Personal Experience and Observations of the Development of Engineering Education and Professional Practice in Malaysia for the Past 50 Years (Part 2)

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Preamble: This is a record of my personal experience and observations of the development of engineering education and professional practice in Malaysia for the past 50 years. The aim is to record our country's development in engineering education and professional development and it is not to be a critical analysis of the development perse.

Please do not take the observations/remarks given herein personally nor as criticism of the development of engineering education and/or professional practice in Malaysia. This is only a record of my personal observations/remarks and my sincere apology in advance to all those who may be offended by my observations/remarks.

6.0 THE FOUNDING OF THE INSTITUTION OF ENGINEERS, MALAYSIA IN 1959 (INITIALLY KNOWN AS THE INSTITUTION OF ENGINEERS (FEDERATION OF MALAYA)

Immediately after the war, professional engineering activities in Malaya were then undertaken by a Joint Group of Corporate Members of the ICE, IMechE and IEE. Submission of building and engineering plans to local authorities could only be made by corporate members of the professional bodies in the United Kingdom. They had to be registered with the respective local authorities in the country; or were registered under the Architects Ordinance as Part II Architects, which is the same status as building draughtsmen.

Whereas the architects have their own registration under the Architects Ordinance and could submit plans to any local authority in the country by virtue of their registration under the Architects Ordinance, there was no law then for the registration of engineers in the country.

All engineers have to register with individual local authorities if they wish to submit plans to a local authority; or be registered as Part II 'Architect' under the Architects Ordinance, which has the same privileges as building draughtsmen who were registered under the Architects Ordinance, and were restricted to the submission of plans of up to four-storey buildings.

Following independence, there was a move in 1958 by senior Malaysian engineers in the Government service and private sectors to form a 'Society of Engineers'. An initial meeting was held to form a pro-temp committee in 1958 and IEM was officially registered on 1 May 1959 with 39 founder members.

The Faculty of Engineering was the venue of many meetings for IEM including all its AGMs until 'Bangunan Ingenieur' was completed in 1977. At the first AGM held on 23 April 1960 at the Faculty of Engineering, IEM had only 46 members, including graduates and associates. The first annual dinner, held on 16 July 1960, was attended by YTM Tunku Abdul Rahman Putra, Prime Minister of Malaya.

The founder President of IEM, the late Tan Sri Engr. (Dr) Haji Yusoff bin Haji Ibrahim, and a few senior engineers in the Government service and private sector were the driving force in the formation of IEM. IEM was extremely fortunate to have such dedicated senior members giving full support to its formation and allowing their offices to be used for running the activities of IEM.

The basic aim of IEM was to advance the science and practice of the engineering profession in Malaya (now Malaysia). With the formation of IEM, the Joint Group of UK Professional Bodies agreed to dissolve itself and donated its entire available fund to IEM, and also agreed not to hold further activities in the country under the auspices of the Joint Group.

The rules for admission to IEM then was very strict; one has to have a professionally recognised degree with three years of engineering experience, excluding the two years of pupilage, which means that to be a Corporate Member of IEM, one must have at least five years of working experience in engineering establishments; whereas professional institutions in the United Kingdom required only three years of professional experience before one could apply for corporate membership.

In the initial formative stage, the IEM Secretariat was housed in the offices and homes of various Honorary Secretaries, until NEB (now TNB) was generous enough to allow part of its store in Jalan Timor be used as the office of the IEM Secretariat in the mid 1960s. In early 1960s, three pieces of institution land in Petaling Jaya, along Jalan 52/4, New Town Centre, were made available to three local professional bodies, namely, the IEM, the Society of Architects (now Institute of Architects Malaysia (PAM) and the Institution of Surveyors Malaysia (ISM).

Bangunan Ingenieur was completed in 1976 and was opened by former Prime Minister Tun Dr Mahathir bin Mohamed in 1977. The total cost of the building was less than RM300,000 and the latest valuation of Bangunan Ingenieur was RM4 million. Recently, IEM just acquired another office building opposite the existing

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Bangunan Ingenieur for RM13.5 million to provide better services to its members. IEM started with a founder membership of only 39 in 1959 and now the total membership is well over 20,324 including graduates and students. It has 17 divisions of engineering with civil engineering the major division.

For the advancement of the profession, IEM conducts regular meetings, courses, conferences and seminars for its members to assist them in accumulating CPD points as part of the requirement for the renewal of the annual registration with the BEM.

