

My tryst with Destiny



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In this article, I write about some of the episodes of my tryst with destiny, in my long professional career as a Civil Engineer.

Tryst means a private romantic rendezvous between two ardent lovers. And this is the *touch-and-go* story of love between me and my destiny. We have interludes of private conversations-long and short, scheduled and unscheduled, pleasant and unpleasant. Such meetings between us, leave me with all the time to pursue my work *without worrying* about what will happen of my actions or inactions because that role and responsibility, I have willingly and lovingly surrendered to my destiny. After going through the lights and shadows of the long years of experience, I regard this way of living as the best prescription for lasting happiness in life!

Brihadranayaka Upanishads tell us: “You are what your deep driving desire is; As your desire is, so is your will; As your will is, so is your deed; As your deed is, so is your destiny”. Over the years of roller-coaster-ride on the rough road of life, I’m now convinced that –If you long for anything with unstinted purity of head and heart, you are someday going to hold it in your hand. The universe will start to rearrange itself to make things happen for you¹.

When I was experimenting with the above thought in early years of my life, I came across a book by E. M. Forster titled: *The Life to Come*; written in 1922 but published posthumously half a century later, in 1972. It convinced me without a shadow of doubt that - “*We must be willing to let go the life we have planned, so as to have the life waiting for us*”.

I keep reminding myself all the time that in life, four things cannot and will not comeback - the spoken word, the sped arrow, the past life and the neglected opportunity.² Further, our greatest glory in life is not linked with our rise, but in rising every time we fall. In life, “those who are overcautious about themselves fall into dangers at every step; those who are afraid of losing honour and respect, get only disgrace; and those who are afraid of loss, always lose.”³

¹ Dr Joe Vitale

² Annon

³ Swami Vivekananda

The above message reverberates in the most autobiographies of great men and women. In her book, *Freedom from Fear*, Aung San Suu Kyi opines that “It is not power that corrupts but fear. Fear of losing power corrupts those who wield it and fear of the scourge of power corrupts those who are subject to it”. Personally to me it makes not only sense but it makes miracles when we replace Fear with Faith in our lives. This simple leap over from Fear to Faith changes the whole landscape of life. Brick by brick, I’m trying hard to build absolute faith in myself and in my destiny, hugely inspired by the following two short stories:

My first story is from the book titled *Tales and Parables of Sri Ramakrishna*⁴. I regard its following parable as the most precious divine gift to me:

“Once a man went to a certain place to see a theatrical performance, carrying a mat under his arm. Hearing that it would be some time before the performance began; he spread the mat on the floor and fell asleep. When he woke-up all was over. Then he returned home with the mat under his arm!”

Although the message conveyed by the above parable is loud and clear, there is a need to read it a million times to understand the depth of its true meaning. During our sojourn in this world, when we are young, we feel there is plenty of time at our disposal to take things seriously. As the years roll-by in the dazzle of life, one day we suddenly find that *the game is over* and now it is the time to depart while we were still chasing glory and greatness!

My second story is the priceless gift of Raman Maharishi hand-picked from his Ashram at the foot of the Annamalai Mountain in Tiruvannamalai.⁵ Destiny placed me at the VIT University, Vellore, so that I could be blessed by him with the most transformational opportunity of my life to spend a few hours at the Raman Maharishi Ashram. The nearly 10 hours of travel time to the Ashram, for me, melted like phantasm.

It is in the Ashram that I read the following golden words of the Maharishi:

“The ordainar controls the fate of souls in accordance with their parabdhakarma. Whatever is destined not to happen will not happen, try as you may. Whatever is destined to happen will happen, do what you may to prevent it. The best course, therefore, is to remain silent.”

The above two stories, coming together as they do from the great souls like Ramakrishna and Raman Maharishi, unfailingly illuminate my path through the vortex of life. To me, *“Ideals are like stars: you will not succeed in touching them with your hands, but like seafaring man on the ocean desert of waters, you choose them as your guides, and following them, you reach your destiny.”*

I have personally felt the transformational power of the great teachers of my time, starting from my mother who was the first among them. At my age of 5, she was the one who sent me back to my school on a rainy day to return a mistakenly picked pencil of someone else

⁴ Published by Sri Ramakrishna Math, Madras 600004.

⁵ Raman Maharishi himself had set his foot here on 1st September 1896.

(at the school) which she had found in my school bag. It is the blessings of my parents and teachers which has put me on the road on which destiny now leads me without giving me an iota of the feeling that I am following it. We march together in tandem.

