

A Journey from a Remote Village to Capital of India



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I was born in a Karnataka village in 1946, a few months before India's Independence. My father was a primary school teacher and mother a highly religious house-wife. My father's first appointment was at a tiny village Hosahalli on the banks of Tunga river at a distance of 6 km from the District centre of Shivamogga. It had less than 30 houses and the situation has not changed till now. The village Mattur situated on the other bank of the river was subsequently known as the "Sanskrit" village as most of the villagers knew how to speak Sanskrit. The twin village complex of 'Hosahalli-Mattur' was mostly inhabited by 'Sanketi- Brahmins' well versed in Vedas, Sanskrit and Music. My father and our family received considerable affection and respect from these villagers till date and I found this association very rewarding. The place is unique with nearly 100% literacy and most of the families have siblings abroad mostly in USA being active members of NASA (North American Sanketi Association). Hosahalli school was run in a temple and my father was responsible for constructing a separate school building by impressing the district educational officer. I spent my pre-school life in this village and remember little about it except narration by elders. It seems I was a chubby social kid attracted to neighborhood feeling at 'home' in all the nearby houses making my mother to search for me during lunchtime.

Then my father underwent a 'Basic Teacher Training' based on the concept of Mahatma Gandhi at Devanahalli near the present Bengaluru Airport. The idea is to teach in schools skills such as spinning, operating Charaka, horticulture etc apart from 3R's. After this training my father had to be posted to select 'Basic Training' schools. Thus he was shifted to village Belagutti in the same district where I joined for my primary school and learnt spinning, gardening etc. It was like any other village with little facilities (no electricity) and infested with snakes.

There was a breakthrough in 1954 when my father succeeded in getting a transfer to his native place Shikaripur, a major Taluka town in the district. Thus I had opportunity to study in a bigger town, with population of about 10,000, which had electricity although my house was not electrified making me to study under kerosene lamps. Since I was doing well in studies I got 'double' promotion and jumped from 3rd to 5th standard at the Govt. Middle School there. After completing the middle school I joined the local Municipal High School towards matriculation. I stood first in each class throughout this schooling period and earned admiration and affection from my teachers. Although I studied in government schools, I had many good and inspiring teachers, which is in contrast to impressions of govt. schools today. I had excellent teachers in Mathematics and Sanskrit. I studied in Kannada medium till matriculation with no subject deficiency although our English communication was weak. Based on my experience, I see merit in teaching in mother tongue in initial stages and shifting to English medium in higher education, which is manageable. I stood first for the school in the Matriculation examination in 1961 with 83% marks and 22nd rank for the then state of Mysore which was considered a proud achievement for a small town boy. Icing on the cake was my scoring 100% in both general and optional Mathematics. This was a proud and happy event in my life that was to decide my future.

Due to my above merit, my teachers and well wishers advised my father to admit me to a good college in Bangalore (present Bengaluru) for pre-university and not to the nearby college in Shimoga which was not rated high. My father took me to Bangalore and I was easily selected for

the National College, which was then rated as the best college in the city. This was my first visit to Bangalore (to any city for that matter) that was away from my Shikaripur town by 350 km, and I was simply bewildered by the vast difference in this city ambience compared to where I came from. While I could easily get admission to the best college in the city I had no place to stay. Monthly charges of about Rs.60/- in most local Hostels were expensive for my father to afford with his monthly salary of about Rs.100/- as a teacher. However I was extremely lucky to get admission in Sri Ramakrishna Students' Home (normally addressed as 'Home') that provided free boarding and lodging to its inmates. This is a unique institution of Bangalore inspired by Ramakrishna Mission, not directly administered by them, that has been helping merited and needy students since 1919, mostly supported and managed by old boarders. I shifted to English medium in the college and faced initial hick ups. I envied my city-bred classmates who spoke fluent English while I was fumbling to speak even two sentences. Slowly I picked up and tried to catch up with them. But my Kannada was better than theirs and I won prizes in Kannada debates. National college had good teachers and I learnt all I needed in the classroom as 'coaching centres' were unheard of those days with private tuition resorted by weak students. Well known Gandhian Dr. H Narasimhaiah (a Padmashree awardee and later VC of Bangalore University) took over as Principal of the college that year as he taught us Physics. I was deeply impressed by his personality as he was a simple, dedicated and inspiring academic always wearing white Khadi shirt, lungi and cap. He lived in a room in the students' hostel and slept on the floor using a mat and a bed.