6.1 IEM'S GOLDEN ANNIVERSARY 2009

This year, IEM shall be celebrating its Golden Anniversary since its official registration with the Registrar of Societies on 1 May 1959. Specifically, IEM was founded towards the end of 1958 following the establishment of the Faculty of Engineering in Pantai Valley, where many informal meetings of local engineers were held.

6.2 ROYAL CHARTER AND PROFESSIONAL RECOGNITION BY THE GOVERNMENT

Immediately following the formation of IEM, in early 1960, IEM applied to the Government for a Royal Charter following the footstep of professional institutions in the UK as well as recognition by the Government that graduate membership of IEM would be accepted for employment as engineers in Division 1 of the Government service.

Although the Government confirmed that IEM graduate membership was recognised for employment as engineers in Division 1 of the Government service, the Government, however, could not grant the Royal Charter as in the UK which was issued under the common law. In the Federation of Malaya, the King was appointed under the Federal Constitution and has no power to grant a Royal Charter. The letter further stated that with the approval of the Government in Parliament of the Registration of the Engineers Act, IEM's position was well protected by law and, as such, IEM did not pursue further on their application for a Royal Charter.

6.3 IEM/BEM GRADUATE EXAMINATIONS

As early as in 1961, various discussions were held to use CEI UK Examination papers for evaluating qualifications not recognised by the IEM. However, IEM could not get the agreement from the CEI. There were many engineering qualifications not recognised by the IEM in Malaya (based upon CEI's evaluations), but IEM had no facilities then to conduct Graduate Examinations to evaluate and upgrade such qualifications.

In mid 1970s, I approached CEI again personally in the UK to allow IEM to use the CEI Graduate Examination papers but the response was still negative. Then, using my personal contact with the Secretary of ICE UK, I was able to get CEI UK to agree to allow IEM to use CEI Examination papers. However, they wanted IEM to make additional 'special' payment for the privilege of using their papers in addition to their normal examination fees.

It was not right to pass on the additional 'special privilege payment' to IEM candidates who wanted to sit for the IEM Graduate Examinations. In view of the good relationship between BEM and IEM, I approached the Board to defray the cost of the privilege payment to CEI. The Board readily agreed to do so and the examination was then called IEM/BEM Graduate Examinations. These examinations have been held since 1977 and I understand that starting in 2009, IEM/BEM Graduate Examinations will be conducted locally with the papers set by local IEM Examiners.

Although the number of candidates who passed the Graduate Examinations is not many, it is important that the local professional body has provided another avenue for those who wanted to achieve professional status. Some of the candidates who passed the Graduate Examinations have obtained Corporate Membership of IEM and are quite active in IEM activities.

6.4 PROFESSIONAL INTERVIEW EXAMINATIONS

The professional interview examinations were instituted in 1970s to provide early opportunities for graduate members to seek Corporate Membership in accordance with the IEM Constitution and Byelaws. The main objective of the Professional Interview was to determine whether a candidate has been practising engineering for the past three years and whether he has used his engineering knowledge to solve engineering problems. We do not want a candidate to say that 'I did it this way because my boss told me so!'

IEM has a responsibility to society and public safety to ensure that work carried out by its members is in accordance with its Code of Ethics. The Pro-

fessional Interview Examination is one step towards the direction of ensuring that all candidates admitted into IEM as Corporate Members are capable and competent engineers to practice their profession.

6.5 CODE OF ETHICS

I was shocked to hear from one of my student graduates that the 'Code of Ethics is for the birds!' The difference between a professional man and a layman in the street is the code of ethics in his profession. In view of this shocking comment, I recommended to the IEM Council to include a paper on 'Code of Ethics' in the professional interview examination. The aim was to bring awareness to all members of IEM of the importance of the professional Code of Ethics enshrined in the IEM Constitution and Bylaws.

6.6 IEM RULES ON ARBITRATION AND IEM CONDITIONS OF CONTRACT

As Chairman of the IEM Standing Committee on Professional Practice in the 1970s, and later as IEM's President in 1981, I initiated the publications of the IEM Conditions of Contract for Civil, Mechanical and Electrical works, and also the IEM Rules on Arbitration.

The setting up of the Dispute Resolution Sub-committee was an important service which IEM was able to provide to the construction industry in the country, to solve many dispute problems between contractors and owners in contracts, and also between consulting engineers and owners as well.

