The Washington Accord: Exclusion by Design?

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"All animals are equal, but some are more equal than others."
George Orwell in Animal Farm

I. Introduction

Globalization of the world economy implies that the world has become a single global market, requiring that there should be unhindered flow of products and technical expertise across national borders. This has meant that many multinational corporations operate in various countries side by side, and in competition with, local companies. Mergers and acquisitions are the hallmark of globalization. Thus, the revered British flagship automaker, Rolls Royce, became a part of the German BMW family, and both Jaguar and Aston Martin are part of the American Ford stable.

In the past, as long as British equipment manufacturers were satisfied with marketing all their brands to the limited market of the Commonwealth countries for a decent profit, it didn't seem to matter what other European consumers thought about the products. They doggedly stuck to the feet-pound-second (fps) units for decades even though the metric and SI units were in common use all over Europe. However, all that changed with the need to increase production volumes and to make inroads elsewhere. Also, in the mid-1970's, when the inability of a French or German consumer of British equipment to fit his 13mm nut on a British ½ in. bolt was enough reason to reject British equipment and buy elsewhere, it became clear to the British engineer that metrication was the way to go.

Another equally important reality of global interdependence is the need for the unfettered but regulated movement of professional expertise across national borders (Ramos[1], Van Damme[2], Jones[3]). To accomplish this, there is the need to equip engineering students with the knowledge of how the profession is practiced in other countries in preparation for their future participation in global practice. To this extent, British engineering education has now been fashioned in the past ten years in a way that makes it align better with those of countries in the European Union. A working knowledge of a European language is often required for some graduate engineering programs in the United Kingdom. In addition, students are taught courses in business management and international engineering practice. The University of Manchester, for example, offers courses leading to master's degrees in Civil Engineering and French, Civil Engineering and German, Civil Engineering and North American Studies, and Civil Engineering and Project Finance (www.umist.ac.uk[4]).

As an engineer seeks to relocate from one country to another, seeking to practice his profession, there must be some reasonable method of evaluating his educational preparation to protect the consumer in his new place of residence. However, the method must also guarantee that he is accorded the rightful benefits commensurate with his expertise. This need makes quality

assurance through an accreditation process a necessity. While this process must necessarily be rigorous, it must be fair across the board (Anderson[5], Buckeridge[6]). The Washington Accord is a good example of an international cooperation for ensuring quality assurance. In this paper, a number of key issues arising from the implementation of the Accord are examined, particularly concerning the conditions currently set up for admitting new signatories.

II. Mutual Need for International Accreditation

Although various national accreditation agencies operate within guidelines that are set in each country, it is no longer sufficient for an individual state or nation to pass laws concerning the qualifications and experience of a prospective engineer without consideration for what obtains elsewhere. The reality of these changing times is that more and more engineers need to practice their profession in countries in which they did not have their education or which operate different engineering education systems from their native countries. The challenge is how best to put in place an evaluation system that would assure an engineering community that the educational preparation and experience of a foreign-trained engineer is comparable to what obtains in that community, and yet not putting up barriers to deprive that community of the wealth of expertise that that engineer might be able to contribute to society.

Probably because of the sheer size of its economy compared with those of other nations, the engineering community in the United States has been particularly slower to adapting to global change than those in other countries. It is, for example, the only major country that has been resistant to changing from the fps units to the SI system. As long as the economy can be self-sustaining, the need for metrication may not be apparent. In time, however, it will be necessary to adapt to change.

Over the years, many engineers from other countries have found that the engineering community in the United States has been particularly reluctant to accepting engineers trained elsewhere to practice on equal footing in the country, irrespective of their wealth of professional experience. Much of this has been due to inadequate understanding by the various state licensure bodies of the various engineering education curricula in other countries and their requirements for professional licensure (Akinmusuru and Akinmusuru[7]). This reluctance in granting reciprocity of licensure or of accepting educational equivalencies is understandable seeing that reciprocity even between states is not automatic, especially in such a litigious society.