My professional journey into the World of Engineering began after obtaining M.Tech degree from Indian Institute of Technology, Bombay in 1964. Soon thereafter, I joined CSIR-Central Road Research Institute, New Delhi, as a scientist. I was given the responsibility to carry out research and consultancy on Landslides affecting roads in the entire Himalayan belt. Little did I realise at that time that I am being wedded for life to the subject of Landslides!

In the monsoon of 1965, landslides struck various parts of the Himachal and Sikkim Himalayas opening a floodgate of learning opportunities for me. Professor S.R. Mehra, the then Director, asked me to lead a team of scientists to study spate of landslides in Shimla. With the limited knowledge of the subject and almost no previous experience, I did as best as I could and worked hard to produce a report. Without looking at the report, Professor Mehra asked me to apprise him of the scientific logic behind the decisions I have taken and the people I had met during my visit. He was not very happy when he heard in reply that I only met the concerned Executive Engineer and told him that the decisions on the landslide control will be conveyed after the approval of the Director. Professor Mehra asked me to sit down on the chair opposite to him and said- "Look, next time you lead a team, go as an Ambassador of this Institute and try to meet the highest person in that organization. And learn to take decisions. Your right decisions will make you a better engineer and in case your decisions turn out to be wrong, there will be always time to correct them, and I will protect you."

While at CRRRI, in early 1966, I was selected for a scholarship to pursue my higher studies abroad. I was, however, not permitted study leave by my employer because as per the rules prevalent then, I had not completed the obligatory two years of service. A great majority of my relations, well-wishers and friends advised me to quit the job and go, with the sole exception of my Director Professor Mehra. He told me to decline the offer and learn to have patience, assuring me of his support for a better opportunity in the near future. I declined the offer and continued without knowing that indeed destiny has something better in store for me!

Six months from then, Professor Mehra asked me to apply for the Science Research Scholarship of the Royal Commission of the United Kingdom for the Exhibition of 1851 – the most prestigious and high value scholarship of that time. In the application form, I was required to write about my proposal for research and suggest three institutions from any one of the commonwealth countries where I would like to pursue my research studies. In my application, I connected my proposal on landslide research with flagship areas of research at the Imperial College and repeated Imperial College London three times as the first, the second and the third choice as the preferred place of work- much against the advice of my friends. Everyone other than me felt that, if a slot for placement at Imperial College is not available, I may lose the very opportunity on that count. Exactly the opposite

was destined to happen. One of the reasons I got the scholarship was also because the selection committee was impressed by my decisiveness in picking the topic of research and opting for Imperial College, U.K. as the only place of study. I came to know of this fact a few months after joining Imperial college from none other than Sir W. D. Sturch, the then Secretary of the Royal Commission. It may not be out of place to mention that Professor A. W. Skempton, FRS, of Imperial College was himself the Chair of the Selection Committee.

Destiny played the game yet again and I found my dream placement with legendary Professor J. N. Hutchinson, FRSE who happily accepted me as his research student. Apart from being a professional giant in landslide research, he was known for his disciplined way of life, exemplary humility, exceptional power of imagination, focussed thinking and a deep sense of commitment to research and teaching.

I had dozens of rare opportunities to spend quality time with him, especially during the field work in connection with my research and at his home. Whenever we moved up and down the slopes of the Isle of Wight and the Isle of Sheppey in the United Kingdom, his eyes invariably saw at least one-hundred times more than what I could see or comprehend. My earlier education at IIT Bombay had equipped me to explain away, why landslides had occurred where they did and why landslides did not occur, where there were none. But he was the first one to introduce me to the mind boggling spectre of landslides in the theatre of Nature and taught me to learn from every shred of field evidence and signatures left behind by landslides. His mastery to dig deep into the interplay of a variety of causative factors acting on the slopes over the geological time scale had no parallel. It was for the first time I began to realize that in Nature there is always much more to it than that meets the eye and the deeper we dig, the bigger is the haul!

My research at the Imperial College was supported both by the Royal Commission and the National Environment Research Council of the U.K. In the early period of my research on the Cliffs of the Isle-of-Wight, Professor Hutchinson and I came across a well-developed mudslide, moving discreetly on nearly a flat slope. I never realized that a glance of the mudslide will show-up on his face as a *Eureka moment*. Swiftly he turned his face towards me and told me that here is a hitherto unexplained problem I should consider to work on. I nodded without thinking as I heard him say that if the mudslide in the stiff fissured clay slopes could be scientifically explained, the research can probably fetch me the degree of Ph.D.

