

CONVOCATION ADDRESS

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Empowering the Nation with the Vision: Developed India

I am indeed delighted to participate in the 3rd Convocation of IIT, Guwahati. I greet all the Professors, teachers and staff for their contribution in shaping the young minds. I also take this opportunity to congratulate all the graduating students of today and particularly for their outstanding performance in various fields. I was thinking, what thoughts I could communicate to you particularly the young professionals when you would be entering as technologists, scientists, industrial thinkers and management leaders at various institutions and industries in the country and abroad. I have selected the topic "Empowering the Nation with the Vision: Developed India". You will see two unique environments, one is: India opening up a big way to Global Business and Political Interests and second: India's dream to transform into a knowledge society. In such a situation young have to enter into untraveled roads rather than beaten paths. I would like to highlight the demand of excellence in mind, in four unique styles and qualities of intellect that will strengthen the life and thereby the nation. They are: love for nation resulting into high performance, the importance of noble leadership, the need of indomitable spirit and above all the youngs have to be equipped with universal minds. Let me take you into this unique, intellectual journey based on certain events.

Love for nation inspires high performance

On 28th November, 1998, I had the opportunity to give the first Lachit Borphukan Memorial Lecture in Gauhati University. He was a great General of Assam recognized after 300 years. The Chancellor of the University and Governor of Assam, General Sinha gave me this opportunity to give this lecture and remember the great General of Assam for his brevity and for his superior war strategies rather than numerical strength of fighting forces. When the enemy forces entered into Assam, I read the General Lachit said "It is a tragedy that my country is facing this dire catastrophe during my phukanship. How will my king be saved? How will my people be saved? And how will my posterity be saved?" Shortly afterwards he issued a command directing all his men to fight back and the great Assam General won. We should emulate the quality of love for nation that will result into high performance and in this case also heroism.

Noble Leadership

Recently, I had a unique experience that reveals how a single leader can inspire a large population, if it has to be put forth in a realistic way. I happen to meet in Delhi, the grand daughter of Mahatma Gandhiji, Mrs. Sumitra Kulkarni. She narrated to me one incident that was witnessed by her by the action of her grandfather. Everyday as you all would have heard, Mahatma Gandhiji had a prayer meeting at a fixed time in the evening. After the prayers there will be a voluntary gift for the welfare of harijans and others. The devotees of Gandhiji used to collect whatever given by the people of all sections and this collection is counted by a few members of Gandhi

family's supporting staff. The amount so collected will be informed to Gandhiji before his dinner. The next day, a bank man will come for taking this money. Once the bank man reported that there was a reduction of few paise in the money given to him and the money collected. Mahatma Gandhiji, on hearing this, went on fasting telling that this is a poor man's donation and we have no business to lose even few coins. Well, friends, in the same country we are witnessing the best and the worst. We should all, particularly the young generation, just like the young fought for our freedom, time has come for the young to launch a movement for transparent India, and it is possible. This is one of the very important event needed for the nation that dreams to transform into a 'developed' India.

Indomitable spirit

In this environment and particularly on the occasion of Convocation of IIT Guwahati I would like to quote discoverer of Raman Effect, Sir C V Raman, at the age of 82, while addressing young graduates few decades ago. The message is still reverberating in my mind: *"I would like to tell the young men and women before me not to lose hope and courage. Success can only come to you by courageous devotion to the task lying in front of you. I can assert without fear of contradiction that the quality of the Indian mind is equal to the quality of any Teutonic, Nordic or Anglo-Saxon mind. What we lack is perhaps courage, what we lack is perhaps driving force which takes one anywhere. We have, I think, developed an inferiority complex. I think what is needed in India today is the destruction of that defeatist spirit. We need a spirit of victory, a spirit that will carry us to our rightful place under the sun, a spirit which will recognize that we, as inheritors of a proud civilization, are*

entitled to a rightful place on this planet. If that indomitable spirit were to arise, nothing can hold us from achieving our rightful destiny."

That was a great saying to the young. You would see the bridge of science and society. Friends, I request all who are responsible for the young, all who are creators of the young, for their childrens' growth, allow them to dream. Dream transforms into thoughts and thoughts result into actions.