In recent years, the demands of globalization, with many U.S.-based engineering firms participating in design and construction activities overseas, have made it necessary for U.S.-trained engineers to work overseas in larger numbers than ever before. These demands have also annually drawn hundreds of overseas-trained engineers to arrive in the United States to contribute to the technological and economic growth of the country. The reality of this situation has been a catalyst for moving the Accreditation Board for Engineering and Technology (ABET) to engage in mutual recognition agreements with accreditation agencies of other countries through the Washington Accord. The original six signatories were the United States, Canada, the United Kingdom, Australia, New Zealand and Ireland. The two later additions are Hong Kong and South Africa.

III. Provisions of the Washington Accord

The Washington Accord covers only training requirements for the education of prospective engineers. In line with the established activities of the accreditation agencies, the Accord sets out to evaluate the curriculum and teaching process of undergraduate engineering students in the various countries. Its central theme is therefore the acceptance of the substantial equivalency of baccalaureate degrees in signatory countries for the purpose of satisfying the academic requirements for the practice of engineering at the professional level. Thus, if a program is accredited in a signatory country, other signatories would not need to scrutinize the undergraduate transcripts of the graduates of such institutions before allowing them to pursue a path ultimately leading to engineering licensure. The Accord effectively eliminates the need for each foreign-trained engineer to provide transcripts of his undergraduate education. Applicants for professional licensure would still need to establish their post-graduation experience in their places of residence in order to acquire full professional registration.

The main provisions of the Washington Accord (www.washingtonaccord.org[8]) are as follows:

1) The signatories agree that the criteria, policies and procedures used in accrediting engineering academic programs are comparable and that the accreditation decisions rendered by one signatory are acceptable to the others.
2) Each signatory will make reasonable effort to ensure that the bodies responsible for registering or licensing professional engineers to practice in its country accept the substantial equivalence of engineering academic programs accredited by the signatories to the agreement.
3) The Accord applies only to accreditations conducted by the signatories within their respective national or territorial boundaries.
4) The admission of new signatories will require the unanimous approval of all current signatories, preceded by a prescribed period of provisional status during which the accreditation criteria and procedures established by the applicant and the manner in which those procedures and criteria are implemented will be subject to comprehensive examination by existing signatories. Acceptance to provisional status requires approval of two-thirds of current signatories.

The Rules and Procedures of the Accord (www.washingtonaccord.org/wash_accord_rules.html[9]) provide details of how existing signatories would be subject to periodic reviews to ensure continuous compliance with the agreement. Thus, in 1994, in answer to questions raised by ABET about certain aspects the engineering curriculum in the traditional British system (which pervaded most Commonwealth engineering institutions, including Australia and New Zealand), the Engineering Council (U.K.) gave written explanations concerning such things as the three-year degree programs, what constituted course failure, how course credits of transfer students from other systems were evaluated, how the education and training requirements of the various nominating bodies within the council were synchronized, and the lengths of program accreditation (www.engc.org.uk[10]).

The two-stage process for admitting new signatories is also specified in the Rules and Procedures. The steps involved include the following:

1) Applicants for provisional status must be nominated by two of the existing signatories, and will be accepted only through a positive vote by at least two-thirds of the existing signatories.

2) Transfer of organizations holding provisional status to signatory status requires the unanimous approval of the existing signatories. Where such transfer is approved, recognition by the other signatories of the substantial equivalence of the engineering academic programs concerned shall normally become effective from the date on which the new signatory was originally admitted to provisional status.

IV. Relevant Issues Arising from the Accord

Because of the unique leadership role engineering education and practice in the United States play in global practice, in most countries, it is often considered to be in the best interest of each engineering organization to synchronize its accreditation activities and licensure procedures with those of the United States (Lau[11]). It is natural therefore for the other signatories of the Washington Accord to see their inclusion as a major achievement and program validation. This is evidenced by the following statement by the Engineering Council of South Africa (ECSA):

> "This (membership of the Accord) was a most significant development for South Africa as the decision of the Washington Accord countries confirmed that those engineering degree programs in South Africa that had been accredited by ECSA were recognized as meeting international standards. This was particularly significant when considering rumors that South African standards were seen to be dropping" (www.ecsa.co.za[12]).