For close to two years, I could not explain the fundamental mechanism of the mudslide despite a comprehensive program of meticulously conducted geomorphological mapping, Geotechnical field and laboratory investigation, instrumentation, field monitoring and slope analysis. I was a bit disappointed by the outcome of my research but Professor Hutchinson became even more excited to dig deeper and asked me to intensify the investigations and take recourse to field monitoring of transient pore water pressures along the discrete basal boundary shears. He had the sixth sense to *foresee* the artesian pressures arising from the

undrained loading in the head region of the mudslide, long before I could demonstrate the same by field measurements.

Again, the providence has something bigger in store for me. The challenge naturally shifted to the measurement of excess hydrostatic pressures on discrete basal boundary shears of the mudslide under study. To monitor rapid variations of pore water pressures within a slope, I needed quick-reading piezometers. Since no such piezometers were available in the market in the late 1960's, Professor Hutchinson insisted that I develop such piezometers in order to bring my study to fruition.

Jointly with the Bell and Howell Company of the UK, a strain-gauge type, transducerised stiff diaphragm piezometer was developed for the first time in the UK and rigorously tested and calibrated in the field. Subsequently, the mudslide in the Hampstead beds of the Isle-of-Wight was fully instrumented and its piezometric profiles were established. The field measurements provided for the first time –the much awaited hard evidence of artesian pore pressures arising from the undrained head loading of mudslides.

The above research not only earned me the Ph.D degree from the Imperial College in 1970 but it also yielded a game changing research case record in Geotechnique which continues to appear in the Google search as one of the ten greatest papers on landslide research. After 42 years of sustained work in this field, it was in my luck to become the first and the only Indian so far to receive the 2012 Varnes Medal, the highest International Award for excellence in landslide research and practice at the UNESCO Headquarter in Paris. I felt really honoured especially because my supervisor, Late Professor Hutchinson was the recipient of the same award in 2004.

Soon after earning my Ph.D degree, I had several job offers in the U.K., and yet what is it if not the destiny which brought me back home in early 1971. I came fully charged and inspired by the living legends like Professor A. W. Skempton, FRS; Professor A. W. Bishop; Dr Norbert Morgenstern, Professor Nick Ambraseys and Professor J. N. Hutchinson, FRSE, among others. Back at CRRI, I dedicated myself fully to strengthening of the foundations of landslide research and practice in India.

In 1975, I moved over to the Central Building Research Institute and had the honour to establish India's first Laboratory of Excellence in landslide studies. Within a period of five years, the CBRI became the first and the only institution in the country to be equipped with the first state-of-the-art Ground Penetrating Radar for subsurface exploration, the first Geotechnical Digital System for simulated stress path testing of soils, the first laser particle analyser for study of discrete boundary shears, the first pile drive analyser for diagnostics of pile foundations, the first set of vibrating wire piezometers for insitu pore pressure profiling of landslides and a fleet of sensors and field instruments for time-based monitoring and early warning against landslides. CBRI became the first institution in India with state-of-the-art capacity for scientific investigation of landslides.

In the year 1989, destiny suddenly opened a totally unforeseen, new window of opportunity for me to put my ideas to practice and create pace-setter examples. At that time-HABITAT in Nairobi was looking for a professional to lead a UN team in Sri Lanka, in the aftermath of several devastating landslide disasters. My name somehow reached the ears of Dr Ignacio Armillas, the UN-Habitat's Programme Director. He started looking for me in India at a time when I was in Tanzania on a CSIR Mission. On my journey back to India, it was just by chance that I decided to visit UN-HABITAT Headquarters in Nairobi to meet my friend Dr M. Ramaiah, the Director of SERC, Chennai, on deputation to UN-HABITAT. While I was sipping a cup of tea in the UN-HABITAT cafeteria, it was Dr Ramaiah who informed me of Dr Armillas effort to contact me in Roorkee. Within minutes, I met Dr Armillas and was interviewed for the position of Chief UN Adviser to the Government of Sri-Lanka. As he had already made enquiries about me during the process of short listing candidates, within about an hour or two of the interview, I was selected for the post. Within the next four months, I was already in Sri Lanka to lead the UN project on Landslide Risk Reduction.

I had the privilege of establishing Sri Lanka's first laboratory on Landslide Studies and Services at the National Building Research Institute, Colombo in the early 1990s, which has attained new heights over the period of the last two decades. My team made a history of sorts when a 100-year-old-landslide at Watawala (which was a recurring annual nightmare) was permanently fixed by 1994 using, for the first time in the world, the innovative technology of directional drilling to effectively drain out the water saturated unstable slopes by constructing an array of very deep and long sub-slope drains. So successful was the project that for the Sri Lankans, Watawala landslide exists only in the books of history now.

