Address by the Chief Guest

Respected Chancellor, North Bengal University, Hon'ble Shri Viren J. Shah, Respected Vice-Chancellor, Professor Pijushkanti Saha, Respected Members of the Court and Executive Council, North Bengal University, successful recipients of doctoral and postgraduate diplomas in various faculties, and other distinguished members of the audience :

It is a pleasure for me to be with you today and a privilege to deliver convocation address at the 36th Annual Convocation of the University of North Bengal. Being in the midst of youth energies of the nation, it fills me with hope as I see the future of our nation in your eyes. The student of this university have distinguished themself in the past. It is now your turn to live up to this tradition. Today is a special occasion for you, your parent and the teachers as well. I congratulate you all and wish each one of you success in your future endeavors.

Education system in ancient India successfully harmonized the requirements of knowledge pertaining spiritual world and material world. The knowledge has been given priority over all other things.

श्रेयान्द्रव्यमयाद्यज्ञाज्ज्ञानयज्ञः परन्तप ।
सर्वं कर्माखिलं पार्थ ज्ञाने परिसमाप्यते ।।

(Bhagwat Gita 4/33)

"O chastiser of the enemy, the sacrifice performed in knowledge is better than the mere sacrifice of material possessions. After all, O son of Partha, all sacrifices of work culminate in transcendental knowledge."

The purpose of all sacrifices is to arrive at the status of complete knowledge. This gives the importance of the knowledge, which you all have received from this institution.

Further, Bhagwat Gita has described the importance of the teachers.

तद्विद्धि प्रणिपातेन परिप्रश्नेन सेवया ।
उपदेक्ष्यन्ति ते ज्ञानं ज्ञानिनस्तत्त्वदर्शिनः ।

(Bhagwat Gita 4/34)

"Just try to learn the truth by approaching spiritual master. Inquire from him submissively and render service unto him. The self-realized souls can impart knowledge unto you because they have seen the truth."

Therefore, when the student is submissive and is always ready to render service, the reciprocation of knowledge and inquiries becomes perfect.

Dr. S. Radhakrishnan declared and I quote "There is no inconsistency between the spirit of science and that of religion. It is a superficial view of both science and religion that gives semblance to a conflict between them. Our religious beliefs should not contradict rational thought."

In this context if the education you have received has held to gain wisdom as well as knowledge you would be able to understand the reasons for disharmony and chaos, violence and exploitation, poverty and ignorance in the world and also address their removal effectively.

This university is one of the trail-blazer in the India's quest for advancing technological capacity and competence and establishing a knowledge based society in the 21st century. The time you have spent in the college is filled with a lot of questions and doubts. You will be planning your roll in various capacities as rulers, as administrators, policy makers and professionals. You will endeavor to get yourself counted among the achievers. It would therefore, be useful at this point to take a look at your self and make a frank assessment of how well you have prepared yourself for future. The job market no doubt determines the choicest course, but this is a dynamic process. Earlier the favorite used to be engineering and medicine, but now it is Information Technology. Tomorrow we may see something else altogether. Thus, even as you pursue the discipline of your choice, you need to acquire the ability to access information, analyze it and transform it into knowledge. Information Technology has taken a lead in all spheres irrespective to any discipline.

Today, it is widely acknowledged that Information and Communication technology has brought about changes in the global economy and society as a whole. The entire globe is now covered with tightly but unevenly knitted information threads enhancing the speed and the sphere of influences of global changes. Changes that are taking place in one place of the world can trigger effects in the entire global community at a much faster pace than mankind has even experienced before. We are living in the digital age. When the computers were invented, they were just what their name implied. Once it was discovered that the computers could be made to talk to each other through the telecommunication network, then we entered the era of computer networks, which is the age of Internet.

There is something very attractive about the information technology for us. This is because as IT becomes more pervasive, the world is realizing that the most decisive aspect of this technology is Software. Indian Universities has taken lead in the capacity building for software technology. Software, which is open to global competition, is based on the iron rule that ultimate success depends only on merit. This has provided an opportunity for India's brainpower to assert itself. India's tradition in abstract thinking in mathematics, familiariza-

tion with English and the Indian multilingual ability have provided the competitive edge in term of software development.