6.7 ARBITRATION PROCEDURE IN THE GOVERNMENT SERVICE VIS-À-VIS AD-HOC ARBITRATION TRIBUNAL

When I was the President of IEM, I received a call from my old friend, the Chief Secretary to the Government, who asked why the Government always lost its Arbitration cases.

I told him the reason was very simple, it was because the Government officers in charge of administrating the Government contracts were generally not prepared to make recommendations on the claims submitted by the contractors for fear that they might be surcharged for making an error. The safest way out was for them to recommend that the contractual claims be rejected and be submitted to arbitration. So he asked me for a solution.

I explained to him the procedure in International Conditions of Contract (ICC) where, before the contractor can invoke the Arbitration clause in the contract, the contractor's claims have to be referred to the Engineer (who is the supervising officer (SO) as in the case of Government Conditions of Contract) to make a quasi Arbitrator's decision on the contractor's claims and submit his decision to both parties in the contract for their further action. Furthermore, either party can take the Engineer's decision to Arbitration!

If the contractor rejects the decision of the Engineer, then the claims are referred to Arbitration as provided for in the ICC contract. But in the Government's condition of contract, there is no provision for such procedures, hence, the contractor's claims, being rejected by the SO, is then referred to arbitration if the initial 'negotiation' was unsuccessful. Usually, the SO is not prepared to entertain the contractor's claims for fear that he might be surcharged by the Auditor General, in particular for claims on delay and late progress payments as well as delay in handing over the site!

One solution I suggested to him was to setup a high powered Ad-hoc Arbitration Tribunal who can decide on the compensation amount to be paid to the contractor, i.e. to say and to act in the place of the 'Engineer' to make a quasi Arbitrator's decision initially before the claims were referred to arbitration.

He agreed with my suggestion and proposed to the Cabinet to setup a high powered 'Ad-hoc Arbitration Tribunal' consisting of the Secretary-Generals of the Ministry of Finance, ICU and EPU. This Ad-hoc Tribunal was supposed to meet whenever a Government contractual claim was referred to arbitration. The Ad-hoc Tribunal would determine the quantum to be offered to the contractor initially to settle the dispute. If the contractor rejected the offer, the claims would then be referred to Arbitration in the usual way.

I had the privilege to appear before the Ad-hoc Arbitration Tribunal as the Engineer in charge of a Government contract and submitted my recommendation to the Ad-hoc Tribunal. As far as I can recall, the contractor's claims for the

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contract were approximately RM10 million, and I submitted my evaluation on the contractual claims which was around RM1 million based on what I believed to be the contractor's entitlement, acting more or less as a quasi arbitrator.

The contractor was called in immediately after our meeting and the Ad-hoc Tribunal made an offer to the contractor to settle the claims. The contractor accepted the offer, therefore, there was no arbitration for this contract. This saved the Government invaluable time and money for using the aforesaid modus operandi! I understand that since late 1980s, this modus operandi has been abolished and now all contractual claims are referred to arbitration as per contract without getting the approval from the high powered Ad-hoc Arbitration Tribunal.

However, there were cases being settled during the course of arbitration when both parties found that the costs of arbitration hearings were prohibitive in some of the high profile cases. This has one advantage in the sense that when all submissions by the parties are completed and during the course of hearings, the parties are quite clear on their positions and, therefore, willing to go for a negotiated settlement.

Currently, I understand there is a case in which the written final submissions by the parties are completed and, instead of having the arbitrator's award, the parties decided on a negotiated settlement. It is to be noted that Arbitration is a very time consuming and costly process to both parties. Sometimes, the Arbitrator's award may not justify the time and effort put in by the parties. It is, perhaps, only to glorify the personal vanity of one party!

7.0 ASSOCIATION OF CONSULTING ENGINEERS MALAYSIA (ACEM)

The Association of Consulting Engineers Malaysia (ACEM) was founded in 1963 with the major objective of promoting and advancing consultancy practices in Malaysia. The ACEM started with a group of 16 founder members, and now has a total individual membership of 621, representing 343 Engineering Consultancy Practices (ECP). In the initial years, it was not able to afford an office of its own and was happy to squat at one of its member's office.

In mid 1980, ACEM signed an agreement with the developer of Plaza Damansara to purchase a four-storey office/shop lot in Plaza Damansara costing nearly RM1 million. But due to financial constraints, ACEM was able to negotiate with the developer to hand back the four-storey office/shop lot and, in return, purchased two adjacent floors of the office building in Plaza Damansara. In 1987, the purchase price for the two office floors was RM340,000.