Back in India from Sri Lanka in 1995, my engagement with natural disaster mitigation initiatives grew faster than I could imagine. CSIR gave me the opportunity to sustain my active participation in the disaster mitigation related national projects. I studied the Malpa landslide tragedy of 1998; Gujarat Earthquake of 2001; Orissa Super cyclone of 1999 and the frequently occurring landslides in Uttarakhand. Though not named in the original composition, I was inducted as a member into the High Powered Committee on Disasters constituted by the Government of India. Of the many areas of my intervention and engagement with the HPC, my proposal on National Disaster Knowledge Network captured national attention and eventually became an important recommendation in the report of the High Powered Committee.

My destiny again played its part and sprang a surprise. During the coffee break after my presentation to the HPC on the subject, a gentleman (whom I did not know at that time) approached me and asked me to join Anna University in Tamil Nadu, and establish a Centre for Disaster Mitigation and Management in the University Campus in Chennai. The gentleman introduced himself as Dr A. Kalanidhi-the Vice Chancellor of the University. The offer was totally unexpected, but genuine. Within days I got the formal offer and joined the Anna University by invitation in 2001. The Centre for Disaster Mitigation and Management

at the Anna University thus owes its origin to that accidental opportunity and rare initiative by the Vice Chancellor.

Four years later, in 2005, I received an invitation from the Chancellor of the VIT University through Dr Kalanidhi, to establish a similar Centre. We both drove from Chennai to Vellore to meet the Chancellor. The chancellor was very quick in decision making and within minutes of the conversation, I was formally invited to establish a Centre for Disaster Mitigation and Management at the VIT University. Within less than six months of my joining, because of the exceptional commitment shown by the Chancellor, a state-of-the-art, well-equipped and fully staffed Centre for Disaster Mitigation and Management could be created. It was inaugurated by the Union Home Minister Shri Shivraj Patil in the presence of Gen N C Vij, Vice Chairman and Shri K M Singh, Member, National Disaster Management Authority; Shri V Shankar, Secretary, Border Management and dozens of disaster management experts from across the country. Today the Centre for Disaster Mitigation and Management at the VIT University is contributing to disaster education in a significant way.

While still at the Anna University, I unexpectedly got an invitation in 2003 to attend an interview in Nairobi for the position of Chief Technical Adviser (CTA) for the UN-Habitat's Iraq Programme. Upon reaching Nairobi, I came to know from a friend that my name was not on the original short list of candidates to be interviewed. Dr J. H. Moor in the Office of the Executive Director, UN-Habitat, reportedly added my name in the short list because he not only knew me well professionally but, in 1995, he had rated me as UN-Habitat's best CTA in the Asian region. With his providential intervention, I went through the process of formal interview and topped the panel, for the final interview with the Executive Director of UN HABITAT, Ms Anna Tabaiyuka. After an hour-long interview the same day, she put her signatures in the file. Although I was initially selected only as a CTA, after observing me perform under the most trying conditions in the war-torn Iraq, I was elevated to the position of the Programme Director of the \$660m Habitat's Iraq Programme during the period 2003-5. All this happened so swiftly as though the destiny had taken full control of my fortune.

In Iraq, the most deflating moment for me was the ghastly view of the death and devastation unleashed by the bombing of the UN Head Quarter building at the Canal Hotel in Baghdad on 19 August 2003. This was the place where, upon reaching Baghdad, I had lived in a tent until a few days before the bombing incident. I could easily have been one of those killed but the providence again had different design for me. What this single incident taught me in terms of disaster management, no class room education could ever teach. By hindsight, my disaster education would have been incomplete without the huge exposure to the highly professional and measured post disaster response by the Americans. I could see for myself the very thin line between life and death and the huge difference disaster managers can make in saving lives.

Disasters are the best school masters, a fact we often ignore in India. After the devastating Gujarat earthquake of 26 January 2001, I drew the attention of Director General of CSIR, Dr R.A Mashelkar about contribution CSIR could make to the world of learning. The various

possibilities were also discussed with the then Secretary DST, Professor V.S. Ramamurthy and the then INAE President Dr A. Ramakrishna. Both of them also responded positively to my proposal. DST funded my proposal on Seismic microzonation for safer construction. After the report was ready, the President, INAE, himself chaired a roundtable meeting at SERC, Chennai on 24 February 2003. The study report was eventually adopted by the Department of Science and Technology of the Government of India. This activity laid the foundation of disaster risk related initiatives by the INAE.

