

Sri Venkateswara College of Engineering and Technology

7th Graduation Day

Address by Prof M S Swaminathan, FRS

3 April 2011

I am happy to be here today when many young women and men are graduating from this dynamic and visionary College of Engineering and Technology bearing the name of Lord Sri Venkateswara. I congratulate the graduates of the year on their academic accomplishments and their commitment to the development of our country. I also thank and congratulate Dr K C Vasudevan, Chairman and Managing Trustee and the other Trustees of this unique centre of learning for providing an inspiring and meaningful mission and vision for this College. My congratulations also go to Dr S Mohamed Ghouse, Principal and all the dedicated faculty of this College. I particularly congratulate the College for its emphasis not only on academic excellence, but also on moral and human values. Above all, our thanks and good wishes go to the parents of the outgoing alumni for their loving support to their sons and daughters.

This is a day of celebration and not one for preaching to the young graduates. I shall therefore confine my remarks to the four pillars essential for the vision of the College to become an accomplishment, so that you can contribute to the strengthening of these pillars. These are: Ecology, Ethics, Equity and Economics. I shall deal with them briefly.

Ecology:

There is an increasing awareness of the need for adopting sustainable life styles which will not make a heavy demand on our life support systems of land, water, biodiversity, forests, oceans and climate. In a recent book titled, "World on the Edge" Lester R Brown (Publishers W W Norton & Company, New York and London) has described how we

still have time to prevent environmental and economic collapse. I recommend this book to you. Recent calculations on the ecological foot print each one of us is leaving behind shows that our per capita consumption of natural resources is exceeding the biocapacity of our earth. Soon we will need two planets to meet the growing demand for land, water, forests and biodiversity. In this context, we should keep in view what Mahatma Gandhi said long ago, “nature provides for everyone’s needs, but not for everyone’s greed”. We should prevent the spread of a greed revolution and promote an ever-green revolution which can help us to improve farm productivity in perpetuity without associated ecological harm.

The March 11, 2011 earthquake in Japan, measuring 9.0 on the Richter Scale, shifted the Honshu island by 2.4 mtrs. It also led to a 23 foot high tsunami. Compounding these two disasters has been the damage caused to several atomic energy reactors in this region. The Fukushima Daiichi Atomic Power Plant has been particularly severely affected. Radiation threats are persisting. In spite of all our technological advances, we cannot easily overcome nature’s fury. The calamitous events in North Eastern Japan have however revealed the power of social engineering and cohesion in fostering a “we shall overcome spirit”. Ms Nobuko Horibe of UNFPA, for example, has pointed out that the Japanese strength lies in their education system. To quote her from an article which appeared recently in The Hindu, “from kindergarten to elementary school and onward, the performance of students is measured by how a group performs. If one group is better than the others, members of that group are expected to help the weaker ones, so that no one is left out. **The Japanese system of education leads to caring for others and to selflessness, and thereby helps to foster high social synergy and promotes a coalition of the compassionate in times of distress.** The Japanese education system also promotes inquiry based instruction. Inquiry based classes activate students’ curiosity in exploring how the world works. This is an asset during calamities.

As I was watching the threats to the nuclear power plants caused by the titanic tsunami in Fukushima, my memory went back to 1989 when as the then President of the International Union for the Conservation of Nature and Natural Resources (IUCN), I had a discussion with Japanese scientists on the regeneration of mangroves along the coasts

of Japan. Some scientists belonging to the older generation mentioned about the beneficial role played by mangroves to reduce the fury of coastal storms and tsunamis, since they serve as speed breakers. We then decided to establish with the help of UNESCO, an International Society of Mangrove Ecosystems (ISME) in Okinawa, where once there were dense mangrove forests. I was the Founder President of ISME and promoted the preparation of a Charter for Mangroves.

During the tsunami which affected Tamil Nadu and other southern states on December 26th 2004, the coastal communities observed that dense mangrove forests served as bio-shields, reducing the damage done. We therefore launched a programme both in India and Sri Lanka to plant mangrove and non-mangrove bio-shields.

The concern now about the safety of nuclear power plants located along the coast such as Kalpakkam and Kudangulam makes me feel that in addition to steps related directly to the design of the nuclear power stations, we should promote bio-shields comprising mangrove and non-mangrove species in the coastal areas adjoining nuclear power plants. **For this purpose, it may be worthwhile declaring such areas as Critically Vulnerable Coastal Areas (CVCA).**

Equity:

Equity is now considered both with reference to intragenerational effects and inter-generational consequences. For example, the most serious form of intra-generational equity is maternal and foetal under nutrition resulting in the birth of children characterized by low birth weight (LBW). Such LBW children suffer from many handicaps in later life including impaired cognitive abilities. **Thus, they are denied even at birth opportunities for realizing their innate genetic potential for physical and mental development.** Unfortunately, nearly every fourth child born in our country has a low birth weight because of poverty at the household level. Over forty years ago, the Government of India introduced an imaginative programme titled, “Integrated Child Development Service” (ICDS). This programme was to meet the nutritional, health and educational needs of the child in an integrated manner. In spite of ICDS, we have serious

problems of malnutrition, stunting, wasting and other abnormalities among children. We should now redesign ICDS and deliver the services in two phases of a child's life. **First, we should initiate a 1000 days child development service programme which will begin with conception and extend upto two years.** Such a programme will need attention to the nutrition security of the mother during the pregnancy period and later to both mother and child. The next 1000 days programme can be implemented in Anganwadis. I am glad that the Union Finance Minister has doubled the monthly allowance for Anganwadi workers to Rs. 3000 per month and to Anganwadi helpers to Rs.1500 per month.

Ethics:

With the growing power of human beings in the fields of genetic modification and nano-technology, there is need for greater attention to Bioethics. There are many ethical considerations in medical biotechnology, including the area of reproductive cloning. **However, just because there are problems, we should not condemn the technology.** Every area of frontier technology, such as nuclear sciences, can be used or abused. This is why the inclusion of Bioethics in the curriculum becomes important. Our aim in biological sciences should be the promotion of an era of biohappiness, based on the sustainable and equitable conversion of bioresources into jobs and income. **Bio-happiness and not bio-terrorism should be the end result of our scientific endeavour.**

Another area of ethics needing attention is the restoration of the reverence paid to food grains during the Upanishad period. Thanks to the hard work of our farm women and men and the favourable weather, the wheat harvest this year may exceed 82 million tonnes. The Central and State governments may have to purchase, distribute and store over 26 million tonnes of wheat during April-June 2011. Harvest of the world famous Malwi wheat has already started in Madhya Pradesh. Over 47 million tonnes of wheat and rice are currently in government storage facilities. It is reported in the media that out of 15 million tonnes of additional storage facility for which funds have been sanctioned, hardly one percent of the target has been achieved. In the *Upanishads*, food grains were

regarded sacred and the wastage of grains a serious sin. Invariably, there are rains and even hailstorms in the Punjab-Haryana-Western UP region during April-May. Moisture is the greatest enemy of food safety, since it helps mycotoxins to develop. Therefore, there is need for a post harvest management strategy which can safeguard the harvested grains from both the quantitative and qualitative perspective.

Economics:

Financial balance sheets generally determine our growth rate. We have had an impressive growth rate in GDP in recent years, inspite of the inadequate progress of the farm sector. According to the Economic Survey 2011, the contribution of agriculture and allied sectors to GDP has come down to below 15%. Nevertheless, the onus of employment is largely on the agriculture and allied sectors. This explains why there is persistence of unacceptable levels of poverty in our country. Fortunately, several steps have been taken recently to revive our agricultural progress. **The other important recent development is the shifting of a patronage approach to a rights approach.** For example, we now have legal guarantees for information, education, employment and land rights to tribal families. Thus, there is a welcome shift from patronage to rights in relation to basic human needs. There is currently a commitment to include the right to food also among the legal rights. **The National Food Security Bill based on a life cycle approach to the right to food, when finalized and enacted by Parliament, will become the brightest jewel in the crown of Indian democracy.**

Translational research an area which is worthy of greater attention in our Universities. Our Prime Minister, Dr Manmohan Singh, recently pointed out that “while C V Raman won the Nobel Prize eighty years ago for the Raman Effect, most of the instruments available in India today using this principle are imported”. Translational Research will help to convert scientific findings into commercially viable technology. While science advances the frontiers of knowledge, it is technology that converts scientific knowledge into products and processes and thereby generates wealth. Translational research is particularly needed in our country in areas relevant to rural professions, including

agriculture, where the gap between scientific know-how and field level do-how is widening.

We should pay greater attention to the quality of education and also to the creation of opportunities for integrating theory and practice. Taking into account the uncommon opportunities provided by modern information communication technologies, we need to restructure and reform our teaching and training methods. We need a **Pedagogic Revolution** and I hope this University will become the leader of this revolution, thereby triggering a learning revolution in the country.

The Former King of Bhutan developed the concept of Gross National Happiness(GNH) as a substitute for Gross Domestic Product (GDP). In his concept, GNH includes spiritual and cultural values including love of sport, music, dance and spiritual activities. This is a good departure from measuring happiness purely from the view point of money. High economic growth rates and extensive deprivation co-exist in our country. The way in which we can all contribute to ending this dichotomy will be to follow the advice of Swami Vivekananda, whose 150th birth anniversary we are celebrating this year.

“This life is short,
Its vanities are transient
He alone lives who lives for others”

I wish you much personal happiness and professional success. I hope you will all decide to leave your foot prints on the sands of time by bringing about a change for the better in the lives of the socially and economically handicapped sections of our society.

I once again congratulate all of you, your parents, the faculty and management for fostering an educational institution rooted in moral and human values.