Even then, ACEM could not raise sufficient funds/donation to make the purchase because of the recession. As Honorary Treasurer then, I proposed a scheme of purchase whereby ACEM setup an ACEM Holdings Sdn Bhd to purchase the property and encourage members to give a loan to ACEM without

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interest by taking up shares of RM10,000 each in ACEM Holdings Sdn Bhd. From 1991 onwards, ACEM gradually bought back the shares taken by its members. This buyback exercise was completed in 2002 and, today, ACEM Holdings Sdn Bhd is a fully owned subsidiary of ACEM.

In order to bring awareness to the contribution made by consulting engineers in the development of the country, and promoting the advancement of engineering consultancy practices, ACEM started organising the ACEM Engineering Award since 1989 (annually from 1989-1993 and bi-annually from 1994-2008). The last Engineering Award was held early last year.

In 2008, the ACEM introduced the ACEM Gold Award. This is a special Award given in honour and recognition of members of ACEM who have made significant contribution to the advancement and development of the engineering consultancy industry in the country. ACEM has also organised courses, conferences and seminars for its members and the engineering fraternity on a regular basis to assist its members to accumulate CPD points as part of the requirements for the renewal of the annual registration with BEM.

8.0 THE REGISTRATION OF ENGINEERS ACT VIS-À-VIS THE BOARD OF ENGINEERS, MALAYSIA (BEM)

Following the establishment of IEM, which is a professional body, the Council of IEM felt that a statutory authority should be established to regulate professional practices more effectively. In early 1960, in line with the objective of IEM, a Committee was set up to draft the Engineers Bill. The basic aim was for the registration of engineers for the submission of plans to local authorities.

When the preliminary draft Engineers Bill was presented to the Works Ministry, the Minister felt that separate bills for the Architects (AA) (to replace the old Architects Ordinance) and a new Quantity Surveyors bill (QSA) should also be drafted.

All three bills were drafted by a Joint Committee and the Acts were passed by Parliament in 1967; namely, Act 117-Architects Act 1967 (AA); Act 487-Quantity Surveyors Act 1967 (QSA); Act 138-Registration of Engineers Act 1967 (REA). But the REA could not be implemented until 1972 following a shortage of civil engineers in the Government service.

The reason why the REA could not be implemented was because the Minister of Finance then, (the late Tun Tan Siew Sin), was adamant that the scale of fees stated in the REA should be the maximum and not the minimum. The Association of Consulting Engineers Malaysia (ACEM) was against such proposed amendment, and there was an impasse for five years in the implementation of the REA because of the scale of fees!

There was also a shortage of civil engineers in the Government service in 1971/1972 and the Cabinet requested that the Director General (DG) of JKR, the late Thean Lip Thong, to study the matter as the Cabinet was adverse to the proposal to draft another Act, similar to the Act for the Medical Profession, making it compulsory for all doctors to serve in the Government service before registration to practice on his own. When I was consulted in 1972, I suggested immediately to the DG to implement the REA and to provide compulsory registration for all engineers working in the country.

Hence, the Government agreed to implement the REA, without the implementation of the scale of fees! To be registered as a graduate engineer, one must be in the Government service or has been exempted from the service. Except for civil engineers, all other engineers were exempted from service with the Government for registration under REA.

8.1 THE ENGINEERING SCALE OF FEES

The President (the late Tan Sri Datuk Engr. Mahfoz bin Khalid) of the BEM, discussed the implementation of the scale of fees at the Board meeting on the scale of fees implementation. He felt that he could not conscientiously recommend to the Government on the implementation of one scale of fees as given by ACEM. This was because he could not see the logic to pay the same scale of fees for simple mass earthworks against complicated engineering structures, such as bridges and high rise buildings.

I was in full agreement with the sentiment expressed and did the research on the various engineering scale of fees in the world. I found that in the US, they had three scales of fees depending on the complexity of the engineering works.

A working paper on the three scales of fees on engineering works was then prepared and presented to the Board for consideration. The Board accepted the recommendation with minor amendments, and submitted the proposed three scales of fees to the Government for approval. Hence, the Engineering Scale of Fees was approved and used by the Government.

8.2 MEMBERSHIP WITH THE BOARD OF ENGINEERS MALAYSIA

The members of the Board of Engineers (BEM) consist of 16 official members; seven members were nominated by IEM and seven from the public and private sectors were appointed by the Minister. One member each is nominated by the BAM and BSM; and a Secretary and a Registrar is appointed by the Minister as ex-officio.