When the Kedarnath tragedy struck the State of Uttarakhand in 2013, I again approached Dr Baldev Raj, the then President INAE, requesting him to establish a Forum on Disaster Mitigation. To discuss my proposal, he himself chaired the first informal meeting of the Adhoc Committee on 29 January 2013. The follow-up meetings were held on 12 February and 19 July 2013 which eventually climaxed in the establishment of the INAE Forum on Engineering Interventions for Disaster Management on 26 July 2013. Inter alia, the Forum organized two highly successful roundtable meetings on Landslides in May 2015 and November 2015. The ensuing recommendations were well received by NDMA and other related institutions.

In the aftermath of the devastating Chennai floods of 2015, it was at the initiative of Dr B N Suresh, the current President, INAE that the Forum launched a Study on Urban Flood Disaster Mitigation under the leadership of Dr C.D. Thatte. By now the INAE Forum on Disaster Mitigation is well established and is very closely connected with National Disaster Management Authority and the National Institute of Disaster Management. With my sustained engagement with the INAE Forum and recent nomination by the Government of India on the National Advisory Committee of NDMA, it has become possible to pilot the recommendations of the Forum with the Government and the NDMA.

Although the focus throughout my career remained on Disaster Mitigation, my narrative for this paper will be incomplete if I do not mention about some of the totally unexpected opportunities that knocked my door at CBRI, Roorkee. In the year 1986, soon after assuming charge as the Director of the Institute, I had an accidental opportunity to meet the Union Minister of Human Resource Development, Shri P. V. Narsimha Rao, who had come to Roorkee to deliver the convocation address. The Minister, in his speech, was highly critical of the Civil Engineers for designing buildings *which turn ovens in summer and refrigerators in winter*. At the luncheon hosted by the University Vice-Chancellor, I thanked him for alerting the civil engineers of the country, and conveyed that, without a strong political will, the situation is unlikely to improve. I most humbly expressed my disappointment that although the Government of India has created institutions like CBRI with all the sub-disciplines of Building Science under one roof, yet the Government itself keeps ignoring CBRI even while dreaming of building resurgent India!

I was asked by the Minister to report at his residence in New Delhi, the next day which I did. Hon'ble Minister told me briefly about the Government's plan to build a network of functionally efficient Navodaya Vidyalaya across the length and breadth of India, and asked

if I was ready to mount a tiger? My nod was spontaneous and without any prior thought. Against the fierce competition from CPWD and despite the stiff resistance from its then Director General, Shri Harish Chandra, the Navodaya Vidyalaya project was assigned to CBRI. My team lost no time to spring into action, and within a few months, the models of the designs of school buildings for different regions of the country were personally inspected and approved by none other than the then Prime Minister Shri Rajiv Gandhi. The Navodaya Vidyalaya Project, which started in 1987 continued until 1999, well beyond the date I left CBRI in 1989 because of the leadership provided by Shri V.K. Mathur. The project involved the planning, design and construction of 305 schools, spread over 30 States and Union Territories for which HRD Ministry paid more than Rs 10 crore to CBRI at that time, giving it the most visible project since its inception. In 1988, from the Hon'ble Minister, I received the Science and Technology Award instituted by the Bhasin Foundation and CBRI benefitted immensely from the rapport with the Minister who a few years later became the Prime Minister of India.

In 1995, when Dr R.A. Mashelkar became the Director General of CSIR, he wanted me to return to CSIR Headquarters from my UN assignment in Sri Lanka and asked me to raise the level of CSIR's International networking, bilateral and multi-lateral overseas programmes. While in the flight from Colombo to Chennai on way to New Delhi, I conceived establishment of International Science and Technology Affairs Directorate (ISTAD) at the CSIR Headquarter. Dr Mashelkar agreed to the idea of establishing ISTAD and gave a formal nod to the proposal on the day of my joining. What ISTAD could achieve during my five year tenure during 1995-2000 is a part of CSIR's glorious history!

In the wrap-up to this article, I will like to say four things. First, I am firmly of the belief that the real beauty of our contribution lies not in the number of patents filed or in the high impact factor of our research publications but in our nameless acts of accomplishments which grow the culture of science around us. Second, we often meet our destiny on the roads which often fall outside the printed maps in the Atlas of our making. Third, all our dreams can come true, if we have courage to pursue them. And finally, as Forster had said, "Failure and success seem to have been allotted to men by their stars. But they retain their power of wriggling, of fighting with their stars, and in the whole universe the only interesting movement is this wriggling."

Fifty two years ago, I have had the privilege to be a student in the Department of Civil Engineering at the IIT Bombay and in August 2016, as its distinguished Alumnus, I had the honour to deliver its Convocation Address. While congratulating the graduating students-I asked them to join *the wriggle dance* with me in the global arena!