happy to recognize the very important role our scientists and technologists have played and will play in the ongoing task of Nation building. It is a pleasure to honour the very best of Indian science and technology today.
2. Several awards have been conferred today, but let me begin by complimenting CSIR for the good work being done under Dr Mashelkar's leadership. His recent election as a Fellow of the U.S. National Academy of Sciences—the seventh Indian to be so recognized since 1863-- adds one more feather in his distinguished cap.
3. I also congratulate the winners of our most coveted science prize—the Shanti Swarup Bhatnagar prize for 2004 and 2005. I am particularly happy that this prize is given to young scientists, who are in their prime. Becoming a Bhatnagar laureate gives you a status that you will undoubtedly enjoy. However, it comes with many responsibilities, such as the responsibility to engage in good science. You also have the responsibility to serve the best interests of mankind and our natural inheritance. Most importantly, you will also have the responsibility to improve the quality of life and widen the span of knowledge in India. My very best wishes to you on the exciting journey ahead. I hope it will be a never-ending journey of learning and creativity. I hope each one of you will dedicate your lives to the cause of science, to the welfare of our people and to the growth and development of our country.
4. Last but not the least, I congratulate the team of Media Communication Technologies, who have won the CSIR Diamond Jubilee Technology Award. I applaud this selection for two reasons.
5. First and foremost, these technologies can provide affordable solutions for connecting our rural population through internet and voice connectivity. I have often stressed the need for 'reaching the unreached' and 'connecting the unconnected' in India. I am glad that this technology can potentially fulfill this

goal. The telecom revolution and the development of road, air and rail linkages have shown that connectivity enhances output and productivity. Connectivity is therefore an important economic asset.

6. Secondly, I have always believed that India must assume a role of leadership among developing countries. Science and Technology can be a powerful tool to achieve this. Therefore, I am happy that these technologies have made inroads among larger developing countries. I hope this Technology Award will inspire others to develop similarly useful and potentially winning technologies.
7. Apart from the awards, I am also happy today to release the 'India Science Report'. I congratulate the Indian National Science Academy (INSA) for taking this important initiative. I also congratulate National Council of Applied Economic Research (NCAER) for their excellent work. In fact, I recall when Prof. M.S. Valiathan discussed this with me, I had suggested that INSA should approach NCAER for such a study. I had a chance to go through the report soon after it was printed. The findings of this report are truly revealing.
8. The Report shows that the proportion of enrolled students in science has gone up from 28.0 per cent in 1995-96 to 34.6 per cent in 2003-04. This is comforting. However, it also shows that while close to two-thirds of the students in class six to eight are satisfied with the quality of science teaching, this falls to 40% in class 11 and 12 ! This shows a shortage of good science teachers at higher levels. I would like our HRD Ministry and State Governments to take note of this and act upon it. We must lay increased emphasis on improving the quality of teaching in science and mathematics at all levels.
9. There are other causes for concern. The Report shows that 20 per cent of science graduates and 14 per cent of Ph.D.s in science do not find gainful employment. What is equally worrisome is the finding that many people employed in science-centered jobs are insufficiently qualified. There are lessons for us here. This Report also points to a grave regional imbalance in terms of educational institutions in different states. I am sure the facts and analysis presented here will help our policy planners. I trust our Government at the Centre, as well as State Governments, will take note of these findings and evolve policies to remedy these imbalances.

Ladies and gentlemen,

10. When I spoke here last year, I had reaffirmed India's commitment to basic science, applied science and the promotion of excellence. I had committed our Government to rebuilding the science base in the universities. I had also

made a commitment to de-bureaucratise our S&T institutions, to restructure our S&T support systems. I had committed our Government to create career opportunities to retain talent in the S&T sector. I am happy to say that we have made some progress on these counts.

11. Firstly, I have always felt that it is a pity that a country of a billion people has only one Indian Institute of Science. To rebuild our foundations in basic science, the Government is creating two institutes dealing exclusively with science education and research, one in Pune and another in Kolkata. We hope that these institutes will attain world class standard.
12. Second, the Ministry of Human Resource Development has already set up a Task Force on rejuvenation of scientific research in universities. The Task Force has set up a target of doubling the number of Ph.D.s coming out of India within the next 5 to 6 years. The necessary budgetary support for this has been promised.
13. Third, to strengthen our investment in basic science, as well as to improve our processes of funding, a new National Science & Engineering Research Foundation has been approved. It will receive generous funding and it will operate in an autonomous way.
14. Fourth, we have provided a fund of Rs. 150 crore per year for this specific purpose to Department of Science & Technology. I am keen on pushing forward many meaningful and productive public-private partnerships. Research in pharmaceuticals is particularly critical to us with the change of the patent regime that our Government has ushered in. Other initiatives will follow.
15. Finally, I had also stated that we would create exciting career opportunities for scientists to retain our talent at home. The recently announced Ramanujam Fellowship, J.C. Bose Fellowship and also Fellowships for Scientists and Technologists of Indian Origin (STIO) are part of our effort to fulfill this promise.

Ladies and gentlemen,

16. I realize that in a journey of a thousand miles, these are just the first few small steps. We need to do much more. We have, therefore, formed a Knowledge Commission under the chairmanship of Sam Pitroda, and with Dr P.M. Bhargava as deputy chairman. I do believe that if the 21st Century is going to be a 'Knowledge Century' then it is not military power or economic power but 'brain power' that will determine our place in it. We are expecting the

Knowledge Commission to come forward with bold initiatives to create excellence in research and teaching, especially in the frontier areas of mathematics, science and technology.

17. Those of us who are elected to public office in a democracy face the challenge of finding resources for basic human development and the resources for advanced research and technological development. We also face the challenge of addressing the demands of promoting equity and the requirements of encouraging excellence. I do sincerely believe that these need not become contradictory or contending objectives. I believe that at our stage of development we must learn to “walk on two legs” – fulfilling both these objectives.
18. The challenge before Indian S&T is, therefore, to generate high technology, creating wealth and prestige for India, while also ensuring that this technology improves the lives of the poor. I compliment CSIR Society for some of their recent breakthroughs in advanced scientific areas that have the potential to meet the basic needs of our people. The high-tech membrane filter, that can remove bacteria as well as viruses from water, has enabled CSIR to install in our villages hand pump based units that do not require electricity. At just 4 paise per liter, this technology makes safe drinking water affordable to all. I salute this effort to combine innovation with compassion.
19. Let me, in conclusion, pose a challenge before our S&T community. I urge you to join a race for reaching science and the benefits of science to every nook and corner of our vast Motherland. You must set targets that are ambitious but do-able to increase the quantity and quality of our scientific manpower. We must aim to improve the quality of text-books and teaching at the school level and to make science an exciting discipline and an attractive career. When people praise Indian science and technology, they invariably imply that some Indians are doing well. I would like to see a day, when people will say India is doing well. Our country needs each one of you to do well for us all to be able to do well.
20. I wish you great success in all your noble endeavours. May your path be blessed.
21. Thank you.