Government organisations were recently based on paper work. The entire operations were manual. The IT bill are being introduced in India, we will find that many of the manual systems delays can be eliminated by increasingly using it. In the area of banking, it can be of immense value not only in improving the customer service but also in fighting frauds and corruptions. We all are well aware the railway and air reservation systems using information technology.

This century is going to be the century of IT. Fortunately, India is considered to be a country where it has strenght in IT. With its billion strong population, India cannot only be attractive market for others but with its strength in technology, it has a potential to emerge as an economic super power. There is a need to develop human resources, which are critical; in fact, this is the essential infrastructure, without which technology means nothing. Education is one of the key issues for developing human resources in IT sector. The universities can play a pivotal role in the development strategy, both in training and research. Knowledge and information are keys to productivity. It can be applied to all activities both in production and in delivery of goods and services.

As a matter of long term and short-term strategy, the Indian IT industry should focus on rural development. This calls for to begin with conversion of bulk of the information into computer readable form. Survey of India has taken a lead in this direction by developing digital geospatial data for various developmental and planning activities in the country.

The topographical maps on different scales are not meeting the requirement of planning and infrastructure development in rural and urban areas. Therefore, now it is planned that SOI would provide digital spatial data on scale commensurate to the requirements of planning for urban and rural areas. The methodology adopted in various stages of mapping is outdated. Latest methods of data capture and processing using digital techniques is the requirement of present day. In this context, all maps on scale 1:50k and 1:25k scale available on paper form which are cumbersome to use, need to be converted into digital form to provide framework spatial data to customers in National Spatial Data Infrastructure (NSDI) platform. Topographical maps need to be updated using inputs like high resolution imaging data or rapid ground truth checking with digital techniques on a fast track mode. It has now been targeted that SOI will be completely in digital environment by 2005.

The data collected for ground truthing will have to be done by field methods but using the latest available techniques like GPS, Total station, Digital level etc. In order to speed up the office data collection, the available inputs like aerial photo, satellite imagery, Airborne Laser Terrain Mapping (ALTM) data or other acceptable sources will be used. Large scale aerial photographs on 1:5000 scale will be required for mapping urban areas and

1:15k scale for rural areas which will facilitate generating digital data on larger scale with accuracy. ALTM technique is being tested to generate geospatial data for large-scale digital mapping. SOI is planning to use Mobile Mapping techniques (palm top with GPS) for data collection instead of conventional plane table methods, so that the data updating and generating digital data can be done without much waste of time. Updation of existing 1:50k/1:25k scale maps is a huge task with the department. There are about 5000 maps on 1:50k scale covering the country. There is a plan to update all these maps using high-resolution imagery like IKONOS, SPOT etc.

The department has completed the spatial digital data for existing 1:50k scale maps and make it available to stakeholders. It is also committed to provide precise control points at closer spacing (say 10 km) using GPS duly connected with leveling datum and monumentation.

It is proposed that SOI will equip itself with GPS, digital levels and total stations immediately and start densifying the control. We are in the process of acquiring state of the art digital data capture and processing equipments and complete the generation of updated digital database on 1:50k scale by 2005. ALTM technology is proposed to acquire and acquisition of high-resolution digital data for urban areas shall be taken up. In the process, the department will switch over from high volume production of hard copy maps to provide hard copy map on demand or in soft copy form as per users requirement. The state level directorates have been established to take care of mapping requirement of the states. Survey Training Institute (STI) will gear up for developing capicity building.

Survey of India will develop state level SDI for generating high-resolution digital data in collaboration with state governments. It is proposed that it will actively establish expertise in public and private domain to achieve the objectives to eventually enter into strategic alliances. SOI node of NSDI is in the process of coming to the existence shortly.

Thus, the digital technology along with telecommunication system has given us the opportunity to take a leadership role in providing customer focused, cost effective and timely geospatial data, information and intelligence for meeting the needs of security, sustainable development and new information markets. This is our mission also.

To me this convocation is most appropriate medium to highlight that as the world has entered the information age, there is an urgency of introducing a paradigm shift in the content and process of education. Now, the changes in nature of occupations are so rapid that with the one time learning may not be possible to cope up with the new environment because of rapid pace of development in the technology.