It is clear that accreditation agencies in many other countries would want to join the Accord. The process of validating each program is necessarily long and tedious. A concern however is that the Accord does not become an exclusive club that excludes several deserving engineers not covered by the Accord. As the number of signatories of the Washington Accord grows, the following issues would need to be examined at some point or, if already considered, re-visited by the current signatories.

IV-1. Duration of the Signatory Approval Process

The obvious intention of the Accord is to ensure that the current signatories are reasonably satisfied with the quality of the undergraduate education provided and accredited by each signatory country. The process includes having representatives of current signatories observe the accreditation process of programs in applicant countries and receiving positive reports of such process. While the two-thirds votes required for provisional membership is reasonable, the need to have unanimous approval for full membership may appear somewhat draconian. Consider, for example, the admission of the ECSA from South Africa:

> "Signatory status to the Accord was extended to ECSA in 1993…. The status of ECSA was subject to ratification by the controlling bodies of the existing signatories. This was completed by the UK, Ireland, Australia and New Zealand within two years…. However the CCPE (Canada) only ratified ECSA's full membership in 2000" (www.ecsa.co.za[12]).

Thus, it took seven years for a small group of seven signatories to approve ECSA's full participation, even though one of the rules of the Accord states that recognition by the other signatories of the substantial equivalence of the engineering academic programs concerned shall normally become effective from the date on which the new signatory was originally admitted to

provisional status. (The dating of the admission of ECSA is officially 1999 obviously in order to conform with the rules.) What then can an applicant expect when the membership of the Washington Accord has grown to, say, thirty? As things stand right now, a holdout by a signatory can prevent the admission of a country to the Accord by its veto.

The current signatories to the Accord may want to re-visit this provision of the agreement. A suggestion that many might find acceptable may be to limit admission to full membership to a two-thirds approval. Another suggestion may be to insist on the six-year time limit provided for in the rules on how long a signatory can take to give final approval. The application should be deemed successful if all signatories who have voted have given approval even if one or more signatories have not yet responded at the end of the six-year period. A further suggestion may be that full membership of a prospective signatory may be considered effective from the biennial meeting at which the positive visitation reports are presented to, and accepted by, the current signatories.

IV-2. Retroactive Accreditation

For many engineers in signatory countries, this perhaps may be the most disturbing aspect of the Washington Accord. The following response is given on the Accord website to the question of how signatories recognize degrees earned prior to the signing of the Accord:

> "Generally, the signatories only accept accredited degrees earned from the date of acceptance of a signatory into the Accord. Therefore, the original six signatories (IEAust-Australia, CCPE-Canada, IEI-Ireland, IPENZ-New Zealand, EngC-United Kingdom, and ABET-United States) accept one another's degrees accredited in 1989 and onward. Degrees from HKIE-Hong Kong and ECSA-South Africa are generally accepted beginning in 1995 and 1999, respectively, the dates these accrediting bodies were accepted as signatories of the Accord. For degrees earned prior to the aforementioned dates, each signatory country assesses the degrees on an individual basis. They should be contacted individually for specific policies on this matter." (http://www.washingtonaccord.org/wash_accord_faq.html[13]).

The following statement by the ECSA gives an insight into the frustrations that may be faced in future by engineers in signatories countries as the Accord membership grows:

> "As has been reported before, ECSA interpreted the agreement that full admittance to the WA (Washington Accord) in 1999 would mean that all South African engineering degree programs, which have been accredited by ECSA will be recognized by the other co-signatories of the Accord. However, prior to the (Thornybush, South Africa) meetings, it had been reported to ECSA that some South African engineers were encountering difficulties having their South African academic qualifications accepted by certain signatories to the WA. At ECSA's request, an item regarding the interpretation of the WA in practice was put on the agenda of the WA meeting. From the discussion, it is apparent that the other signatories only accept the accredited degrees of another signatory from the date of acceptance of that signatory into the WA. In other words, the original 6 signatories (UK, USA, Canada, Ireland, Australia and New Zealand) accept automatically the accredited degrees of one another for degrees obtained after 1989. Those 6 only

accept accredited degrees from Hong Kong from 1995 and South Africa from 1999. For degrees obtained prior to these dates of acceptance above, each country assesses the application on an individual basis. It is apparent that there are some countries that will accept accredited degrees awarded prior to the above dates without much difficulty….. There are other countries, however, that apply the terms of the agreement strictly and will not accept the accredited degrees awarded prior to the above dates…... Although this came as a surprise to ECSA's delegation, it explained the problems some of our engineers are experiencing abroad ...." (www.ecsa.co.za[12]).