At this juncture a benevolent decision of Govt. of India turned out to be a great boon to me that steered my future growth. Dr. KL Shrimali, then education minister introduced a new National Merit Scholarship for teachers' children from that year (1961) based on the Matriculation performance. Fortunately I stood second in merit among teachers' children in Karnataka who took matric examination that year and thus bagged this merit scholarship. For the first time I saw my name appearing in Newspapers as the list of candidates for this scholarship for the state was published in the press. My happiness knew no bounds as it was a great relief to get over financial problems and pursue my studies unhindered. In retrospect, I consider two factors that crucially decided what I am today- selection in Ramakrishna Students' Home and getting this National Merit scholarship. I am ever grateful to my country and society for helping me at this critical juncture to pursue my studies. The monthly scholarship amount of Rs.50 and Rs.100 during pre university and degree classes respectively worked like oxygen for my education.

I passed pre-university in 1962 in first class with high merit to get admission in BMS College of Engineering (BMSCE) for the five-year integrated engineering degree program. There were only two engineering colleges in Bangalore then against over 100 today. Admissions then were purely on performance in pre-university with no entrance tests and associated coaching. I realized that self-study was more effective than class room teaching although we had quite a few good teachers. With examination oriented education emphasized in colleges affiliated to universities there was little scope for innovation. Unfortunately the situation is no better even today. But we studied text books cover to cover and solved almost all numerical problems with great excitement. The first three years were common after which we branched out. I chose electrical engineering (EE) in which I specialized in last two years. BMSCE had good EE faculty and lab. I was also active in co-curricular and extra-curricular activities. I won prizes in inter college Kannada and English debates, contributed to literary activities such as poems and articles, took part in plays. I was secretary of electrical engineering society. Since we had only one annual examination to face we had enough time to indulge in such activities. I found the all-India tour in the final year a great experience in knowing India. This truly expanded my horizon to appreciate the variety of our country.

'Home' and Ramakrishna Mission (RKM) molded my personality in those teenage years. Hard work, dedication, discipline, integrity, self reliance were the traits instilled in me by these great institutions. I learnt that there was no short cut to success and there was no substitute to hard

work and dedication. The six years I spent in 'Home' (1961-67) was memorable and pages can be written on this unique experience. It was totally managed by the student inmates under the direction of the hon. Secretary with only a cook and a utensil cleaner being paid staff. Housekeeping including toilet cleaning was done by students, which made us to recognize dignity of labor the value I still relish. This made us to survive in any part of the world as we were trained to take care of our needs. My association with RKM has stood the test of time, as Swami Vivekananda is my prime role model. The three-week summer retreat on value education I attended in Mysore Ashram in 1966 steered by Swami Harshanandaji, present Head of Bangalore Ashram, greatly influenced my life as regards spirituality, human values and ethics. The inspiring lectures by the well-known Swami Ranganathanandaji, who subsequently rose to become the president of the Mission, greatly influenced my thoughts. The spiritual universal preaching of Vivekananda devoid of dogmas and superstitions can truly guide one's life to fulfillment. I am convinced that 'value education' must be integral to any education scheme. This conviction made me to be associated in later years with the value education centre of IIT Delhi as Faculty and organize relevant activities.

Another critical and happy turning point in my life was the announcement of the result of my final year examination, which declared that I obtained 9th Rank to the university for the B.E. degree in Electrical Engineering (EE) in 1967. This distinction made me proud; my name appeared in Newspapers as first ten ranks were announced and I kept it as a souvenir.