The tools of information and communication technologies that are available today offered themselves for introducing paradigm shift that the higher education system needs for

making it relevant to the needs of 21st century. Each student has to stretch a hand across a keyboard and reach every information that is being generated and available in the public domain. Thanks to the telecommunication and Internet, it is now possible for a student in India to have access to the world of knowledge at the same instant as the student in the most affluent country of the world has.

Time has perhaps come for the universities to redesign their curricular in professional and academics education and bringing innovations in developing interdisciplinary programmes of study appropriate to this century. This may necessitate exploring generation resources both physical and financial. Almost all institutions, organizations are struggling to find funds and resources and emphasis is to remain financially self-reliant. Institutions are required to innovate new education programmes with pace of changing scenario in the world. Similarly, government organizations are also required to be changed to cope up with the modern technology and to meet the present day requirement of the nation for sustainable development.

To illustrate my point I share my experience with you that recently Survey of India has taken new initiative for adopting new technology in map making and at the same time exploiting technology to good advatange, obtaining new products and services faster and cheap as compared to conventional techniques. To switch over from ages long methods and traditions of the department, there will be some reluctance from various corners to adopt new techniques due to their expertise in conventional field. However, digitizing maps in computer environment is now routinely started in the department. The department has adopted latest state of the art technology in data collection, processing and management. State level geospatial data centres in each state of India will meet the national requirement for all developmental activities.

In the last, I conclude that now we have entered in the information age and have de facto become a global village. The challange is to use the instruments of education for empowering our youth with skills and values that will provide them cutting edge for taking the fullest advantage of the global opportunities that have now become available and making our country into a knowledge society.

I, once again congratulate all the students who have successfully completed their courses of study and are receiving their degree at this convocation. I expect that students will use the good quality of education that they have received in this university in fulfilling their life's mission and they will dedicate themselves to the development of our country.

Thank you.

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Curriculam Vitae of Dr. Prithwish Nag, Surveyor General of India

Dr. Prithwish Nag has completed his PUC (1967), B.Sc. (1970), M.Sc. (1972) and Ph.D. (1976) from BHU. He was awarded *BHU Gold Medal* for standing first in M.A. and M.Sc. Geography. Later he did post-doctoral research work in the School of Oriental & African Studies, University of London.

Dr. Nag is a recipient of the *Commonwealth Geographical Bursary Grant* awarded on the 150th anniversary of the Royal Geographical Society. Dr. Nag has travelled widely. His Ph.D. thesis was on Zambia. Recently, he has been awarded Technology Excellency Award from the Technocrat Association of India; and Uttaranchal Gaurav Award by Uttaranchal Nagarik Parishad.

Dr. Nag has been member of the International Commission on Population Geography (IGU) from 1980-'88; and Chairman of the International Commission on Population Cartography (ICA) from 1987-'91. He was UN Consultant for Census Mapping for the Sultanate of Oman. At present, he is the Chairman of the UN Regional Cartographic Committee/Permanent Committee on Geographical Insfrastructure for Asia and the Pacific (PCGIAP) Working Group on Institutional Strengthening for the Asia and the Pacific. Dr. Nag is also Chairman of the Working Group on Standardization of the International Steering Committee for Global Mapping. He was specially invited to the International Institute for Geo-information Sciences and Earth Observation (ITC), Enschede, The Netherlands to deliver a lecture on National Spatial Data Insfrastructure. Dr. Nag is chairman of this National Task Force.

Dr. Nag has published several books, the important ones are the *Geography of India* and the *Digital Remote Sensing*. He has also published over 100 research papers.

Dr. Nag was instrumental in bringing out the first digital topographical map in public domain in November 2002.

Dr. Nag was the President of the Indian Association of Special Libraries and Information Centres (IASLIC), Indian Institute of Geomorphology, Institute of Indian Geographers (IIG) and Indian National Cartographic Association (INCA); and now is the President of the Indian Geographical Foundation.

From 1994 to 2003, Dr. Nag was the Director of the National Atlas & Thematic Mapping Organisation, Kolkata. He is the Surveyor General of India from 2001.