

Engineering, fundamental to global advancement

Text of the speech made by the President of the Institution of Engineers, Sri Lanka, Eng. (Dr) Ananda Ranasinghe soon after his induction as the President 2011/2012. Eng. (Dr) Ananda Ranasinghe was inducted as the President of the Institution of Engineers, Sri Lanka (IESL) for the Session 2011/2012, at the inauguration of its 105th Annual Sessions at the BMICH on October 21st.

Eng. (Dr) Ranasinghe who holds a Bsc Hons Degree in Engineering obtained from Peradeniya University, did his Master of Technology in construction Management at the Open University of Sri Lanka, Master of Engineering, in Structural Engineering Design at Moratuwa University and completed his Masters in Law at University of Wales, UK and his PhD at Moratuwa University. He is a Fellow of the Institution of Engineers Sri Lanka, a Corporate Member of the Institution of Civil Engineers, London and an Associate of the Institution of Structural Engineers, UK. He is also an Attorney-at-Law of the Supreme Court. The IESL, as the apex body of engineers in the country, is committed to carry out activities that would contribute to uplift the profession and has currently a membership exceeding 14,000 coming from all disciplines of engineering. The inaugural speech of the new President by which he outlined his plans and strategies in steering the Institution towards achieving its stated goals in keeping with its stated vision and mission is carried below.

I appreciate with great honour the Council and the members for having bestowed upon me, the opportunity to serve the Institution in this prestigious position. My contribution to engineering is extremely moderate when compared with the great names of famous engineering whose names are inscribed in the frescoes around the Committee Room of the IESL.

To quote Sir Isaac Newton the world famous scientist, 'We are indeed standing on the shoulders of giants'. I can assure you that I shall do my utmost to cherish and protect our inheritance from a glorious past and shall endeavour, to the limit of my ability, to further the aims and the aspirations of our great Institution in this changing world.

During the last few days when I was preparing my Address, I became increasingly aware of the sense of history which pervades our Institution and of the aspirations and experiences of a past age, which are re-echoed in our ever-changing world of today. Although there may have been many such changes over the years, the fundamental concepts of our proud profession still remain. My sense of history was deepened when by chance I discovered recently in a book entitled "A journey by stage coach to the up country" in the early part of the 19th Century, which describes the difficulties of travel and the meanness faced by the travellers.

Transport and communication

About one and a half centuries ago the fastest man could travel was probably astride a galloping horse compared with the Boeing of today carrying hundreds of passengers, travelling at twice the speed of sound, and spanning thousands of miles between the continents of the world, in a single flight. Communication was by a man on horseback and by stage coach taking days and weeks, compared to emails, micro waves etc bounced from satellites which provide us with almost instantaneous transmission today. An engineer today could handle a complicated design by himself whereas in the past they must have employed a team of engineers to do the same work relying heavily, on their assistance, judgement and integrity.

Despite the difficulties of transport and communication, engineers in the previous era have constructed great bridges, canals, over 1,000 miles of road, together with harbours and other structures. Even stupas, kovils, churches, mosques etc. were built to perfection. The great developments carried out

in construction of roads, bridges, canals, docks and harbours, did of course provide great opportunities for the employment of engineers and contractors.

Presently, stricter education and training is now required by the Institution in order to obtain professional status, or otherwise to become a chartered engineer. We must be aware, however, that on the demands which we make upon young engineers we should not attempt to stifle the energy and the ambition of youth itself and make our profession less attractive than others to the young person embarking on his career.

Therefore we have to support our budding engineers to become chartered engineers rather than discouraging them by expecting too much of general knowledge which we believe that they should possess.



Engineers involved in massive construction activities. File photo

Presently I function as a visiting lecturer in various institutions and also at the universities and I am highly impressed with the training and guidance given by certain professional institutions to their graduates to qualify them to become corporate members.

A vast variety of subjects are being taught to them, such as, environmental law, UDA regulations, labour laws, contract laws, Conditions of contract, accountancy, management, office practice etc. I have tried my best to formulate the professional examination of the IESL on these lines so that our engineers too may be taught important subjects which a university cannot teach them as they are too general in nature. But disappointedly the majority was not prepared to accept my proposal and ultimately I had to give up lecturing at the IESL for professional examinations, while I continued to lecture at other institutions.

I started my practice as an Executive Engineer in the Department of Highways where I had to give instructions and orders to remove structures whenever there were encroachments into the road reservation. For that I had to be aware of the Thoroughfare Ordinance. I did not know the 'ins and outs' of what an Ordinance was apart from giving instructions and orders in compliance with the Ordinance. From the very first day, I worked at how to get a transfer to the Design Office in Colombo so that I could practice what I have learned at the University. That was not easy either, as designs office experience has to be gained from the Design Office. Therefore, moulding professionals is not teaching them general knowledge as some of us would believe. They should not only be taught how to put theory into practice, but should be taught non-engineering subjects, such as, management, law etc. as well. Technology in the first half of the 19th century, and beyond, was based mainly on empirical rules and practical experience. Formal engineering education was certainly not considered worthy of notice by universities. It is perhaps of interest to note that Professor Rankin of 'earth pressure' fame, was one time an Associate Member of the Institution of Civil Engineers (UK), but when he applied for Full Membership he was rejected for some obscure reason, and he resigned from the Institution in anger. However thereafter following Rankin's death, the ICE has been very kind to have the

annual Rankin Lecture. Membership cannot be denied to any engineer who can prove his qualifications and competence and whose experience, reputation and character should be correctly vouched for by his sponsors.