National economy was not as flourishing as it is today with tight job market and non-existent campus recruitments even to the brightest needing one had to strive hard for future career. With my interest in higher studies I applied for Masters program in IITs and received interview calls from IIT Bombay and Kanpur. I took a train from Bangalore to Mumbai on the way to Kanpur. Dr. KVV Murthy and Dr. K Shankar of EE department of IITB, being my past contacts, provided wonderful hospitality and mentored me on what course to choose. I was selected to the M.Tech program in Energetics and advised by my above friends to go for this choice due to excellent faculty that included Dr KC Mukherjee and Dr RE Bedford. I did not proceed to Kanpur and elected to stick to IITB for M Tech. Thus I was attracted to the strong and great magnet of IIT Family whose association I cherish till date. By this experience I could clearly identify the distinct improved quality of IITs over university affiliated engineering colleges where I came from. Innovation and open-ended teaching learning are the hallmarks of IITs. Dr. Bedford was an outstanding teacher and an excellent human being who inspired me immensely. I had the privilege of doing my M Tech thesis under his guidance to complete my post graduation in 1969. I continued to be in close contact with him till his end. The monthly scholarship of Rs.250/- at IITB was a luxury and life in Hotel-I was cozy compared to deprivation of under-graduate life resulting in my putting on weight.

Then I joined for my first job as a Lecturer on 5th Sept.1969 in a grade of Rs.400-950 in BITS, Pilani, a serene campus. Thus I moved further north to a harsh climate of extreme Rajasthan weather. Prof. I J Nagareth was a dedicated teacher I met there, who has penned several good quality books. I too wanted to be a good teacher and to make my class-room delivery interesting and effective. I referred to the MIT book on effective teaching and tried to follow its tips. This was a good pedagogic effort I would advise to all those joining teaching profession.

I had immense desire to pursue for Ph.D, and BITS then was not found very suitable, with IITs being preferred destinations. I applied for Lecturer's job in IIT Delhi and was called for interview. Based on my good interview performance I learnt that the committee was inclined to consider me for Associate Lecturer (AL) position on contract so that I could also work for my doctorate. I took courage to write a letter to Prof. C S Jha the senior-most professor and first Indian head of EE deptt. of IITD (and later to become Director of IIT Kharagpur, VC of BHU, educational advisor to GoI and founder fellow of INAE) as his area of specialization was of my research interest to take me as AL. I received a quick but negative reply from him that disappointed me. But I had a

great and pleasant surprise after a few weeks when I received another letter from Prof. Jha that IITD was prepared to take me as AL in EE deptt. That was one of my happiest days and a major turning point in my professional career.

I joined IITD as a faculty member on 2nd Nov.1970 that facilitated me to engage in both teaching and research. I was back to IIT fold and registered for my Ph.D. next day under the guidance of Prof. Jha to work on “Generalized Rotating Field Theory of Electric Machine”, the topic pioneered by him with highly cited classical papers. While being a Lecturer I secured my Ph.D in 1974 and promoted as Asst. Professor in 1975. As an outcome of this PhD work I published my first classical and highly cited paper on “general rotating field theory of asymmetrical machines’ in the reputed Proc. IEE published from UK. This paper is even referred in text books today.

EE Department of IITD had inspirational teachers and researchers such as CS Jha, PV Indiresan, SC Dutta Roy, AK Mahalanobis, PS Satsangi and VS Rajamani who built the department from scratch and guided young faculty like me as role models. They grew to become National/international figures with great contributions. They instilled special values and procedures in the department. According to one ‘ranking’ recently, this department was ranked first in India and 50th in the World among EE departments that must be attributed to above values. There was no hierarchy and a seniormost professor was treated equal to a juniormost lecturer so that all faculty felt they owned the department. Faculty selection was open, transparent, informal and strictly on merit. Any one can suggest a bright candidate for possible induction. A faculty would be inducted in any area provided one is excellent irrespective of the need in the department, the philosophy being that an excellent faculty would academically contribute to glorify the institute. On the contrary a sub-standard faculty would not be inducted although there is need in that area, as he/she may ultimately be a drag.