By the very nature of the aforementioned, the degrees of practically all that are involved in the membership negotiations would not be recognized by the other signatory countries, since they would be outside the Accord time frame!! The problems noted above being faced by South African engineers abroad is more commonplace than may be appreciated. In a 1996 paper, the writer (Akinmusuru and Akinmusuru[7]) explained how very obviously experienced engineers, including Americans trained overseas, could have difficulties going through the professional engineering licensure process in the United States.

Although the Accord anticipates free movement of engineers between signatory states, the reality is that most of the moving will be from every other country to the United States. It is reasonable to assume that the demographics of the engineers who could be contemplating relocating or extending their practice from one country to another would be mostly those with less than thirty years experience. The Accord effectively shuts the door in their face. The suggestion here is that the current signatories may wish to re-visit this provision. The signatories should be allowed to certify to the satisfaction of the other signatories the adequacy of the accredited programs that predate entry into the Accord, especially if there was no substantial change in the programs before and after the Accord evaluation process.

IV-3. Beneficiaries only within National Borders and Substantially Equivalent Programs

Since 1990, ABET has undertaken program review visitations to engineering programs in several countries with a view of determining whether or not these programs are substantially equivalent to those in the United States that Abet accredits. ABET has put out the following statement to clarify its mission and process:

"Evaluations of engineering education programs leading to degrees at all levels are conducted by the Accreditation Board for Engineering and Technology (ABET) upon request by institutions outside the United States. While these evaluations follow similar policies and procedures used for accreditation, no accreditation action is taken, nor is there any inference that a program is undergoing accreditation or will be accredited as a result of such review. The activity is an evaluation (program review) in which ABET, through selected representatives, acts on a consultancy basis, and leads to an assessment of "substantial equivalency" of the program under review with accredited programs in the United States. "Substantial equivalency" means comparable in program content and educational experience, but such programs may not be absolutely identical in format or method of delivery. It implies reasonable confidence that the program has prepared its graduates to begin professional practice at the entry level" (www.abet.org[14]).

The ABET disclaimer then continues, "*The following programs are not accredited by ABET, but are deemed substantially equivalent to programs in the United States*" as it lists the many programs it has evaluated. Notwithstanding the above disclaimer, graduates of those individual programs in Colombia, Germany, Kuwait, Mexico, the Netherlands, Saudi Arabia, Singapore, Turkey and the United Arab Emirate that are covered by this ABET stamp of approval of "substantial equivalency" would definitely enjoy a measure of preferential considerations bestowed on them by the various state licensing authorities in the United States when they apply to be considered for embarking on their licensure process. It is not clear whether this "substantial equivalency" designation so earned through ABET would not also carry on to the consideration of these engineers by other Accord places of residence outside the United States. With the above disclaimer, therefore, ABET is able to enforce the "Beneficiaries only within National Boundaries" clause. Would the signatories of the Washington Accord also "bestow" on graduates of engineering programs in countries in which existing signatories have visited and considered "substantially equivalent" to the programs in their programs? Thus, what would be the place of a program in Papua New Guinea about which the Institution of Engineers Australia (IEAust) has deemed "substantially equivalent"?

The above brings to mind the issue of engineers trained outside of the United Kingdom on programs identical to those in the United Kingdom (Akinmusuru and Akinmusuru[7]). Although the requirement of accreditation within national boundaries is *prima facie* reasonable, to the many thousands of engineers within the (British) Commonwealth whose educational preparations were closely linked to those in the United Kingdom, the effect of this provision can be profound, especially if and when the current signatories (hopefully) consider the justified case of those whose degrees predate entry into the Accord, as described above. The "substantially equivalent" classification would have fitted all those engineering programs in parts of Africa and Asia that were evaluated over the years by member institutions of the E.C. (U.K.)