Universal Minds

I would like to recall an incident which happened four decades ago. I witnessed. As you all know, Prof. Vikram Sarabhai is the visionary of space programme in the country. He is well known for his cosmic ray research area that led to evolving the space research programme for the nation. Both Dr. Homi Bhabha and Prof. Vikram Sarabhai were looking for a site to establish space research station in the equatorial region. These two great scientists visited a number of places. Thumba in Kerala was selected by the scientific community for space research as it was near the equatorial region and was ideally suited for ionospheric research in upper atmosphere apart from study of atmospheric structure. When Prof. Vikram Sarabhai visited Thumba, the locality had series of villages and thousands of fishermen folk were living in that area. It also had a beautiful ancient church, St. Mary Magdalene Church, Pallithura and a Bishop's House. Prof. Vikram Sarabhai met many politicians and bureaucrats to get the palce for the work of space science research. It did not move further because of the nature of the place. He was asked to see the Bishop of Trivandrum, at that time in 1962, His Excellency Ret Rev Dr.

Peter Bernard Pereira. It was a Saturday when Prof. Vikram Sarabhai met the Bishop. The Bishop smiled and asked him to meet him the next day, i.e. Sunday. In the morning Service, the Bishop told the congregation, " my children, I have a famous scientist with me who wants our church and the place I live for the work of space science research. Dear children, science seeks truth by reasoning. In one way, science and spiritualism seek the same divine blessings for doing good for the people. My children, can we give the God's abode for a scientific mission?" There was a chorus of 'Amen' from the congregation and the whole church reverberated. Subsequently, the big event took place in 1962. His Excellency Ret Rev Dr. Peter Bernard Pereira, the Bishop of Trivandrum, took the noble decision to dedicate the church in recognition of the national goal for the establishment of the Indian Space Research Organisation at Pallithura, Thumba. That was the church where I had my design center, started rocket assembly, design of filament binding machine for FPP product and the Bishop's house was our scientists' working place. Later, the Thumba Equatorial Rocket Launching Station (TERLS) led to the establishment of Vikram Sarabhai Space Centre (VSSC) and multiple space centers throughout the country.

When I think of this event, I can see how enlightened religious spiritual and scientific leaders, all converge towards giving reverence to the human life. New church and new schools were established in record time. Of course the birth of TERLS and then VSSC gave the country the capability of design, development and produce world class huge rocket system and subsequently, India has the capability of launching geo-synchronous, sun-synchronous and meteorology spacecraft, communication satellite, remote sensing satellite

thereby provided fast communication, weather forecasting and also locate water resources for the country. Today, among us, Prof. Vikram Sarabhai is not there, Rev Dr. Peter Bernard Pereira is not there, but those who are responsible for creation and make the flower and blossom will themselves be a different kind of a flower as described in the Bhagawat Gita: *"See the flower, how generously it distributes perfume and honey. It gives to all, gives freely of its love. When its work is done, it falls away quietly. Try to be like the flower, unassuming despite all its qualities"*. What a beautiful message for all generation of this nation, on integration of minds.

If a country's young generation loves their nation, endowed with nobility in thinking, indomitable spirit and universal mind, India will achieve her vision transforming into a developed nation.

Transforming India into a developed Nation

Knowledge society

One of the important ingredients for a knowledge society is competitiveness that requires innovative systems, in turn demands consortium or cluster of multiple institutions. The cluster consists of interdependent firms interactive on one side bridging institutions consisting of think tanks and technical consultancy and the other side knowledge providing institutions like universities, colleges, R&D labs and technology providing firms. The dominant institutions of clusters are the actuators – users or the customers. With this background of knowledge society, let me come to the main theme of our talk – transforming India into a developed nation.

India Millennium Mission – 2020

For several decades India has been addressed in every international forum as a developing country. It is the dream of every citizen of this country to see India transform itself into a developed nation in about 2 decades. The time has now come, when our thoughts and aspirations have to be converted into missions and thereafter into result oriented actions.

A developed country, in my opinion, is one which has the capability and the capacity to comprehensively look at wealth generation and wealth protection and thereafter evolve integrated strategies, technologies and missions to meet these objectives. It is also a fact that technology is the established currency of geo-political power and in the Indian context, technology has to be the driving force for economical development and national security. Recognizing this and with the help of two different streams of national experts, one by TIFAC, an autonomous body under the Department of Science and Technology and another by Department of Defence Research & Development, involving few hundred man-years of combined efforts, two types of documents emerged. These were Technology Vision 2020 in 18 volumes and Integrated Strategies, Technologies and Missions for Comprehensive National Security. These two documents addressed the wealth generation and wealth protection aspects in a very comprehensive manner and identified technology as the linking factor. The fusion of these two documents has resulted in the India Millennium Missions 2020 (IMM 2020), which provides an excellent framework and road-map for making a strong and developed India by the year 2020.