‘Seniority’ has no place in IITs (even in IISc) and one is chosen for a position based on suitability and interest. This is the unique feature that has made these institutions great and others in the country rated lower. ‘Flexibility of cadre’ practiced in IITs is a great boon so that number in any faculty cadre can be altered to reward/promote a good candidate. Same is recently introduced in NITs which would definitely impact them positively. If any institution or university aspire to move to higher level, above concepts/values must be introduced.

I had the first opportunity to visit abroad when I was deputed in 1975 by IITD to UK under the IITD-UK collaboration arrangement and spend with Dr J E Brown of University of Newcastle upon Tyne. Coordination of the visit by British Council was excellent. Incidentally Dr Brown was the Ph D supervisor of Prof Jha at U of Bristol. My working with Dr Brown on “Capacitor self excited braking of Induction Motors’ was truly exciting as he was a perfectionist and our brainstorming meetings led to new fundamental concepts of non-linear behavior of such machines leading to classical publications later. I visited the universities of Loughborough, Bristol, Imperial college, Aberdeen, Liverpool, Glasgow, UMIST apart from a few leading electrical industries. Thus I had the first hand experience of working of British universities which were rated superior to Indian counterparts including IITs. Integrity, time management, good governance and discipline make their education superior to ours. We have lot to emulate to make our higher education comparable to global levels.

I returned to IITD in 1976 and pursued my interest in teaching, research, curriculum and lab development. I am a strong believer in close Industry-Academia interaction and wanted our activities to be of interest to Industry. Mr S G Ramachandra Vice President Kirloskar Electric Co (KEC) showed special interest in me and encouraged my interest in industry interaction. I took a major consultancy project for KEC on “Magnetic Noise in Induction Motors” and successfully

developed a design based noise prediction method. During this period I received the President of India Prize for the best research Paper published in the Journal of Institution of Engineers (India).

Based on my research in UK, I initiated a new research area on “Self Excited Induction Generators” (SEIG) and I am proud to say that based on my work supported by my colleagues guided by me, IITD today is globally the strongest centre on R&D in SEIG with large number of papers, student theses, sponsored projects and patents. My first PhD students (Bhim Singh and AK Tandon) registered with me and did commendable work in the above areas; - I am happy that both of them have great accomplishments in their career.

Based on my academic contributions I was promoted as Associate Professor (in Professor’s scale) in 1980. I visited University of Calgary in Canada during 1980-82 under sabbatical leave at the invitation of OP Mallik and GJ Berg that gave me a unique opportunity to undertake new research in a western university ambience with distinctly superior facilities compared to IITs. My research there led to many classical highly cited papers in international journals. Significant ones are on “instantaneous symmetrical components and operational equivalent circuits of induction motors” and “Analysis of Self Excited Induction Generators (SEIG)”. My paper on SEIG published in Proc.IEE in 1982 has very high citation index and referred till date. I got the initial experience of presenting my papers in reputed IEEE international conferences in New York and Orlando and meet my peers.

On return to IIT I pursued my research in SEIG. I proposed a new Master’s program in “Power Electronics, Electric Machines and Drives” (PEEMD) which was started in 1987 after a rigorous review by expert committees and internal boards. This has become a very popular program conducted through industry interface with several post-graduates in high positions in academia and Industry. IITs have great academic autonomy to start any academic program which is an outcome of rigorous internal and external discussions. We need to respect this autonomy without interference by external regulatory bodies, to maintain their standards and be forward looking.

I was confirmed as Professor in 1983, perhaps one of the youngest to be rewarded with this post during that period. Since I superannuated from IITD in 2012, I served as professor for nearly 30 years.