This was the composition of BEM when it was setup in 1973. However, in the course of time, IEM's nomination was reduced from seven to five; yet there was no protest from the IEM Council because they were not aware of such a proposed change of composition. IEM nominated members in the BEM were told that whatever was discussed within the Board was confidential and they should not convey it to the IEM Council!

At the beginning of the formation of the Board, there was strong rapport between the BEM and the IEM Council because the first BEM President (the late Engr. Thean Lip Thong) and the second President (the late Tan Sri Datuk Engr. Mahfoz bin Khalid) were members of the IEM Council as well; and they were able to clarify many of the queries raised by the IEM Council. Hence, the IEM Council was then fully aware of the happenings within BEM, which was, after all, a brain child of IEM.

Subsequently, when new Board members were appointed, the Board felt that they did not want to depend on IEM for various activities, particularly for the assessment of engineering qualifications etc. Consequently, the BEM setup its own assessment qualifications for registration with the Board, using basically the same rules setup by the IEM.

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As of June 2008, the number of engineers registered with the BEM is as follows:

(a) Professional Engineers: 13,042
(b) Graduate Engineers: 44,356
Total: 57,398

BEM registration has five main disciplines in engineering, namely, Civil, Mechanical, Electrical and Electronics, Chemical and Mining. It also has 45 subsidiary disciplines, possibly to cater for the specialised branches of engineering being offered by the universities!

8.3 REGISTRATION OF ENGINEERING CONSULTING PRACTICES

The REA has recently been amended to provide additional registration of all individual professional engineers working as consulting engineers in private practice besides being registered as professional engineers in general. The REA also provided the registration of all engineering consulting firms as a corporate body. I also understand that, recently, there is a move by the BEM to classify engineering consulting firms in accordance to their size of practice; similar to that of the registration of contractors for Government projects.

The registration of contractors is basically based on the firms' financial capacity and their experience. However, professional practitioners offer their services using their brains, thus the size of their practice should not be a measure of their capacity and capability to carry out their practice. Financial capacity or the number of engineers employed by the firm should not be used as an additional measure for classification of their practice. The consulting practi ce has already been classified in accordance to their area of disciplines! No other country in the world has such classifications of consulting engineering practices!

Although Malaysia is unique, being the first country in the world to setup the REA nearly half a century ago (and which was followed suit by Singapore, South Africa, *etc*); there is absolutely no reason why we should be so unique as to classify consultancy practices similar to that of the contractors' classification.

Nowhere in the world do we have such classification of consulting practices as proposed by the BEM at the request of the Government, as I understand. Looking around at other professional practices in this country, such as architectural and quantity surveying, they do not have such classifications. Other professional bodies in this country, such as the legal, medical and dental professions, do not have such provision to classify their practices.

I am indeed very sorry to observe that the move by the BEM seems to advance the self interest of large professional practices in this country at the expense of smaller practices. Are we doing it in the self interest of a few powerful members of the engineering profession?

8.4 BEM TO SETUP A LEGAL SECTION

One of the main functions of the BEM is to monitor professional practices in the country and to take legal action against unregistered 'engineers' who fraud the professional practice. But this should not be the main objective of the Board; to prosecute fraudulent registered and unregistered persons!

The BEM should be proactive, providing guidance in its Bulletin on professional practices and setting up a legal section within the BEM to study the various provisions within REA, and advising its registered members and even the public of the services provided by the BEM.

It is a shame to hear that the BEM has lost several cases for want of proper proceedings. BEM, being a statutory authority, should not depend on the services of the legal department within the Ministry of Works. It should have its own legal section to undertake studies on fraudulent cases by registered and unregistered persons.

Although there is a provision within REA to prosecute members of the public for the fraudulent use of the name of registered engineer and for setting up a practice, the provision in REA is not at all effective due to the lack of machinery within the Government's legal service to prosecute such fraudulent cases.

BEM should set up its own legal section to conduct a proper study of fraudulent cases before proceeding to prosecute. BEM has lost several cases against registered engineers as well due to errors or improper procedures in conducting the hearing of the cases. In one instance, the Court had awarded a very large compensation to a registered engineer who appealed against the penalty imposed by the BEM.

However, it is most heartening to read of the recent Federal Court's decision (August 2008) to uphold the appeal of the BEM to strike off a registered engineer for the breach of professional conduct, thereby, reversing the High Court's decision to reinstate the registered engineer on procedural ground. This is, indeed, a landmark case for all professional bodies to note. ■