The IMM 2020, which is intensely technology driven has been structured as a matrix of 30 inter departmental national economic and security missions, involving close, sustained and intense co-operation and collaboration between various agencies of the Government of India, State Government agencies, industry and business and several other NGOs. Detailed system analysis and mathematical modeling studies in support of several missions had been carried out to underpin the work contained in these documents. These missions are based on India's distinctive competencies and competitive advantages and constitute a time bound integrated national campaign. Thus IMM 2020 address time dependent and time independent strategies concurrently in such a manner that the basic technology levels of the country in areas related to economic growth and national security are constantly upgraded so as to build capabilities to quickly shape the response to changing geo-political and national developments.

Five Mega Projects to transform the nation to Developed Country

We have identified five areas where India has a core competence for an integrated action. (1) Agriculture and food processing – we have to put a target of doubling the present production of food and agricultural products. Other areas of agriculture and agro food processing would bring prosperity to rural people and speed up the economic growth. (2) Reliable and quality electric power for all parts of the country. (3) Education and healthcare – we have seen, based on the experience, education and healthcare are inter related. For example, Kerala with education and better healthcare can bring down the population growth and provide improvements in

quality of life of the people. Similarly, in Tamil Nadu also we have seen the downward growth of population resulting from a unique system of "mid-day meal" coupled with education. Studies about Andhra Pradesh also have different facets. These experiences, we feel, should be taken and spread in big states like Bihar and Uttar Pradesh. Beginning of agricultural prosperity through better yields in these States will help this process. (4) Information Technology – This is one of our core competence. We believe, this area can be used to promote education in remote areas and also to create national wealth. (5) Strategic Sectors – This area, fortunately, witnessed the growth in nuclear technology, space technology and defence technology.

These five areas are closely inter-related and culminate in 30 IMM 2020 missions leading to national food and economic security. A strong partnership among the R&D, academy, industry and the community as a whole with the Government departments will be essential to accomplish the vision.

Certain missions on agriculture and agro food, road construction and transportation equipment, textile machinery, health care equipments and higher general and technical education have already been launched in the year 2000-01. Recognizing the pace, quality and progress of these missions, the Finance Minister in his budget speech delivered on 28th February 2001 has given tax incentives to industries for investments under IMM 2020 and the Office of the Principal Scientific Advisor to the Government of India is evolving the implementation strategies. The industries and corporates must take full advantage of this offer from the Government and participate in the mission programmes towards India's transition to a developed country.

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Friends, when I think of these three events and visionary thoughts in the presence of the young, I feel confident that 'developed India' is possible in 20 years time. As India fought for its freedom in an integrated way from 1857-1947, the young have to be responsible for a movement for transforming 'developing India' into 'developed India'. It is possible only by hard work, sweat creativity and empowerment.

Concluding remarks

When the child is empowered by the parents, at various phases of growth, the child transforms into a responsible citizen. When the teacher is empowered with knowledge and experience, good young human beings with value systems take a shape. When the leader of any institution empowers his or her people, leaders are born who can change the nation in multiple areas. The Indian history has witnessed this. When the political leaders of the nation empower the people through visionary policies, the prosperity of the nation is assured.

In Assam you are fortunate to have the land with Brahmaputra River with its dynamics at various times challenging you to shape to prosperity. Deep below the earth, resources like: liquid, solid and natural gas calling you to explore fully, making the country happy place to live. And around you, the nature has bestowed all its beauty for your happiness. What you see all around you, are resources only. What you have within is the most powerful. Think of the billion ignited Indian minds. This is the most powerful resource compared to any resource on the earth, above the earth and below the earth. The combination of natural resources and ignited minds is the mighty force of the nation. Your sweat will transform developing

India into a developed nation. That is the vision, INDIA MILLENNIUM MISSION 2020 – A developed India. Let us start the movement for a developed India and work for the mission.