During 1985-86, I was invited by Kirloskar Electric Co (KEC), Bengaluru to work in their R&D unit as a consultant and to guide them on new industrially relevant research. I focused on ‘Wind Electric Generators’ (WEG) and 1- phase SEIG for portable gen-sets. I developed the first indigenous 55 kW Induction generator which was built and installed successfully in the field for Wind Power. The novel 1- phase SEIG is a unique invention of mine, which has led to several patents and papers with applications in renewable energy based off-grid generation. The area is still researched today at IITD. My visit to KEC gave me a unique industrial experience to know in close quarters the industrial problems and processes. It is my strong view that academia must be encouraged to make such industrial visits that should form a prime activity to promote industry-academia interaction so that teachers may sensitize students on industry in classrooms. Faculty reward system must encourage such visits.

During the above period I taught a course in each semester at IISc as adjunct professor apart from undertaking joint project of relevance to KEC with a colleague in EE department that led to a quality publication.

In 1990, I was invited to take over as Director (CEO) of Electrical Research and Development Association (ERDA) at Vadodara (Baroda), an Institution maintained by Electrical Industries and supported by CSIR. Since I wanted to assume this position on deputation from IITD, the period as per norms had to be restricted to two years. Mr KK Nohria (Crompton Greaves) and

Mr PR Bapat (GKW) were Governing council chairs during that period. Both were great visionaries committed to industrial growth. It was a pleasure for me to work with them as I came into close contact with doyens of Indian Industry. I organized a major international conference ELROMA jointly with IEEMA at Mumbai in 1991. Apart from facilitating continuing education program for Industry I gave research orientation to ERDA and promoted academia interaction through MOU.

As 'General Chair' I organized the first IEEE international conference on "Power Electronics, Drives and Energy Systems" (PEDES) during Jan.1996. Event was organized by IITD jointly with U of Wisconsin (USA) and IIT Kanpur. Prof Deepak Diwan of UW was another General Chair from USA. It was a grand event with good international participation. I am glad that my efforts to start this event resulted in a well established new series of PEDES conferences held every alternate year in different locations and branded as a quality conference under IEEE.

I was Head (Chairman) of the Electrical Engineering Department of IITD during 1998-2001. This was a major administrative responsibility to steer one of the biggest departments comprising around 50 Faculty and 100 support staff running 2 UG and 6 PG programs apart from around 100 doctoral students. I took it both as a challenge and opportunity to enhance academic and research output of a premiere IIT. Though managing highly competent and individualistic faculty was a challenge, well-structured democratic processes involving Faculty board and professorial committees were helpful. At the end of my term I had the fulfillment of effectively contributing to the growth of the department. I started a new Bachelors program in EE (Power) and a dual degree program in ICT. Prof VS Raju, the then Director was very supportive. Since department had acute shortage of space I succeeded in adding a floor on the top and reorganized the laboratories for better teaching and research. I could inject a few bright faculty. Deregulation and decentralization were strengths of IITs that came in handy.

In 2003, I was invited by Govt. of India to take over as the founding Director of NIT, Surathkal after earlier RECs were converted to NITs. Then HRD minister was keen to have IIT professors to steer these new NITs. Thus a few IIT professors opted to take up this unique responsibility to bring in IIT culture in NITs. I took major academic and administrative reforms in tune with IIT norms at Surathkal with positive results. Course/ curriculum structure was modified. Laboratories were modernized through World Bank Funds under TEQIP. NITK Beach was formed. Research programs re-oriented. I promoted international collaboration through linkages with Institutions in Korea and Japan. Feedback from Faculty and students indicated that I could inject new spirit in this NIT. Due to change in Central Government in 2004, the new minister decided to send back the above IIT professors and I was back in IITD in 2005. I am satisfied that strong views I conveyed to policy makers to make NITs on par with IITs are gradually receiving attention.

I took my second sabbatical during 2008 to be a visiting Professor at Ryerson University, Toronto, Canada. I developed and taught a new graduate course on "Alternate Energy systems" which was well received by the nearly 40 registered students. I used high tech classroom facility of the university that included 'blackboard' software. I wish Institutions in India developed similar classrooms for effective teaching and evaluations. I spent part of this sabbatical at GE, IISC and CPRI at Bengaluru, resulting value addition to my research.