A description of the current Standards and Route to Registration (SARTOR) of the Engineering Council (U.K.) is available on the council's website (www.engc.org.uk[10]) and also described by Page[15]. The details of the traditional British educational system have been provided elsewhere (Akinmusuru and Akinmusuru[7], Ashby[16], Eustace[17]). The system historically originated from the University of London and this was bequeathed to the rest of the Commonwealth, including Accord members Australia, New Zealand, Hong Kong and South Africa, and to some extent Ireland. Beginning from the high school matriculation examinations which were conducted by either the University of London or the University of Cambridge, the curricula in most Commonwealth universities outside the Indian subcontinent (India, Pakistan, Bangladesh and Sri Lanka) were set and vetted by external examiners from the University of London. The examination questions and answer papers were also vetted by these external examiners to ensure that degrees awarded by these universities were comparable to those in the United Kingdom. In addition, representatives of the engineering licensure bodies, which make up the Engineering Council (U.K.), periodically conducted accreditation visits to the engineering programs in these universities. For this reason, graduates of these universities qualified and were routinely admitted to become chartered engineers (C.Eng.) of these licensure bodies, even without ever visiting the United Kingdom.

For all intents and purposes, these degrees as well as their classifications were identical to those in the U.K. Many of the universities, such as Makerere in East Africa and Ibadan and Zaria in Nigeria were effectively overseas campuses of the London University. They were actually awarded B.S. degrees of the University of London. Until about twenty years ago, all these degree programs were intertwined in content and delivery with U.K. degrees. Thus, while the phenomenon of higher education institutions setting up branch campuses in foreign countries (Van Damme[2], Anderson[5]) may be new in the United States, it is an age-old practice by various universities (including London, Cambridge, Manchester and Durham) in the United Kingdom.

Because the generality of ABET accreditors cannot be expected to know the above facts, this writer expects the Washington Accord signatories from the United Kingdom, Australia and New Zealand to bring the facts of the above history to the other signatories. Otherwise, the composition of the Washington Accord may be seen in many developing countries as a case of exclusion by design! The case being made here is that those degrees that were awarded and vetted by the same bodies that constitute the Engineering Council (U.K.) be grandfathered and be accorded the same considerations that may be extended to similar degrees awarded from universities in the U.K., and for whom (hopefully) retroactive acceptance might be accorded in the future.

IV-4. Reciprocity of Licensure

This is the obvious next step to the Washington Accord. The Engineers Mobility Forum agreement (EMF[18]) provides a means for granting registered engineers in signatory countries reciprocity of their licensure. Each signatory country is required to open a register of registered professional engineers in that country. Engineers from signatory countries who are in the registers of their places of residence would then be granted reciprocal licensure in the other signatory countries.

As shown elsewhere (Akinmusuru and Akinmusuru[7]), it has sometimes become somewhat ludicrous that several very experienced engineers working in the United States but who were trained overseas, and whose responsibilities often include supervisory authority over several licensed engineers, are sometimes unable to obtain the P.E. license. The EMF might be an effective way of correcting this aberration. Principals of large consulting firms in the United States who have projects overseas are sometimes forced to undertake their work through local less experienced firms because of the local regulations concerning licensure. A register such as the Engineers Mobility Forum would be a reasonable avenue by which such experienced engineers could register as professional engineers in the foreign countries in which they have professional activities.

V. Conclusion

The establishment of the Washington Accord is a most welcome process of enhancing international cooperation and unfettered mobility of engineers across national borders. It was conceived well but may need a few modifications in order to ensure equity of opportunities to all. By all means, the standards of the training of engineers should be held as high as possible. However, in so doing, and as each country looks after its own interests, it should not be seen as a cartel from which others are kept out. The situation of engineering accreditation bodies in developing countries should be considered very closely.

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