However the Institution has no place for half-baked people whose competency is manipulated. But the Institution is not reluctant to recognize people who have done great service to the society. We have done so in the past, and in the future too we will continue to honour them as Honorary Fellows or Honorary Members.

Towards the end of the last century, the supremacy of theory over rule of thumb, has gradually but surely asserted itself. Although at times the want of common sense and experience in the application of abstract principles has led to disasters

on the other hand argues that the cost is too high and out of proportion to any return which might be expected. With the tighter margins experienced over the recent years of recession, this is quite a real problem to many firms, who have co-operated well in the past and who now prefer to recruit trained engineers only.

Foreign exchange

Training of young engineers is, however, a fundamental obligation, and our profession must accept this responsibility. There might be the argument that a firm is willing to provide experience but not training. The danger would be a comparatively narrow experience, lacking in wider professionalism.

The institution must and should offer support to overcome this barrier. Therefore I

unpublished and unappreciated. The failure of a large dam, the collapse of along span bridge, the huge escalation in cost of a project of national interest are the items which attract the headlines, not the success of constructing a harbour complex or completing a large sewage scheme or motorway on time and within the financial budget. Difficulties overcome are overlooked and appreciation and understanding are seen only in the eye of our discerning brother or sister engineer and not in that of the general public. I consider that it is important in drawing your attention to the problems experienced by the engineers. The presence of a rock in a harbour, the collapse of an underpass in a highway etc. are some of the events which are not uncommon internationally in the engineering industry. Foolproof structures can never be built when considering the nature and the complexities of the construction. Completing a project within duration and within the cost does not attract public attention. Therefore we have to make the public aware of important engineering news, and the only way is for our engineers to write to the public newspapers of whatever work they do and the progress achieved. I, as the President, do intend to give all assistance to them.

Dispute resolution

There have inevitably been a curtailment in the number of contracts available, and in an endeavour to keep contracting organizations functioning, contracts have been taken with little or no margin. This is the recipe for trouble, quite understandably, as tremendous effort is made to recoup costs in extras and in claims leading to argument and dispute, resulting sometimes at the end of the day in both the engineer and the contractor being discredited. In my experience there has been a great proliferation of claims over the years and this may well be a self-criticism of our engineering profession.

One of the most essential requirements before a contract goes to tender is to have sufficient lead time for its effective preparation and to allow the contractor an adequate period for the examination of the documents, to decide on his methods of construction and to price his tender.

Time is a commodity which we surrender too easily. Speed can so often be a delusion for efficiency. Therefore we have a responsibility in educating our engineers in contract management and dispute resolution and at the same time openly discuss these problems either with administrators or the legislators (politicians). The training of engineers in these fields shall be enhanced as every decision of an engineer would have a great impact on the projects cost and quite often these costs are in the order of millions of rupees.

The profession should, however, remind the public from time to time of the great part it has played, and is still playing, in the evolution of our civilization and society. The prevention of disease and the improvement in the environment and social services has been largely due to the influence of the engineer. We provide the infrastructure upon which civilization is built. Televisions and computers are the most effective medium of the transmission of information today. Although engineers are responsible for designing and building these electronic gadgets, we are the people who use them the least. Concern is expressed from time to time amongst our membership that the professional engineer has lost his status in society and is not held in the same esteem as he was generations ago.

The average member maintains that this is reflected in his rewards relative to those in other professions and indeed to those in other engineering disciplines. Our brothers and sisters-in-Law, Medicine, Accountancy and the Administrative service appear to be given responsibility at a much earlier age and they play an effective part in the political and social life of the country at both national and local government level.

To be continued

A degree course in engineering is one of the most demanding of university courses, with considerable analytical content but possibly with only a limited concentration on the wider scene and on the use and application of the written and spoken word. It is perhaps unfortunate that we do not learn language skills in our seats of learning. Effective understanding and even more effective communication is vital in our professional and business life. The English language is one of the greatest assets which we should nurture and cherish

activities lying outside the university. A period of training or experience is necessary to fuse engineering knowledge into a complete whole, and to allow the engineer to recognize the restrictions and constraints, which the world of practice can impose upon unrestrained theory. Sometimes the young technician can seem to be much more expert and talented and probably more financially rewarded than the newly graduated engineer.

This is the period when the immature young graduate has to be tutored by experienced and understanding engineers and escorted into his professional life. Therefore IESL has a greater role to play in grooming young engineers by helping them to obtain proper experience and we as senior members have a greater responsibility in carrying out this task. I shall do every thing possible to achieve this target through the IESL.

The importance and necessity for this fundamental training and experience has been fully appreciated and is one of the main ingredients in our aspiration, towards greater professionalism and status in our society. Both the academic and the practicing sections of our industry must combine to achieve this objective of adequate training and experience.

The academic world probably is of the opinion that industry is lukewarm towards the duty of training graduates, and industry

however, can only be available in a viable industry with a firm base-load of work in our own country. The government (that is, both national and local) is now practically the sole patron of engineering, either by virtue of direct contracts or by awarding contracts to the industry. Successive governments appear, in my eyes at least, to have appreciated the importance of a medium or long-term planning strategy which could stabilize a training policy.

However I believe when it comes to engineers that the present young engineers do have the same opportunity that we had, of obtaining training which will benefit the development of this country.

National interest

Our profession, which is fundamental to the advancement of our material world, cannot today escape from the public eye. Our failures and occasionally our successes are beamed into almost every home, not only in our own country but in many countries abroad. The morning papers emblazon stories on front pages, and due to the advances of communication, we also cannot hide sensitive information from the press, the television camera or the microphone.

Unfortunately it is failure, or disaster, or our shortcomings which are highlighted, and our successes are often unrecorded,