I made several visits to leading Institutes and Industry as below during summer vacations: MIT(USA)- July 2002; GE (John F Welch) Technology Centre, Bengaluru- INAE Distinguished Professor cum visiting consultant- July 2007, May/July 2009, Oct-Dec.2008 , May- July 2010, Trident Powercrafts Pvt. Ltd, Bengaluru- Inae Dist. Industry Professor- June 2007. U Of Waterloo & Ryerson Univ-May-July 2011.

Finally I superannuated from the service of IITD in June 2012, thus ending my long innings of 42 years in this great institution, and decided to relocate to Bengaluru, although I could continue as emeritus professor at IITD.

Then Director of IITD nominated me for the position of Vice Chancellor of Central University of Karnataka (CUK) in Northern Karnataka, based on which a search committee suggested my name among a panel to the President (Visitor of the university) who picked my name. After some introspection I decided to take up this responsibility and took charge in Jan.2013. CUK was in a formative stage being operated from Gulbarga University Campus. I worked hard to move to university to its new designated 650 acre campus at Kadaganji, 30 km from Gulbarga (Kalburgi). My proud moment was when the new campus was inaugurated by the then HRD minister on 30th Nov.2013, which made faculty and students to rejoice. I also initiated new integrated science and engineering programs at CUK which is unique. My mission was to make the campus 'green' through planting of over 10,000 saplings. Then MHRD informed me that my appointment was for the residual period of the earlier VC and hence had to relinquish my post on 28th Feb. 2014. Since I never went after 'power' in my career, I gladly gave up. But I am convinced that these new central universities need lot of handholding by MHRD by ensuring visionary leadership and support similar to other central institutions.

Then new PES university at Bengaluru invited me to be an emeritus professor and academic advisor till July 2015. From March 2015 I am functioning as distinguished Professor at Central Power Research Institute at Bengaluru guiding researchers on 'Micro-grid'

I may list the highlights of my professional and research contributions as: a) State of art and highly cited research on Self Excited Induction Generators for off grid renewable energy based power generation, b) Field installation of pico-hydro plants in Karnataka based on my invention, c) Design, development and field installation of Wave Energy based induction generator in Kerala, d) Indigenous switched reluctance motor development jointly with Industry, e) CAD lab. for electric machine design, f) a novel 1-phase brushless ac generator - an improved version developed through support from MSME(GOI) and prototype 5kW, 1- ph. SEIG built for field trials for renewable energy applications, g) Design software for ARNO- convertors developed for ABB, h) Design software on induction motors with variable frequency supply for traction and cement mill drive for BHEL i) design software for performance evaluation of 3- phase induction motor for traction application with inverter fed supply" for BHEL, j) World bank supported Energy Audit facility at IITD .

I made short visits to several countries for professional engagements and conferences such as: United Kingdom (1987,89,93,95,2007), Denmark (1987), United States Of America (1982,89,95,2003,2010,2011), Oman (2001), Swtzerland (1984),Singapore (1997,2013,2014), Nepal (2004), Japan (2005,2010), Korea (2005),China (2005), Australia (2006), Thailand (2007), Taiwan (2009,14), Kazakhstan (2011), Turkey (2013) and Bhutan (2015). These resulted in international linkages and formulation and execution of joint programs with some of these countries such as research projects, short term courses and lab. development. I was coordinator of Indo-UK program on microprocessor applications in drives and DST nominated India Coordinator for the joint Indo- Canadian and Indo- Australian program on "Sustainable Energy". I led the Indian delegation for the Indo- Australia workshop on sustainable energy held in Sydney in 2006 and organised the Indo-Canada Workshop on 'Electricity generation using renewable energy' in 2009. I facilitated MOU and linkages with universities in Japan (Kumamoto, Kagoshima), Korea (KAIST, KIER), Canada (Waterloo, Ryerson), USA (Wisconsin), UK (Sussex).

I had the privilege of teaching over 5000 students with fairly good feedback at UG and PG levels on Electric Machines, Drives, Energy conversion and renewable energy. Some of these courses are recorded in the studio of Educational Technology Centre of IITD, packaged in over 15

video modules available to other Institutes and beamed through TV channels. I am proud that I have taught among the brightest in the country that included well known IITD Alumni such as Raghuram Rajan (RBI), Vinod Khosla (VC promoter), Rajendran (NIIT). I have delivered over 180 popular and special lectures at the invitation of several organisations in India and Abroad (Canada, USA, Japan, UK, Singapore, Taiwan). My other contributions to knowledge dissemination activities included organizing series of curriculum workshops to prepare lab. manuals and new curriculum and Continuing Education programs targeting professionals.

My professional work is reflected through 300+ published papers, 100+ theses supervision, 90+ sponsored research and industrial consultancy projects, 40+ Technical reports, 7 manuals/conference proceedings, 18 patents and 100+ reviewed papers of several international journals including IEEE, IEE/IET, Elsevier.

My awards and recognitions include: Life Fellow of IEEE (Institution of Electrical and Electronics Engineers-USA), Fellow of Indian National Academy of Engineering (INAE), Fellow of IEE/IET (UK), Life Fellow of the Institution of Engineers,(India), Life Fellow of IETE(Institution of Electronics and Telecommunication Engineers-India), ISTE/Maharashtra Govt. Award for outstanding research, IETE/Bimal Bose Award for contribution in Power Electronics.2007 IEEE/PES Chapter Outstanding Engineer Award. A recent international recognition was to choose me by IEEE/IAS as Distinguished Lecturer (DL) for 2014-15 to facilitate being invited globally to deliver specialist lectures.

My significant contribution to outreach activities are: General Chair of the 1st IEEE International Conference on Power Electronics, Drives and Energy Systems for Industrial Growth (PEDES' 96) during 1996 in New Delhi; Patron for PEDES-2012 during Dec.2012 at Bangalore; Technical Chair of the IEEMA organised Conference ELROMA in 1992, 2004 and annual conference of Elec. Engg Div. of IE(I) in 2005; Symposium chair of IEEE symposium on "Sustainable Energy and Global synergy" held in Ryerson Univ. Toronto in 2008; general chair of the INAE conference on "Research Policy for Sustainable Energy" in New Delhi (2009); convener of Electrical Engineering Section and member of Energy Forum of INAE. As consultant to UN-ESCAP, I steered the UN supported Workshop on "Advances in Fossil Fuel Technologies and Investments for Power Generation" in New Delhi (*June 2012*) *Organized by APCTT UNECE and UNCTAD* that was followed with the UN workshop in Almaty (Kazakhstan) in Nov. 2012, I had the privilege to serve several professional societies such as IEEE, IEE/IET, IE(I), ISTE, IETE in several capacities I have served in National committees of Industry associations like CII, IEEMA & FICCI and also in committees of UPSC, AICTE, NBA, NPIU, DST, TIFAC, DSIR, MoI, MNES, CBIP, BEE, CSIR, NRDC, MHRD,TERI etc. I am member of appellate committee of NBA and mentor /auditor of Engineering Institutions supported by World Bank Project, TEQIP.

My interest areas are Electric Machines, Drives, Power Electronics, Renewable Energy & Energy efficiency and engineering education. Apart from these mainstream subjects, I have passion on value education and sustainable technologies that brought me to work with value education and rural technology centres of IITD. I tried to promote Indian values among IIT community through lectures from external experts including Ramakrishna Mission with teachings of Swami Vivekananda who combines science and spirituality.

My family comprises of wife Gowri, daughter Rashmi and son Raghunandan who works with General Electric in Singapore. My son-in law Arun is an R&D manager with Nokia in Bengaluru. My daughter in law Anubhuti is an NID (Ahmedabad) graduate and a freelance artist. I have a grandson Ritunjay from my daughter and a granddaughter Anvi from my son.

I am very proud of my country that provided me opportunity to evolve from a humble rural ambience to a position of recognition in Nation's Capital.